

# **2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2018)**

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**Pages 1-606**



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# Content List of 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

## Technical Program for Monday October 1, 2018

### MoA1 Room 1.L2 WSMFD01 - Examining Sensing Modalities for Robust and Dexterous Object Manipulation, Part I (Workshop)

Chair: Hang, Kaiyu Yale University

09:00-11:00 MoA1.1

*Examining Sensing Modalities for Robust and Dexterous Object Manipulation\**.

Hang, Kaiyu Yale University

Ding, Hao ABB Corporate Research Center Germany

Li, Miao Wuhan University

Kragic, Danica KTH

Dollar, Aaron Yale University

### MoA2 Room 1.L3 WSMFD02 - Task-Informed Grasping for Rigid and Deformable Object Manipulation, Part I (Workshop)

Chair: Ghalamzan Esfahani, Amir Masoud University of Birmingham

09:00-11:00 MoA2.1

*Task-Informed Grasping for Rigid and Deformable Object Manipulation\**.

Ghalamzan Esfahani, Amir Masoud University of Birmingham

Alambeigi, Farshid Johns Hopkins University

Aghajani Pedram, Sahba University of California, Los Angeles

Detry, Renaud Jet Propulsion Laboratory

Santos, Veronica J. University of California, Los Angeles

Stolkin, Rustam University of Birmingham

### MoA3 Room 4.L3 WSMFD03 - the Utility of Body, Interaction, and Self Learning in Robotics, Part I (Workshop)

Chair: Lanillos, Pablo Technische Universität München

09:00-11:00 MoA3.1

*The Utility of Body, Interaction, and Self Learning in Robotics\**.

Lanillos, Pablo Technische Universität München

Hoffmann, Matej Faculty of Electrical Engineering, Czech Technical University in Prague

Tani, Jun Okinawa Institute of Science and Technology

Sandini, Giulio Italian Institute of Technology

Cheng, Gordon Technical University of Munich

### MoA4 Room 1.R3 WSMFD04 - Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy, Part I (Workshop)

Chair: Cognetti, Marco Centre National De La Recherche Scientifique (CNRS)

09:00-11:00 MoA4.1

*Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy\**.

Cognetti, Marco Centre National de la Recherche Scientifique (CNRS)

Ryu, Jee-Hwan Korea Univ. of Tech. and Education

Prattichizzo, Domenico University of Siena

Pachierotti, Claudio Centre national de la recherche scientifique (CNRS)

### MoA5 Room 2.L2 WSMFD05 - Controlling Soft Robots: Model-Based vs. Model-Free Approaches, Part I (Workshop)

Chair: Monje, Concepción A. University Carlos III of Madrid

09:00-11:00 MoA5.1

*Controlling Soft Robots: Model-Based vs. Model-Free Approaches\**.

Monje, Concepción A. University Carlos III of Madrid

Ott, Christian German Aerospace Center (DLR)

Hauser, Helmut University of Bristol

Laschi, Cecilia Scuola Superiore Sant'Anna

### MoA6 Auditorium WSMFD06 - towards Robots That Exhibit Manipulation Intelligence, Part I (Workshop)

Chair: Beetz, Michael University of Bremen

09:00-11:00 MoA6.1

*Towards Robots That Exhibit Manipulation Intelligence\**.

Beetz, Michael University of Bremen

Bartels, Georg Universität Bremen

Khatib, Oussama Stanford University

Albu-Schäffer, Alin DLR - German Aerospace Center

Toussaint, Marc University of Stuttgart

### MoA7 Room 1.L5 WSMFD07 - Planning, Perception and Navigation for Intelligent Vehicles (PPNIV'18), Part I (Workshop)

Chair: Martinet, Philippe INRIA

09:00-11:00 MoA7.1

*10th Planning, Perception and Navigation for Intelligent Vehicles (PPNIV'18)\**.

Martinet, Philippe INRIA

Laugier, Christian INRIA

Stiller, Christoph Karlsruhe Institute of Technology

Nunes, Urbano Instituto de Sistemas e Robotica

Sotelo Vázquez, Miguel University of Alcalá Ángel

### MoA8 Room 4.R1 WSMFD08 - Variable Impedance Robot Skills: Control & Learning, Part I (Workshop)

Chair: Abu-Dakka, Fares J. Istituto Italiano Di Tecnologia

09:00-11:00 MoA8.1

*Variable Impedance Robot Skills: Control & Learning\**.

Abu-Dakka, Fares J. Istituto Italiano di Tecnologia

Abderrahim, Mohamed Carlos III University

Lee, Dongheui Technical University of Munich

Ikeura, Ryojun Mie University

### MoA9 Room 2.R1

<b>WSMFD09 - Language and Robotics, Part I (Workshop)</b>	
Chair: Horii, Takato	The University of Electro-Communications
09:00-11:00	MoA9.1
<i>Language and Robotics*</i> .	
Horii, Takato	The University of Electro-Communications
Ugur, Emre	Bogazici University
Taniguchi, Tadahiro	Ritsumeikan University
Hinaut, Xavier	INRIA
Inamura, Tetsunari	National Institute of Informatics
Nagai, Takayuki	University of Electro-Communications
Spranger, Michael	Sony Computer Science Laboratories Inc.
Beetz, Michael	University of Bremen
<b>MoA10</b> Room 4.L4	
<b>WSMFD10 - Assistive Technologies for Precision Neurosurgery: Current Successes and Future Challenges, Part I (Workshop)</b>	
Chair: Rodriguez y Baena, Ferdinando	Imperial College, London, UK
09:00-11:00	MoA10.1
<i>Assistive Technologies for Precision Neurosurgery: Current Successes and Future Challenges*</i> .	
Rodriguez y Baena, Ferdinando	Imperial College, London, UK
De Momi, Elena	Politecnico di Milano
Secoli, Riccardo	Imperial College London
<b>MoA11</b> Room 4.R3	
<b>WSMFD11 - Hands in the Real World: Connecting End-Effector Design, Sensitivity, and Behavior, Part I (Workshop)</b>	
Chair: Stuart, Hannah	UC Berkeley
09:00-11:00	MoA11.1
<i>Hands in the Real World: Connecting End-Effector Design, Sensitivity, and Behavior*</i> .	
Stuart, Hannah	UC Berkeley
Catalano, Manuel Giuseppe	Istituto Italiano di Tecnologia
Negrello, Francesca	Istituto Italiano di Tecnologia
<b>MoA12</b> Room 4.R5	
<b>WSMFD12 - the Intelligence of Touch: Haptics, Tactile, Interaction. Building the Global Picture!, Part I (Workshop)</b>	
Chair: Castellini, Claudio	DLR - German Aerospace Center
09:00-11:00	MoA12.1
<i>The Intelligence of Touch: Haptics, Tactile, Interaction – Building the Global Picture!*</i> .	
Castellini, Claudio	DLR - German Aerospace Center
Beckerle, Philipp	Technische Universität Darmstadt
Asfour, Tamim	Karlsruhe Institute of Technology (KIT)
<b>MoA13</b> Room 2.L5 KUKA	
<b>WSMFD13 - Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning, Part I (Workshop)</b>	

Chair: Shafti, Ali	Imperial College London
09:00-11:00	MoA13.1
<i>Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning*</i> .	
Shafti, Ali	Imperial College London
Calandra, Roberto	Facebook
Deisenroth, Marc Peter	Imperial College London
Faisal, Aldo	Imperial College London

<b>MoA14</b> Room 1.R4	
<b>WSMFD14 - User-Centered Methods in Human-Robot Interaction, Part I (Workshop)</b>	
Chair: Salvietti, Gionata	University of Siena
09:00-11:00	MoA14.1
<i>User-Centered Methods in Human-Robot Interaction*</i> .	
Salvietti, Gionata	University of Siena
Beckerle, Philipp	Technische Universität Darmstadt
Bianchi, Matteo	University of Pisa

<b>MoA15</b> Room 2.R4	
<b>WSMFD15 - Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics, Part I (Workshop)</b>	
Chair: Babel, Marie	IRISA UMR CNRS 6074 - INRIA - INSA Rennes
09:00-11:00	MoA15.1
<i>Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics*</i> .	
Babel, Marie	IRISA UMR CNRS 6074 - INRIA - INSA Rennes
Morbidi, Fabio	Université de Picardie Jules Verne
Daney, David	Inria Bordeaux - Sud Ouest
Mohammed, Samer	University Paris Est Créteil, UPEC, France
Colas, Francis	Inria Nancy Grand Est
Amirat, Yacine	University of Paris Est Créteil (UPEC)

<b>MoA16</b> Room 1.R5	
<b>WSMFD16 - RoboAssist 2018: Wearable Robotics for Motion Assistance and Rehabilitation, Part I (Workshop)</b>	
Chair: Mohammed, Samer	University of Paris Est Créteil - (UPEC)
09:00-11:00	MoA16.1
<i>RoboAssist 2018 - Wearable Robotics for Motion Assistance and Rehabilitation*</i> .	
Mohammed, Samer	University of Paris Est Créteil - (UPEC)
Vitiello, Nicola	Scuola Superiore Sant Anna
Moreno, Juan C.	Cajal Institute, CSIC
Walsh, Conor James	Harvard University

<b>MoA17</b> Room 1.L1	
<b>WSMFD17 - Latest Advances in Big Activity Data Sources for Robotics and New Challenges, Part I (Workshop)</b>	
Chair: Bozcuoglu, Asil Kaan	University of Bremen
09:00-11:00	MoA17.1
<i>Latest Advances in Big Activity Data Sources for Robotics and</i>	

*New Challenges\**.

Bozcuoglu, Asil Kaan	University of Bremen
Asfour, Tamim	Karlsruhe Institute of Technology (KIT)
Ramirez-Amaro, Karinne	Institute for Cognitive Systems. Technische Universität München.
Cheng, Gordon	Technical University of Munich

**MoA18** Room 2.L3  
**WSMFD18 - Modelling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models, Part I (Workshop)**

Chair: Shahbazi Aghbelagh, Istituto Italiano Di Tecnologia (IIT)  
Mohammad

09:00-11:00 MoA18.1

*Modeling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models\*.*

Shahbazi Aghbelagh, Mohammad	Istituto Italiano di Tecnologia (IIT)
Geyer, Hartmut	Carnegie Mellon University
Kajita, Shuuji	National Inst. of AIST
Tsagarakis, Nikos	Istituto Italiano di Tecnologia

**MoA19** Room 4.R4  
**WSMAM19 - Humanoid Robot Falling: Fall Detection, Damage Prevention, and Recovery Actions, Part I (Workshop)**

Chair: Kanoulas, Dimitrios Istituto Italiano Di Tecnologia

09:00-11:00 MoA19.1

*Humanoid Robot Falling: Fall Detection, Damage Prevention, and Recovery Actions\*.*

Kanoulas, Dimitrios	Istituto Italiano Di Tecnologia
Lee, Jinoh	Fondazione Istituto Italiano Di Tecnologia (IIT)
Kheddar, Abderrahmane	CNRS-AIST JRL (Joint Robotics Laboratory), UMI3218/CRT
Kakiuchi, Yohei	The University of Tokyo

**MoA20** Room 2.R3  
**WSMAM20 - 1st Workshop on Proximity Perception in Robotics, Part I (Workshop)**

Chair: Escaida Navarro, Inria  
Stefan

09:00-11:00 MoA20.1

*1st Workshop on Proximity Perception in Robotics\*.*

Escaida Navarro, Stefan	Inria
Mühlbacher-Karrer, Stephan	JOANNEUM RESEARCH Forschungsgesellschaft mbH - ROBOTICS
Zangl, Hubert	Graz University of Technology
Hein, Björn	Karlsruhe Institute of Technology (KIT)
Alagi, Hosam	Karlsruhe Institut of technology

**MoA21** Room 4.R2  
**WSMFD22 - RoboTac: New Progress in Tactile Perception and Learning in Robotics, Part I (Workshop)**

Chair: Kaboli, Mohsen Technical University of Munich (TUM)

09:00-11:00 MoA21.1

*RoboTac: New Progress in Tactile Perception and Learning in*

*Robotics\*.*

Kaboli, Mohsen	Technical University of Munich (TUM)
Bohg, Jeannette	Stanford University
Li, Qiang	Bielefeld University
Veiga, Filipe Fernandes	Technische Universität Darmstadt
Su, Zhe	University of Southern California
Cheng, Gordon	Technical University of Munich

**MoA22** Room 2.R2  
**TUTMFD01 - a Hands-On Tutorial on XBotCore: A Real-Time Cross-Robot and Cross-Framework Software Architecture, Part I (Tutorial)**

Chair: Muratore, Luca Istituto Italiano Di Tecnologia

09:00-11:00 MoA22.1

*A Hands-On Tutorial on XBotCore – a Real-Time Cross-Robot and Cross-Framework Software Architecture\*.*

Muratore, Luca	Istituto Italiano di Tecnologia
Laurenzi, Arturo	Istituto Italiano di Tecnologia
Rigano, Giuseppe Francesco	Istituto Italiano di Tecnologia
Mingo Hoffman, Enrico	Fondazione Istituto Italiano di Tecnologia
Tsagarakis, Nikos	Istituto Italiano di Tecnologia

**MoA23** Room 4.L1  
**TUTMAM02 - from Least Squares Regression to High-Dimensional Motion Primitives, Part I (Tutorial)**

Chair: Stulp, Freek DLR - Deutsches Zentrum Für Luft Und Raumfahrt E.V

09:00-11:00 MoA23.1

*From Least Squares Regression to High-Dimensional Motion Primitives\*.*

Stulp, Freek	DLR - Deutsches Zentrum für Luft- und Raumfahrt e.V.
Calinon, Sylvain	Ildiap Research Institute
Neumann, Gerhard	University of Lincoln

**MoB1** Room 1.L2  
**WSMFD01 - Examining Sensing Modalities for Robust and Dexterous Object Manipulation, Part II (Workshop)**

Chair: Hang, Kaiyu Yale University

11:30-13:30 MoB1.1

*Examining Sensing Modalities for Robust and Dexterous Object Manipulation\*.*

Hang, Kaiyu	Yale University
Ding, Hao	ABB Corporate Research Center Germany
Li, Miao	Wuhan University
Kragic, Danica	KTH
Dollar, Aaron	Yale University

**MoB2** Room 1.L3  
**WSMFD02 - Task-Informed Grasping for Rigid and Deformable Object Manipulation, Part II (Workshop)**

Chair: Ghalamzan Esfahani, University of Birmingham  
Amir Masoud

11:30-13:30 MoB2.1

*Task-Informed Grasping for Rigid and Deformable Object Manipulation\*.*

Ghalamzan Esfahani, Amir	University of Birmingham
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Masoud	
Alambeigi, Farshid	Johns Hopkins University
Aghajani Pedram, Sahba	University of California, Los Angeles
Detry, Renaud	Jet Propulsion Laboratory
Santos, Veronica J.	University of California, Los Angeles
Stolkin, Rustam	University of Birmingham

Bartels, Georg	Universität Bremen
Khatib, Oussama	Stanford University
Albu-Schäffer, Alin	DLR - German Aerospace Center
Toussaint, Marc	University of Stuttgart

**MoB3** Room 4.L3  
**WSMFD03 - the Utility of Body, Interaction, and Self Learning in Robotics, Part II (Workshop)**

Chair: Lanillos, Pablo Technische Universität München

11:30-13:30 MoB3.1  
*The Utility of Body, Interaction, and Self Learning in Robotics\**.

Lanillos, Pablo	Technische Universität München
Hoffmann, Matej	Faculty of Electrical Engineering, Czech Technical University in Prague
Tani, Jun	Okinawa Institute of Science and Technology
Sandini, Giulio	Italian Institute of Technology
Cheng, Gordon	Technical University of Munich

**MoB4** Room 1.R3  
**WSMFD04 - Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy, Part II (Workshop)**

Chair: Cognetti, Marco Centre National De La Recherche Scientifique (CNRS)

11:30-13:30 MoB4.1  
*Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy\**.

Cognetti, Marco	Centre National de la Recherche Scientifique (CNRS)
Ryu, Jee-Hwan	Korea Univ. of Tech. and Education
Prattichizzo, Domenico	University of Siena
Pacchierotti, Claudio	Centre national de la recherche scientifique (CNRS)

**MoB5** Room 2.L2  
**WSMFD05 - Controlling Soft Robots: Model-Based vs. Model-Free Approaches, Part II (Workshop)**

Chair: Monje, Concepción A. University Carlos III of Madrid

11:30-13:30 MoB5.1  
*Controlling Soft Robots: Model-Based vs. Model-Free Approaches\**.

Monje, Concepción A.	University Carlos III of Madrid
Ott, Christian	German Aerospace Center (DLR)
Hauser, Helmut	University of Bristol
Laschi, Cecilia	Scuola Superiore Sant'Anna

**MoB6** Auditorium  
**WSMFD06 - towards Robots That Exhibit Manipulation Intelligence, Part II (Workshop)**

Chair: Beetz, Michael University of Bremen

11:30-13:30 MoB6.1  
*Towards Robots That Exhibit Manipulation Intelligence\**.

Beetz, Michael	University of Bremen
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**MoB7** Room 1.L5  
**WSMFD07 - Planning, Perception and Navigation for Intelligent Vehicles (PPNIV'18), Part II (Workshop)**

Chair: Martinet, Philippe INRIA

11:30-13:30 MoB7.1  
*10th Planning, Perception and Navigation for Intelligent Vehicles (PPNIV'18)\**.

Martinet, Philippe	INRIA
Laugier, Christian	INRIA
Stiller, Christoph	Karlsruhe Institute of Technology
Nunes, Urbano	Instituto de Sistemas e Robotica
Sotelo Vázquez, Miguel Ángel	University of Alcalá

**MoB8** Room 4.R1  
**WSMFD08 - Variable Impedance Robot Skills: Control & Learning, Part II (Workshop)**

Chair: Abu-Dakka, Fares J. Istituto Italiano Di Tecnologia

11:30-13:30 MoB8.1  
*Variable Impedance Robot Skills: Control & Learning\**.

Abu-Dakka, Fares J.	Istituto Italiano di Tecnologia
Abderrahim, Mohamed	Carlos III University
Lee, Dongheui	Technical University of Munich
Ikeura, Ryojun	Mie University

**MoB9** Room 2.R1  
**WSMFD09 - Language and Robotics, Part II (Workshop)**

Chair: Horii, Takato The University of Electro-Communications

11:30-13:30 MoB9.1  
*Language and Robotics\**.

Horii, Takato	The University of Electro-Communications
Ugur, Emre	Bogazici University
Taniguchi, Tadahiro	Ritsumeikan University
Hinaut, Xavier	INRIA
Inamura, Tetsunari	National Institute of Informatics
Nagai, Takayuki	University of Electro-Communications
Spranger, Michael	Sony Computer Science Laboratories Inc.
Beetz, Michael	University of Bremen

**MoB10** Room 4.L4  
**WSMFD10 - Assistive Technologies for Precision Neurosurgery: Current Successes and Future Challenges, Part II (Workshop)**

Chair: Rodriguez y Baena, Imperial College, London, UK  
 Ferdinando

11:30-13:30 MoB10.1  
*Assistive Technologies for Precision Neurosurgery: Current Successes and Future Challenges\**.

Rodriguez y Baena, Ferdinando	Imperial College, London, UK
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De Momi, Elena  
Secoli, Riccardo

Politecnico di Milano  
Imperial College London

**MoB11** Room 4.R3  
**WSMFD11 - Hands in the Real World: Connecting End-Effector Design, Sensitivity, and Behavior, Part II (Workshop)**

Chair: Stuart, Hannah UC Berkeley

11:30-13:30 MoB11.1

*Hands in the Real World: Connecting End-Effector Design, Sensitivity, and Behavior\**.

Stuart, Hannah UC Berkeley  
Catalano, Manuel Giuseppe Istituto Italiano di Tecnologia  
Negrello, Francesca Istituto Italiano di Tecnologia

**MoB12** Room 4.R5  
**WSMFD12 - the Intelligence of Touch: Haptics, Tactile, Interaction. Building the Global Picture!, Part II (Workshop)**

Chair: Castellini, Claudio DLR - German Aerospace Center

11:30-13:30 MoB12.1

*The Intelligence of Touch: Haptics, Tactile, Interaction – Building the Global Picture\**.

Castellini, Claudio DLR - German Aerospace Center  
Beckerle, Philipp Technische Universität Darmstadt  
Asfour, Tamim Karlsruhe Institute of Technology (KIT)

**MoB13** Room 2.L5 KUKA  
**WSMFD13 - Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning, Part II (Workshop)**

Chair: Shafti, Ali Imperial College London

11:30-13:30 MoB13.1

*Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning\**.

Shafti, Ali Imperial College London  
Calandra, Roberto Facebook  
Deisenroth, Marc Peter Imperial College London  
Faisal, Aldo Imperial College London

**MoB14** Room 1.R4  
**WSMFD14 - User-Centered Methods in Human-Robot Interaction, Part II (Workshop)**

Chair: Salvietti, Gionata University of Siena

11:30-13:30 MoB14.1

*User-Centered Methods in Human-Robot Interaction\**.

Salvietti, Gionata University of Siena  
Beckerle, Philipp Technische Universität Darmstadt  
Bianchi, Matteo University of Pisa

**MoB15** Room 2.R4  
**WSMFD15 - Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics, Part II (Workshop)**

Chair: Babel, Marie IRISA UMR CNRS 6074 - INRIA - INSA Rennes

11:30-13:30 MoB15.1

*Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics\**.

Babel, Marie IRISA UMR CNRS 6074 - INRIA - INSA Rennes

Morbidi, Fabio Université de Picardie Jules Verne

Daney, David Inria Bordeaux - Sud Ouest  
Mohammed, Samer University Paris Est Créteil, UPEC, France

Colas, Francis Inria Nancy Grand Est  
Amirat, Yacine University of Paris Est Créteil (UPEC)

**MoB16** Room 1.R5  
**WSMFD16 - RoboAssist 2018: Wearable Robotics for Motion Assistance and Rehabilitation, Part II (Workshop)**

Chair: Mohammed, Samer University of Paris Est Créteil - (UPEC)

11:30-13:30 MoB16.1

*RoboAssist 2018 - Wearable Robotics for Motion Assistance and Rehabilitation\**.

Mohammed, Samer University of Paris Est Créteil - (UPEC)

Vitiello, Nicola Scuola Superiore Sant Anna  
Moreno, Juan C. Cajal Institute, CSIC  
Walsh, Conor James Harvard University

**MoB17** Room 1.L1  
**WSMFD17 - Latest Advances in Big Activity Data Sources for Robotics and New Challenges, Part II (Workshop)**

Chair: Bozcuoglu, Asil Kaan University of Bremen

11:30-13:30 MoB17.1

*Latest Advances in Big Activity Data Sources for Robotics and New Challenges\**.

Bozcuoglu, Asil Kaan University of Bremen  
Asfour, Tamim Karlsruhe Institute of Technology (KIT)

Ramirez-Amaro, Karinne Institute for Cognitive Systems. Technische Universität München.

Cheng, Gordon Technical University of Munich

**MoB18** Room 2.L3  
**WSMFD18 - Modelling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models, Part II (Workshop)**

Chair: Shahbazi Aghbelagh, Mohammad Istituto Italiano Di Tecnologia (IIT)

11:30-13:30 MoB18.1

*Modeling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models\**.

Shahbazi Aghbelagh, Mohammad Istituto Italiano di Tecnologia (IIT)  
Geyer, Hartmut Carnegie Mellon University  
Kajita, Shuuji National Inst. of AIST  
Tsagarakis, Nikos Istituto Italiano di Tecnologia

**MoB19** Room 4.R4  
**WSMAM19 - Humanoid Robot Falling: Fall Detection, Damage Prevention, and Recovery Actions, Part II (Workshop)**

Chair: Kanoulas, Dimitrios Istituto Italiano Di Tecnologia

11:30-13:30	MoB19.1
<i>Humanoid Robot Falling: Fall Detection, Damage Prevention, and Recovery Actions*</i> .	
Kanoulas, Dimitrios	Istituto Italiano Di Tecnologia
Lee, Jinoh	Fondazione Istituto Italiano di Tecnologia (IIT)
Kheddar, Abderrahmane	CNRS-AIST JRL (Joint Robotics Laboratory), UMI3218/CRT
Kakiuchi, Yohei	The University of Tokyo

<b>MoB20</b>	Room 2.R3
<b>WSMAM20 - 1st Workshop on Proximity Perception in Robotics, Part II (Workshop)</b>	

Chair: Escaida Navarro, Inria  
Stefan

11:30-13:30	MoB20.1
<i>1st Workshop on Proximity Perception in Robotics*</i> .	
Escaida Navarro, Stefan	Inria
Mühlbacher-Karrer, Stephan	JOANNEUM RESEARCH Forschungsgesellschaft mbH - ROBOTICS
Zangl, Hubert	Graz University of Technology
Hein, Björn	Karlsruhe Institute of Technology (KIT)
Alagi, Hosam	Karlsruhe Institut of technology

<b>MoB21</b>	Room 4.R2
<b>WSMFD22 - RoboTac: New Progress in Tactile Perception and Learning in Robotics, Part II (Workshop)</b>	

Chair: Kaboli, Mohsen Technical University of Munich  
(TUM)

11:30-13:30	MoB21.1
<i>RoboTac: New Progress in Tactile Perception and Learning in Robotics*</i> .	
Kaboli, Mohsen	Technical University of Munich (TUM)
Bohg, Jeannette	Stanford University
Li, Qiang	Bielefeld University
Veiga, Filipe Fernandes	Technische Universität Darmstadt
Su, Zhe	University of Southern California
Cheng, Gordon	Technical University of Munich

<b>MoB22</b>	Room 2.R2
<b>TUTMFD01 - a Hands-On Tutorial on XBotCore: A Real-Time Cross-Robot and Cross-Framework Software Architecture, Part II (Tutorial)</b>	

Chair: Muratore, Luca Istituto Italiano Di Tecnologia

11:30-13:30	MoB22.1
<i>A Hands-On Tutorial on XBotCore – a Real-Time Cross-Robot and Cross-Framework Software Architecture*</i> .	
Muratore, Luca	Istituto Italiano di Tecnologia
Laurenzi, Arturo	Istituto Italiano di Tecnologia
Rigano, Giuseppe Francesco	Istituto Italiano di Tecnologia
Mingo Hoffman, Enrico	Fondazione Istituto Italiano di Tecnologia
Tsagarakis, Nikos	Istituto Italiano di Tecnologia

<b>MoB23</b>	Room 4.L1
<b>TUTMAM02 - from Least Squares Regression to High-Dimensional Motion Primitives, Part II (Tutorial)</b>	

Chair: Stulp, Freek DLR - Deutsches Zentrum Für  
Luft Und Raumfahrt E.V

11:30-13:30	MoB23.1
<i>From Least Squares Regression to High-Dimensional Motion Primitives*</i> .	
Stulp, Freek	DLR - Deutsches Zentrum für Luft- und Raumfahrt e.V.
Calinon, Sylvain	Idiap Research Institute
Neumann, Gerhard	University of Lincoln

<b>MoC1</b>	Room 1.L2
<b>WSMFD01 - Examining Sensing Modalities for Robust and Dexterous Object Manipulation, Part III (Workshop)</b>	

Chair: Hang, Kaiyu Yale University

14:30-16:30	MoC1.1
<i>Examining Sensing Modalities for Robust and Dexterous Object Manipulation*</i> .	
Hang, Kaiyu	Yale University
Ding, Hao	ABB Corporate Research Center Germany
Li, Miao	Wuhan University
Kragic, Danica	KTH
Dollar, Aaron	Yale University

<b>MoC2</b>	Room 1.L3
<b>WSMFD02 - Task-Informed Grasping for Rigid and Deformable Object Manipulation, Part III (Workshop)</b>	

Chair: Ghalamzan Esfahani, University of Birmingham  
Amir Masoud

14:30-16:30	MoC2.1
<i>Task-Informed Grasping for Rigid and Deformable Object Manipulation*</i> .	
Ghalamzan Esfahani, Amir Masoud	University of Birmingham
Alambeigi, Farshid	Johns Hopkins University
Aghajani Pedram, Sahba	University of California, Los Angeles
Detry, Renaud	Jet Propulsion Laboratory
Santos, Veronica J.	University of California, Los Angeles
Stolkin, Rustam	University of Birmingham

<b>MoC3</b>	Room 4.L3
<b>WSMFD03 - the Utility of Body, Interaction, and Self Learning in Robotics, Part III (Workshop)</b>	

Chair: Lanillos, Pablo Technische Universität München

14:30-16:30	MoC3.1
<i>The Utility of Body, Interaction, and Self Learning in Robotics*</i> .	
Lanillos, Pablo	Technische Universität München
Hoffmann, Matej	Faculty of Electrical Engineering, Czech Technical University in Prague
Tani, Jun	Okinawa Institute of Science and Technology
Sandini, Giulio	Italian Institute of Technology
Cheng, Gordon	Technical University of Munich

<b>MoC4</b>	Room 1.R3
<b>WSMFD04 - Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy, Part III (Workshop)</b>	



Chair: Cognetti, Marco Centre National De La  
Recherche Scientifique (CNRS)

14:30-16:30 MoC4.1

*Haptic-Enabled Shared Control of Robotic Systems: A  
Compromise between Teleoperation and Autonomy\**.

Cognetti, Marco Centre National de la Recherche  
Scientifique (CNRS)  
Ryu, Jee-Hwan Korea Univ. of Tech. and  
Education  
Prattichizzo, Domenico University of Siena  
Pacchierotti, Claudio Centre national de la recherche  
scientifique (CNRS)

**MoC5** Room 2.L2  
**WSMFD05 - Controlling Soft Robots: Model-Based vs. Model-  
Free Approaches, Part III (Workshop)**

Chair: Monje, Concepción A. University Carlos III of Madrid

14:30-16:30 MoC5.1

*Controlling Soft Robots: Model-Based vs. Model-Free  
Approaches\**.

Monje, Concepción A. University Carlos III of Madrid  
Ott, Christian German Aerospace Center  
(DLR)  
Hauser, Helmut University of Bristol  
Laschi, Cecilia Scuola Superiore Sant'Anna

**MoC6** Auditorium  
**WSMFD06 - towards Robots That Exhibit Manipulation  
Intelligence, Part III (Workshop)**

Chair: Beetz, Michael University of Bremen

14:30-16:30 MoC6.1

*Towards Robots That Exhibit Manipulation Intelligence\**.

Beetz, Michael University of Bremen  
Bartels, Georg Universität Bremen  
Khatib, Oussama Stanford University  
Albu-Schäffer, Alin DLR - German Aerospace  
Center  
Toussaint, Marc University of Stuttgart

**MoC7** Room 1.L5  
**WSMFD07 - Planning, Perception and Navigation for  
Intelligent Vehicles (PPNIV'18), Part III (Workshop)**

Chair: Martinet, Philippe INRIA

14:30-16:30 MoC7.1

*10th Planning, Perception and Navigation for Intelligent Vehicles  
(PPNIV'18)\**.

Martinet, Philippe INRIA  
Laugier, Christian INRIA  
Stiller, Christoph Karlsruhe Institute of Technology  
Nunes, Urbano Instituto de Sistemas e Robotica  
Sotelo Vázquez, Miguel University of Alcalá  
Ángel

**MoC8** Room 4.R1  
**WSMFD08 - Variable Impedance Robot Skills: Control &  
Learning, Part III (Workshop)**

Chair: Abu-Dakka, Fares J. Istituto Italiano Di Tecnologia

14:30-16:30 MoC8.1

*Variable Impedance Robot Skills: Control & Learning\**.

Abu-Dakka, Fares J. Istituto Italiano di Tecnologia

Abderrahim, Mohamed  
Lee, Dongheui  
Ikeura, Ryojun

Carlos III University  
Technical University of Munich  
Mie University

**MoC9** Room 2.R1  
**WSMFD09 - Language and Robotics, Part III (Workshop)**

Chair: Horii, Takato The University of Electro-  
Communications

14:30-16:30 MoC9.1

*Language and Robotics\**.

Horii, Takato The University of Electro-  
Communications  
Ugur, Emre Bogazici University  
Taniguchi, Tadaihiro Ritsumeikan University  
Hinaut, Xavier INRIA  
Inamura, Tetsunari National Institute of Informatics  
Nagai, Takayuki University of Electro-  
Communications  
Spranger, Michael Sony Computer Science  
Laboratories Inc.  
Beetz, Michael University of Bremen

**MoC10** Room 4.L4  
**WSMFD10 - Assistive Technologies for Precision  
Neurosurgery: Current Successes and Future Challenges,  
Part III (Workshop)**

Chair: Rodriguez y Baena, Imperial College, London, UK  
Ferdinando

14:30-16:30 MoC10.1

*Assistive Technologies for Precision Neurosurgery: Current  
Successes and Future Challenges\**.

Rodriguez y Baena, Imperial College, London, UK  
Ferdinando  
De Momi, Elena Politecnico di Milano  
Secoli, Riccardo Imperial College London

**MoC11** Room 4.R3  
**WSMFD11 - Hands in the Real World: Connecting End-  
Effector Design, Sensitivity, and Behavior, Part III (Workshop)**

Chair: Stuart, Hannah UC Berkeley

14:30-16:30 MoC11.1

*Hands in the Real World: Connecting End-Effector Design,  
Sensitivity, and Behavior\**.

Stuart, Hannah UC Berkeley  
Catalano, Manuel Giuseppe Istituto Italiano di Tecnologia  
Negrello, Francesca Istituto Italiano di Tecnologia

**MoC12** Room 4.R5  
**WSMFD12 - the Intelligence of Touch: Haptics, Tactile,  
Interaction. Building the Global Picture!, Part III (Workshop)**

Chair: Castellini, Claudio DLR - German Aerospace  
Center

14:30-16:30 MoC12.1

*The Intelligence of Touch: Haptics, Tactile, Interaction – Building  
the Global Picture\**.

Castellini, Claudio DLR - German Aerospace  
Center  
Beckerle, Philipp Technische Universität  
Darmstadt  
Asfour, Tamim Karlsruhe Institute of Technology  
(KIT)

<b>MoC13</b>	Room 2.L5 KUKA
<b>WSMFD13 - Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning, Part III (Workshop)</b>	
Chair: Shafti, Ali	Imperial College London
14:30-16:30	MoC13.1
<i>Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning*</i> .	
Shafti, Ali	Imperial College London
Calandra, Roberto	Facebook
Deisenroth, Marc Peter	Imperial College London
Faisal, Aldo	Imperial College London

<b>MoC14</b>	Room 1.R4
<b>WSMFD14 - User-Centered Methods in Human-Robot Interaction, Part III (Workshop)</b>	
Chair: Salvietti, Gionata	University of Siena
14:30-16:30	MoC14.1
<i>User-Centered Methods in Human-Robot Interaction*</i> .	
Salvietti, Gionata	University of Siena
Beckerle, Philipp	Technische Universität Darmstadt
Bianchi, Matteo	University of Pisa

<b>MoC15</b>	Room 2.R4
<b>WSMFD15 - Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics, Part III (Workshop)</b>	
Chair: Babel, Marie	IRISA UMR CNRS 6074 - INRIA - INSA Rennes
14:30-16:30	MoC15.1
<i>Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics*</i> .	
Babel, Marie	IRISA UMR CNRS 6074 - INRIA - INSA Rennes
Morbidi, Fabio	Université de Picardie Jules Verne
Daney, David	Inria Bordeaux - Sud Ouest
Mohammed, Samer	University Paris Est Créteil, UPEC, France
Colas, Francis	Inria Nancy Grand Est
Amirat, Yacine	University of Paris Est Créteil (UPEC)

<b>MoC16</b>	Room 1.R5
<b>WSMFD16 - RoboAssist 2018: Wearable Robotics for Motion Assistance and Rehabilitation, Part III (Workshop)</b>	
Chair: Mohammed, Samer	University of Paris Est Créteil - (UPEC)
14:30-16:30	MoC16.1
<i>RoboAssist 2018 - Wearable Robotics for Motion Assistance and Rehabilitation*</i> .	
Mohammed, Samer	University of Paris Est Créteil - (UPEC)
Vitiello, Nicola	Scuola Superiore Sant Anna
Moreno, Juan C.	Cajal Institute, CSIC
Walsh, Conor James	Harvard University

<b>MoC17</b>	Room 1.L1
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<b>WSMFD17 - Latest Advances in Big Activity Data Sources for Robotics and New Challenges, Part III (Workshop)</b>	
Chair: Bozcuoglu, Asil Kaan	University of Bremen
14:30-16:30	MoC17.1
<i>Latest Advances in Big Activity Data Sources for Robotics and New Challenges*</i> .	
Bozcuoglu, Asil Kaan	University of Bremen
Asfour, Tamim	Karlsruhe Institute of Technology (KIT)
Ramirez-Amaro, Karinne	Institute for Cognitive Systems, Technische Universität München.
Cheng, Gordon	Technical University of Munich

<b>MoC18</b>	Room 2.L3
<b>WSMFD18 - Modelling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models, Part III (Workshop)</b>	
Chair: Shahbazi Aghbelagh, Mohammad	Istituto Italiano Di Tecnologia (IIT)
14:30-16:30	MoC18.1
<i>Modeling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models*</i> .	
Shahbazi Aghbelagh, Mohammad	Istituto Italiano di Tecnologia (IIT)
Geyer, Hartmut	Carnegie Mellon University
Kajita, Shuuji	National Inst. of AIST
Tsagarakis, Nikos	Istituto Italiano di Tecnologia

<b>MoC19</b>	Room 4.R4
<b>TUTMPM04 - Securing Robotics with SROS2, Part I (Tutorial)</b>	
Chair: White, Ruffin	University of California San Diego
14:30-16:30	MoC19.1
<i>Securing Robotics with SROS2*</i> .	
White, Ruffin	University of California San Diego
Caiazza, Gianluca	Ca Foscari University of Venice
Cortesi, Agostino	Università Ca' Foscari Venezia
Christensen, Henrik Iskov	UC San Diego

<b>MoC20</b>	Room 2.R3
<b>WSMFD21 - from Freezing to Jostling Robots: Current Challenges and New Paradigms for Safe Robot Navigation in Dense Crowds, Part I (Workshop)</b>	
Chair: Pettre, Julien	Inria - Irisa
14:30-16:30	MoC20.1
<i>From Freezing to Jostling Robots: Current Challenges and New Paradigms for Safe Robot Navigation in Dense Crowds*</i> .	
Pettre, Julien	INRIA - IRISA
Hayet, Jean-Bernard	CIMAT
Babel, Marie	IRISA UMR CNRS 6074 - INRIA - INSA Rennes
Salaris, Paolo	INRIA -- Sophia Antipolis
Salvini, Pericle	EPFL, Ecole Polytechnique Federale de Lausanne

<b>MoC21</b>	Room 4.R2
<b>WSMFD22 - RoboTac: New Progress in Tactile Perception and Learning in Robotics, Part III (Workshop)</b>	
Chair: Kaboli, Mohsen	Technical University of Munich

	(TUM)
14:30-16:30	MoC21.1
<i>RoboTac: New Progress in Tactile Perception and Learning in Robotics*</i> .	
Kaboli, Mohsen	Technical University of Munich (TUM)
Bohg, Jeannette	Stanford University
Li, Qiang	Bielefeld University
Veiga, Filipe Fernandes	Technische Universität Darmstadt
Su, Zhe	University of Southern California
Cheng, Gordon	Technical University of Munich

**MoC22** Room 2.R2  
**TUTMFD01 - a Hands-On Tutorial on XBotCore: A Real-Time Cross-Robot and Cross-Framework Software Architecture, Part III (Tutorial)**

Chair: Muratore, Luca	Istituto Italiano Di Tecnologia
14:30-16:30	MoC22.1
<i>A Hands-On Tutorial on XBotCore – a Real-Time Cross-Robot and Cross-Framework Software Architecture*</i> .	
Muratore, Luca	Istituto Italiano di Tecnologia
Laurenzi, Arturo	Istituto Italiano di Tecnologia
Rigano, Giuseppe Francesco	Istituto Italiano di Tecnologia
Mingo Hoffman, Enrico	Fondazione Istituto Italiano di Tecnologia
Tsagarakis, Nikos	Istituto Italiano di Tecnologia

**MoC23** Room 4.L1  
**TUTMPM03 - Creating and Understanding 3D Annotated Scene Meshes, Part I (Tutorial)**

Chair: Zhang, Zhiyuan	Singapore University of Technology and Design
14:30-16:30	MoC23.1
<i>Creating and Understanding 3D Annotated Scene Meshes*</i> .	
Zhang, Zhiyuan	Singapore University of Technology and Design
Hua, Binh-Son	The University of Tokyo
Nguyen, Duc Thanh	Deakin University
Yu, Lap-Fai	University of Massachusetts Boston
Yeung, Sai-Kit	Singapore University of Technology and Design
Rus, Daniela	MIT

**MoD1** Room 1.L2  
**WSMFD01 - Examining Sensing Modalities for Robust and Dexterous Object Manipulation, Part IV (Workshop)**

Chair: Hang, Kaiyu	Yale University
17:00-19:00	MoD1.1
<i>Examining Sensing Modalities for Robust and Dexterous Object Manipulation*</i> .	
Hang, Kaiyu	Yale University
Ding, Hao	ABB Corporate Research Center Germany
Li, Miao	Wuhan University
Kragic, Danica	KTH
Dollar, Aaron	Yale University

**MoD2** Room 1.L3

**WSMFD02 - Task-Informed Grasping for Rigid and Deformable Object Manipulation, Part IV (Workshop)**

Chair: Ghalamzan Esfahani, Amir Masoud	University of Birmingham
17:00-19:00	MoD2.1
<i>Task-Informed Grasping for Rigid and Deformable Object Manipulation*</i> .	
Ghalamzan Esfahani, Amir Masoud	University of Birmingham
Alambeigi, Farshid	Johns Hopkins University
Aghajani Pedram, Sahba	University of California, Los Angeles
Detry, Renaud	Jet Propulsion Laboratory
Santos, Veronica J.	University of California, Los Angeles
Stolkin, Rustam	University of Birmingham

**MoD3** Room 4.L3  
**WSMFD03 - the Utility of Body, Interaction, and Self Learning in Robotics, Part IV (Workshop)**

Chair: Lanillos, Pablo	Technische Universität München
17:00-19:00	MoD3.1
<i>The Utility of Body, Interaction, and Self Learning in Robotics*</i> .	
Lanillos, Pablo	Technische Universität München
Hoffmann, Matej	Faculty of Electrical Engineering, Czech Technical University in Prague
Tani, Jun	Okinawa Institute of Science and Technology
Sandini, Giulio	Italian Institute of Technology
Cheng, Gordon	Technical University of Munich

**MoD4** Room 1.R3  
**WSMFD04 - Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy, Part IV (Workshop)**

Chair: Cognetti, Marco	Centre National De La Recherche Scientifique (CNRS)
17:00-19:00	MoD4.1
<i>Haptic-Enabled Shared Control of Robotic Systems: A Compromise between Teleoperation and Autonomy*</i> .	
Cognetti, Marco	Centre National de la Recherche Scientifique (CNRS)
Ryu, Jee-Hwan	Korea Univ. of Tech. and Education
Prattichizzo, Domenico	University of Siena
Pacchierotti, Claudio	Centre national de la recherche scientifique (CNRS)

**MoD5** Room 2.L2  
**WSMFD05 - Controlling Soft Robots: Model-Based vs. Model-Free Approaches, Part IV (Workshop)**

Chair: Monje, Concepción A.	University Carlos III of Madrid
17:00-19:00	MoD5.1
<i>Controlling Soft Robots: Model-Based vs. Model-Free Approaches*</i> .	
Monje, Concepción A.	University Carlos III of Madrid
Ott, Christian	German Aerospace Center (DLR)
Hauser, Helmut	University of Bristol
Laschi, Cecilia	Scuola Superiore Sant'Anna

<b>MoD6</b>	Auditorium
<b>WSMFD06 - towards Robots That Exhibit Manipulation Intelligence, Part IV (Workshop)</b>	
Chair: Beetz, Michael	University of Bremen
17:00-19:00	MoD6.1
<i>Towards Robots That Exhibit Manipulation Intelligence*</i> .	
Beetz, Michael	University of Bremen
Bartels, Georg	Universität Bremen
Khatib, Oussama	Stanford University
Albu-Schäffer, Alin	DLR - German Aerospace Center
Toussaint, Marc	University of Stuttgart
<b>MoD7</b>	Room 1.L5
<b>WSMFD07 - Planning, Perception and Navigation for Intelligent Vehicles (PPNIV'18), Part IV (Workshop)</b>	
Chair: Martinet, Philippe	INRIA
17:00-19:00	MoD7.1
<i>10th Planning, Perception and Navigation for Intelligent Vehicles (PPNIV'18)*</i> .	
Martinet, Philippe	INRIA
Laugier, Christian	INRIA
Stiller, Christoph	Karlsruhe Institute of Technology
Nunes, Urbano	Instituto de Sistemas e Robotica
Sotelo Vázquez, Miguel Ángel	University of Alcalá
<b>MoD8</b>	Room 4.R1
<b>WSMFD08 - Variable Impedance Robot Skills: Control &amp; Learning, Part IV (Workshop)</b>	
Chair: Abu-Dakka, Fares J.	Istituto Italiano Di Tecnologia
17:00-19:00	MoD8.1
<i>Variable Impedance Robot Skills: Control &amp; Learning*</i> .	
Abu-Dakka, Fares J.	Istituto Italiano di Tecnologia
Abderrahim, Mohamed	Carlos III University
Lee, Dongheui	Technical University of Munich
Ikeura, Ryojun	Mie University
<b>MoD9</b>	Room 2.R1
<b>WSMFD09 - Language and Robotics, Part IV (Workshop)</b>	
Chair: Horii, Takato	The University of Electro-Communications
17:00-19:00	MoD9.1
<i>Language and Robotics*</i> .	
Horii, Takato	The University of Electro-Communications
Ugur, Emre	Bogazici University
Taniguchi, Tadahiro	Ritsumeikan University
Hinaut, Xavier	INRIA
Inamura, Tetsunari	National Institute of Informatics
Nagai, Takayuki	University of Electro-Communications
Spranger, Michael	Sony Computer Science Laboratories Inc.
Beetz, Michael	University of Bremen
<b>MoD10</b>	Room 4.L4
<b>WSMFD10 - Assistive Technologies for Precision Neurosurgery: Current Successes and Future Challenges, Part IV (Workshop)</b>	

Chair: Rodriguez y Baena, Fernando	Imperial College, London, UK
17:00-19:00	MoD10.1
<i>Assistive Technologies for Precision Neurosurgery: Current Successes and Future Challenges*</i> .	
Rodriguez y Baena, Fernando	Imperial College, London, UK
De Momi, Elena	Politecnico di Milano
Secoli, Riccardo	Imperial College London
<b>MoD11</b>	Room 4.R3
<b>WSMFD11 - Hands in the Real World: Connecting End-Effector Design, Sensitivity, and Behavior, Part IV (Workshop)</b>	
Chair: Stuart, Hannah	UC Berkeley
17:00-19:00	MoD11.1
<i>Hands in the Real World: Connecting End-Effector Design, Sensitivity, and Behavior*</i> .	
Stuart, Hannah	UC Berkeley
Catalano, Manuel Giuseppe	Istituto Italiano di Tecnologia
Negrello, Francesca	Istituto Italiano di Tecnologia
<b>MoD12</b>	Room 4.R5
<b>WSMFD12 - the Intelligence of Touch: Haptics, Tactile, Interaction. Building the Global Picture!, Part IV (Workshop)</b>	
Chair: Castellini, Claudio	DLR - German Aerospace Center
17:00-19:00	MoD12.1
<i>The Intelligence of Touch: Haptics, Tactile, Interaction – Building the Global Picture!*</i> .	
Castellini, Claudio	DLR - German Aerospace Center
Beckerle, Philipp	Technische Universität Darmstadt
Asfour, Tamim	Karlsruhe Institute of Technology (KIT)
<b>MoD13</b>	Room 2.L5 KUKA
<b>WSMFD13 - Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning, Part IV (Workshop)</b>	
Chair: Shafti, Ali	Imperial College London
17:00-19:00	MoD13.1
<i>Closing the Loop on Human-Robot Symbiosis: Human/Robot In-The-Loop Machine Learning*</i> .	
Shafti, Ali	Imperial College London
Calandra, Roberto	Facebook
Deisenroth, Marc Peter	Imperial College London
Faisal, Aldo	Imperial College London
<b>MoD14</b>	Room 1.R4
<b>WSMFD14 - User-Centered Methods in Human-Robot Interaction, Part IV (Workshop)</b>	
Chair: Salvietti, Gionata	University of Siena
17:00-19:00	MoD14.1
<i>User-Centered Methods in Human-Robot Interaction*</i> .	
Salvietti, Gionata	University of Siena
Beckerle, Philipp	Technische Universität Darmstadt
Bianchi, Matteo	University of Pisa

**MoD15** Room 2.R4  
**WSMFD15 - Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics, Part IV (Workshop)**

Chair: Babel, Marie IRISA UMR CNRS 6074 - INRIA - INSA Rennes

17:00-19:00 MoD15.1

*Assistance and Service Robotics in a Human Environment: From Personal Mobility Aids to Rehabilitation-Oriented Robotics\**.

Babel, Marie IRISA UMR CNRS 6074 - INRIA - INSA Rennes

Morbidi, Fabio Université de Picardie Jules Verne

Daney, David Inria Bordeaux - Sud Ouest

Mohammed, Samer University Paris Est Créteil, UPEC, France

Colas, Francis Inria Nancy Grand Est

Amirat, Yacine University of Paris Est Créteil (UPEC)

**MoD16** Room 1.R5  
**WSMFD16 - RoboAssist 2018: Wearable Robotics for Motion Assistance and Rehabilitation, Part IV (Workshop)**

Chair: Mohammed, Samer University of Paris Est Créteil - (UPEC)

17:00-19:00 MoD16.1

*RoboAssist 2018 - Wearable Robotics for Motion Assistance and Rehabilitation\**.

Mohammed, Samer University of Paris Est Créteil - (UPEC)

Vitiello, Nicola Scuola Superiore Sant Anna

Moreno, Juan C. Cajal Institute, CSIC

Walsh, Conor James Harvard University

**MoD17** Room 1.L1  
**WSMFD17 - Latest Advances in Big Activity Data Sources for Robotics and New Challenges, Part IV (Workshop)**

Chair: Bozcuoglu, Asil Kaan University of Bremen

17:00-19:00 MoD17.1

*Latest Advances in Big Activity Data Sources for Robotics and New Challenges\**.

Bozcuoglu, Asil Kaan University of Bremen

Asfour, Tamim Karlsruhe Institute of Technology (KIT)

Ramirez-Amaro, Karinne Institute for Cognitive Systems. Technische Universität München.

Cheng, Gordon Technical University of Munich

**MoD18** Room 2.L3  
**WSMFD18 - Modelling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models, Part IV (Workshop)**

Chair: Shahbazi Aghbelagh, Mohammad Istituto Italiano Di Tecnologia (IIT)

17:00-19:00 MoD18.1

*Modeling and Control of Dynamic Legged Locomotion: Insights from Template (Simplified) Models\**.

Shahbazi Aghbelagh, Mohammad Istituto Italiano di Tecnologia (IIT)

Geyer, Hartmut Carnegie Mellon University

Kajita, Shuuji National Inst. of AIST

Tsagarakis, Nikos

Istituto Italiano di Tecnologia

**MoD19** Room 4.R4  
**TUTMPM04 - Securing Robotics with SROS2, Part II (Tutorial)**

Chair: White, Ruffin University of California San Diego

17:00-19:00 MoD19.1

*Securing Robotics with SROS2\**.

White, Ruffin University of California San Diego

Caiazza, Gianluca Ca Foscari University of Venice

Cortesi, Agostino Università Ca' Foscari Venezia

Christensen, Henrik Iskov UC San Diego

**MoD20** Room 2.R3  
**WSMFM21 - from Freezing to Jostling Robots: Current Challenges and New Paradigms for Safe Robot Navigation in Dense Crowds, Part II (Workshop)**

Chair: Pette, Julien Inria - Irisa

17:00-19:00 MoD20.1

*From Freezing to Jostling Robots: Current Challenges and New Paradigms for Safe Robot Navigation in Dense Crowds\**.

Pette, Julien INRIA - IRISA

Hayet, Jean-Bernard CIMAT

Babel, Marie IRISA UMR CNRS 6074 - INRIA - INSA Rennes

Salaris, Paolo INRIA -- Sophia Antipolis

Salvini, Pericle EPFL, Ecole Polytechnique Federale de Lausanne

**MoD21** Room 4.R2  
**WSMFD22 - RoboTac: New Progress in Tactile Perception and Learning in Robotics, Part IV (Workshop)**

Chair: Kaboli, Mohsen Technical University of Munich (TUM)

17:00-19:00 MoD21.1

*RoboTac: New Progress in Tactile Perception and Learning in Robotics\**.

Kaboli, Mohsen Technical University of Munich (TUM)

Bohg, Jeannette Stanford University

Li, Qiang Bielefeld University

Veiga, Filipe Fernandes Technische Universität Darmstadt

Su, Zhe University of Southern California

Cheng, Gordon Technical University of Munich

**MoD22** Room 2.R2  
**TUTMFD01 - a Hands-On Tutorial on XBotCore: A Real-Time Cross-Robot and Cross-Framework Software Architecture, Part IV (Tutorial)**

Chair: Muratore, Luca Istituto Italiano Di Tecnologia

17:00-19:00 MoD22.1

*A Hands-On Tutorial on XBotCore – a Real-Time Cross-Robot and Cross-Framework Software Architecture\**.

Muratore, Luca Istituto Italiano di Tecnologia

Laurenzi, Arturo Istituto Italiano di Tecnologia

Rigano, Giuseppe Francesco Istituto Italiano di Tecnologia

Mingo Hoffman, Enrico Fondazione Istituto Italiano di Tecnologia

Tsagarakis, Nikos Istituto Italiano di Tecnologia

**MoD23** Room 4.L1

**TUTMPM03 - Creating and Understanding 3D Annotated  
Scene Meshes, Part II (Tutorial)**

Chair: Zhang, Zhiyuan Singapore University of  
Technology and Design

17:00-19:00 MoD23.1

*Creating and Understanding 3D Annotated Scene Meshes\**.

Zhang, Zhiyuan Singapore University of  
Technology and Design

Hua, Binh-Son The University of Tokyo

Nguyen, Duc Thanh Deakin University

Yu, Lap-Fai University of Massachusetts  
Boston

Yeung, Sai-Kit Singapore University of  
Technology and Design

Rus, Daniela MIT

## Technical Program for Tuesday October 2, 2018

TuATS1		Room 1.L5
<b>Deep Learning I (Regular session)</b>		
Co-Chair: Pucci, Daniele		Italian Institute of Technology
09:00-09:03		TuATS1.1
<i>Paired Recurrent Autoencoders for Bidirectional Translation between Robot Actions and Linguistic Descriptions, N/A.</i>		
Yamada, Tatsuro	Waseda University	
Matsunaga, Hiroyuki	Waseda University	
Ogata, Tetsuya	Waseda University	
09:03-09:06		TuATS1.2
<i>Learning Context Flexible Attention Model for Long-Term Visual Place Recognition, N/A.</i>		
Chen, Zetao	ETH Zurich	
Liu, Lingqiao	University of Adelaide	
Sa, Inkyu	ETH Zurich	
Ge, Zongyuan	Monash University	
Chli, Margarita	ETH Zurich	
09:06-09:09		TuATS1.3
<i>Recurrent-OctoMap: Learning State-Based Map Refinement for Long-Term Semantic Mapping with 3D-Lidar Data, N/A.</i>		
Sun, Li	University of Birmingham	
Yan, Zhi	University of Technology of Belfort-Montbéliard (UTBM)	
Zaganidis, Anestis	University of Lincoln	
Zhao, Cheng	University of Birmingham	
Duckett, Tom	University of Lincoln	
09:09-09:12		TuATS1.4
<i>Distributed Perception by Collaborative Robots, N/A.</i>		
Hadidi, Ramyad	Georgia Institute of Technology	
Cao, Jiashen	Georgia Institute of Technology	
Woodward, Matthew	Georgia Institute of Technology	
Ryoo, Michael S.	Indiana University Bloomington	
Kim, Hyesoon	Georgia Institute of Technology	
09:12-09:15		TuATS1.5
<i>Deep Person Detection in 2D Range Data, N/A.</i>		
Beyer, Lucas	RWTH Aachen	
Hermans, Alexander	RWTH Aachen University	
Linder, Timm	University of Freiburg	
Arras, Kai Oliver	Bosch Research	
Leibe, Bastian	RWTH Aachen University	
09:15-09:18		TuATS1.6
<i>Real-Time Convolutional Networks for Depth-Based Human Pose Estimation, pp. 41-47.</i>		
Martinez-Gonzalez, Angel	EPFL, IDIAP	
Villamizar, Michael	CSIC-UPC	
Canevet, Olivier	Idiap Research Institute	
Odoñez, Jean-Marc	IDIAP	
09:18-09:21		TuATS1.7
<i>Detection-Tracking for Efficient Person Analysis: The DetTA Pipeline, pp. 48-53.</i>		
Breuers, Stefan	RWTH Aachen University	
Beyer, Lucas	RWTH Aachen	
Rafi, Umer	RWTH Aachen University	
Leibe, Bastian	RWTH Aachen University	
09:21-09:24		TuATS1.8
<i>3D Human Pose Estimation on a Configurable Bed from a Pressure Image, pp. 54-61.</i>		

Clever, Henry M.	Georgia Tech
Kapusta, Ariel	Georgia Institute of Technology
Park, Daehyung	Georgia Institute of Technology
Erickson, Zackory	Georgia Institute of Technology
Chitalia, Yash	Georgia Institute of Technology
Kemp, Charlie	Georgia Institute of Technology

TuATS2		Room 2.L5 KUKA
<b>Visual Tracking I (Regular session)</b>		
Chair: Tombari, Federico		Technische Universität München
Co-Chair: Merino, Luis		Universidad Pablo De Olavide
09:00-09:03		TuATS2.1
<i>Estimating Metric Poses of Dynamic Objects Using Monocular Visual-Inertial Fusion, pp. 62-68.</i>		
Qiu, Kejie	The Hong Kong University of Science and Technology	
Qin, Tong	Hong Kong University of Science and Technology	
Xie, Hongwen	Tencent	
Shen, Shaojie	Hong Kong University of Science and Technology	
09:03-09:06		TuATS2.2
<i>Geometric-Based Line Segment Tracking for HDR Stereo Sequences, pp. 69-74.</i>		
Gomez-Ojeda, Ruben	University of Málaga	
González-Jiménez, Javier	University of Málaga	
09:06-09:09		TuATS2.3
<i>Adversarial Transfer Networks for Visual Tracking, pp. 75-81.</i>		
Liu, Lijie	Tsinghua University	
Lu, Jiwen	Tsinghua University	
Zhou, Jie	Tsinghua University	
09:09-09:12		TuATS2.4
<i>Predicting Out-Of-View Feature Points for Model-Based Camera Pose Estimation, pp. 82-88.</i>		
Moolan-Feroze, Oliver	University of Bristol	
Calway, Andrew	University of Bristol	
09:12-09:15		TuATS2.5
<i>A Modular Framework for Model-Based Visual Tracking Using Edge, Texture and Depth Features, pp. 89-96.</i>		
Trinh, Souriya	Inria	
Spindler, Fabien	INRIA	
Marchand, Eric	Université De Rennes 1, IRISA, INRIA Rennes	
Chaumette, Francois	Inria Rennes-Bretagne Atlantique	
09:15-09:18		TuATS2.6
<i>FSG: A Statistical Approach to Line Detection Via Fast Segments Grouping, pp. 97-102.</i>		
Suárez Canosa, Iago	Universidad Politécnica De Madrid	
Munoz, Enrique	The Grafter	
Buenaposada, Jose M.	Universidad Rey Juan Carlos	
Baumela, Luis	Universidad Politecnica De Madrid	
09:18-09:21		TuATS2.7
<i>Optimized Contrast Enhancements to Improve Robustness of Visual Tracking in a SLAM Relocalisation Context, pp. 103-108.</i>		
Wang, Xi	INRIA Rennes, IRISA	
Christie, Marc	Université De Rennes 1	
Marchand, Eric	Université De Rennes 1, IRISA, INRIA Rennes	

09:21-09:24	TuATS2.8
<i>Key-Frame Selection for Multi-Robot Simultaneous Localization and Tracking in Robot Soccer Field</i> , pp. 109-116.	
Fu, Wei-Kang	Department of Computer Science and Information Engineering, Nati
Lin, Kun-Li	National Taiwan University
Shih, Chi-Sheng	National Taiwan University

<b>TuATS3</b>	Room 1.L2
<b>Localization and Mapping I (Regular session)</b>	

Chair: Amigoni, Francesco	Politecnico Di Milano
Co-Chair: Choi, Hyun-Taek	Korea Institute of Oceans Science and Technology

09:00-09:03	TuATS3.1
<i>Weighted Total Least Squares Based On-Line Calibration Method for RSS Based Localization</i> , pp. 117-122.	
Kim, Jung-Hee	Korea Institute of Science and Technology
Kim, Doik	KIST

09:03-09:06	TuATS3.2
<i>LIPS: LiDAR-Inertial 3D Plane SLAM</i> , pp. 123-130.	
Geneva, Patrick	University of Delaware
Eckenhoff, Kevin	University of Delaware
Yang, Yulin	University of Delaware
Huang, Guoquan	University of Delaware

09:06-09:09	TuATS3.3
<i>Scan Similarity-Based Pose Graph Construction Method for Graph SLAM</i> , pp. 131-136.	
Yoo, Wonsok	Seoul National University
Kim, Hanjun	Automation and Systems Research Institute (ASRI), Department Of
Hong, Hyunki	Seoul National University
Lee, Beom-Hee	Seoul National University

09:09-09:12	TuATS3.4
<i>Egocentric Spatial Memory</i> , pp. 137-144.	
Zhang, Mengmi	National University of Singapore
Ma, Keng Teck	A*ai, Scai, A*star
Lim, Joo Hwee	I2R A*STAR
Yen, Shih-Cheng	National University of Singapore
Zhao, Qi	University of Minnesota
Feng, Jiashi	National University of Singapore

09:12-09:15	TuATS3.5
<i>Predicting Objective Function Change in Pose-Graph Optimization</i> , pp. 145-152.	
Bai, Fang	University of Technology, Sydney
Vidal-Calleja, Teresa A.	University of Technology Sydney
Huang, Shoudong	University of Technology, Sydney
Xiong, Rong	Zhejiang University

09:15-09:18	TuATS3.6
<i>Efficient Long-Term Mapping in Dynamic Environments</i> , pp. 153-160.	
Lazaro, Maria Teresa	Sapienza University of Rome
Capobianco, Roberto	Sapienza University of Rome
Grisetti, Giorgio	Sapienza University of Rome

09:18-09:21	TuATS3.7
<i>Localization of Classified Objects in SLAM Using Nonparametric Statistics and Clustering</i> , pp. 161-168.	

Iqbal, Asif	University of Texas at Dallas
Gans, Nicholas (Nick)	University Texas at Dallas

09:21-09:24	TuATS3.8
<i>A Distributed Vision-Based Consensus Model for Aerial-Robotic Teams</i> , pp. 169-176.	
Poiesi, Fabio	Fondazione Bruno Kessler
Cavallaro, Andrea	Queen Mary University of London

<b>TuATS4</b>	Room 2.L2
<b>Humanoid Robots I (Regular session)</b>	

Chair: Takanishi, Atsuo	Waseda University
Co-Chair: Werner, Alexander	University of Waterloo

09:00-09:03	TuATS4.1
<i>Fast Kinodynamic Bipedal Locomotion Planning with Moving Obstacles</i> , pp. 177-184.	
Ahn, Junhyeok	University of Texas at Austin
Campbell IV, Orion	University of Texas at Austin
Kim, Donghyun	University of Texas at Austin
Sentis, Luis	The University of Texas at Austin

09:03-09:06	TuATS4.2
<i>Artificial Invariant Subspace for Humanoid Robot Balancing in Locomotion</i> , pp. 185-192.	
Deng, Xiang	ETH Zurich
Lee, Daniel	Cornell Tech

09:06-09:09	TuATS4.3
<i>Passivity Analysis and Control of Humanoid Robots on Movable Ground</i> , N/A.	
Henze, Bernd	German Aerospace Center (DLR)
Balachandran, Ribin	DLR
Roa, Maximo A.	DLR - German Aerospace Center
Ott, Christian	German Aerospace Center (DLR)
Albu-Schäffer, Alin	DLR - German Aerospace Center

09:09-09:12	TuATS4.4
<i>Extended 3D Walking and Skating Motion Generation for Multiple Non-Coplanar Contacts with Anisotropic Friction: Application to Walking and Skateboarding and Roller Skating</i> , N/A.	
Takasugi, Noriaki	The University of Tokyo
Kojima, Kunio	The University of Tokyo
Sugai, Fumihito	The University of Tokyo
Nozawa, Shunichi	The University of Tokyo
Kakiuchi, Yohei	The University of Tokyo
Okada, Kei	The University of Tokyo
Inaba, Masayuki	The University of Tokyo

09:12-09:15	TuATS4.5
<i>Nonlinear State Estimation for Humanoid Robot Walking</i> , N/A	
Piperakis, Stylianos	Foundation for Research and Technology – Hellas (FORTH)
Koskinopoulou, Maria	Foundation for Research and Technology – Hellas (FORTH)
Trahanias, Panos	Foundation for Research and Technology – Hellas (FORTH)

09:15-09:18	TuATS4.6
<i>Convex Properties of Center-Of-Mass Trajectories for Locomotion Based on Divergent Component of Motion</i> , N/A.	
Mesesan, George	German Aerospace Center (DLR)



Englsberger, Johannes	DLR (German Aerospace Center)
Ott, Christian	German Aerospace Center (DLR)
Albu-Schäffer, Alin	DLR - German Aerospace Center

09:18-09:21 TuATS4.7

*Dynamic Bilateral Teleoperation of the Cart-Pole: A Study towards the Synchronization of Human Operator and Legged Robot*, N/A.

Ramos, Joao	Massachusetts Institute of Technology
Kim, Sangbae	Massachusetts Institute of Technology

09:21-09:24 TuATS4.8

*Self-Synchronization and Self-Stabilization of Walking Gaits Modeled by the 3D LIP Model*, N/A.

Luo, Qiuyue	Centrale Nantes
De Leon Gomez, Victor	Laboratoire Des Sciences Du Numérique De Nantes (LS2N)
Kalouguine, Anne	Softbank Robotics
Chevallereau, Christine	CNRS
Aoustin, Yannick	CNRS

**TuATS5** Room 2.R3

**Medical Robots I** (Regular session)

Chair: Wurdemann, Helge Arne	University College London
Co-Chair: Garcia-Aracil, Nicolas	Universidad Miguel Hernandez De Elche

09:00-09:03 TuATS5.1

*Classification of EEG Signals for a Hypnotrack BCI System*, pp. 240-245.

Alimardani, Maryam	Tilburg University
Keshmiri, Soheil	Advanced Telecommunications Research Institute International (AT)
Sumioka, Hidenobu	ATR
Hiraki, Kazuo	University of Tokyo

09:03-09:06 TuATS5.2

*Independent Control of Multiple Degrees of Freedom Local Magnetic Actuators with Magnetic Cross-Coupling Compensation*, N/A.

Scaglioni, Bruno	University of Leeds
Fornarelli, Nicola	Università Di Pisa
Garbin, Nicolo	Vanderbilt University
Menciassi, Arianna	Scuola Superiore Sant'Anna - SSSA
Valdastri, Pietro	University of Leeds

09:06-09:09 TuATS5.3

*Towards the Development of a Steerable and MRI-Compatible Cardiac Catheter for Atrial Fibrillation Treatment*, N/A.

Sheng, Jun	Georgia Institute of Technology
Wang, Xuefeng	Georgia Institute of Technology
Dickfeld, Timm-Michael	University of Maryland Medical Center
Desai, Jaydev P.	Georgia Institute of Technology

09:09-09:12 TuATS5.4

*State Estimation Using the CoG Candidates for Sit-To-Stand Support System User*, N/A.

Takeda, Mizuki	Tohoku University
Hirata, Yasuhisa	Tohoku University
Katayama, Takahiro	RT.WORKS

Mizuta, Yasuhide	RT.WORKS
Koujina, Atsushi	RT.WORKS

09:12-09:15 TuATS5.5

*Real-Time Control of Whole-Body Robot Motion and Trajectory Generation for Physiotherapeutic Juggling in VR*, pp. 270-277.

Mohammadi, Pouya	Braunschweig University of Technology
Malekzadeh, Milad S.	Technical University of Braunschweig, IRP
Kodl, Jindrich	Hertie Institute for Clinical Brain Research / Centre for Integr
Mukovskiy, Albert	Hertie Institute for Clinical Brain Research, CIN, University Of
Wigand, Dennis	Bielefeld University
Giese, Martin	Hertie Institute for Clinical Brain Research / Center for Integr
Steil, Jochen J.	Technische Universität Braunschweig

09:15-09:18 TuATS5.6

*A Novel Fabrication of PDMS Chip Using Atmospheric Pressure Plasma Jet: Hydrophobicity Modification and Feasibility Test*, pp. 278-283.

Yu, Yashen	National Chiao Tung University
Kuo, Robert	National Chiao Tung University
Wu, Mu-Chien	National Chiao Tung University
Wu, Jong-Shinn	National Chiao Tung University
Tsai, Chia-Hung Dylan	National Chiao Tung University

09:18-09:21 TuATS5.7

*Deep Neural Object Analysis by Interactive Auditory Exploration with a Humanoid Robot*, pp. 284-289.

Eppe, Manfred	University of Hamburg
Kerzel, Matthias	Uni Hamburg
Strahl, Erik	Universität Hamburg
Wermter, Stefan	University of Hamburg

09:21-09:24 TuATS5.8

*Cloud Services for Robotic Nurses? Assessing Legal and Ethical Issues in the Use of Cloud Services for Healthcare Robots*, pp. 290-296.

Fosch-Villaronga, Eduard	Microsoft Cloud Computing Research Center & Queen Mary Universit
Felzmann, Heike	NUI Galway, Galway, Ireland
Ramos-Montero, Maria	Ortelio Ltd., Coventry, United Kingdom
Mahler, Tobias	University of Oslo, Norway

**TuATS6** Room 1.L3

**Social Robots** (Regular session)

Chair: Salichs, Miguel A.	University Carlos III of Madrid
Co-Chair: Hanheide, Marc	University of Lincoln

09:00-09:03 TuATS6.1

*Towards Norm Realization in Institutions Mediating Human-Robot Societies*, pp. 297-304.

Wasik, Alicja	EPFL
Lima, Pedro U.	Instituto Superior Técnico - Institute for Systems and Robotics
Saffiotti, Alessandro	Orebro University
Martinoli, Alcherio	EPFL
Pecora, Federico	Örebro University
Tomic, Stevan	Orebro University

09:03-09:06 TuATS6.2

Pinillos, Roberto	CARTIF
Pulido Fentanes, Jaime	University of Lincoln
Hanheide, Marc	University of Lincoln
09:06-09:09	TuATS6.3
<i>"Oh! I Am so Sorry!": Understanding User Physiological Variation While Spoiling a Game Task</i> , pp. 313-319.	
Agrigoroaie, Roxana	ENSTA-ParisTech
Cruz-Maya, Arturo	ENSTA-ParisTech
Tapus, Adriana	ENSTA-ParisTech
09:09-09:12	TuATS6.4
<i>An Extended Bayesian User Model (BUM) for Capturing Cultural Attributes with a Social Robot (I)</i> , pp. 320-325.	
Luis, Santos	University of Coimbra
Martins, Gonalo S.	University of Coimbra
Dias, Jorge	University of Coimbra
09:12-09:15	TuATS6.5
<i>Culturally Aware Planning and Execution of Robot Actions (I)</i> , pp. 326-332.	
Khaliq, Ali Abdul	Örebro University
Köckemann, Uwe	Orebro Universitet
Pecora, Federico	Örebro University
Saffiotti, Alessandro	Orebro University
Bruno, Barbara	University of Genova
Recchiuto, Carmine Tommaso	University of Genova
Sgorbissa, Antonio	University of Genova
Bui, Ha-Duong	Japan Advanced Institute of Science and Technology
Chong, Nak Young	Japan Advanced Inst. of Sci. and Tech
09:15-09:18	TuATS6.6
<i>Trait-Based Culture and Its Organization: Developing a Culture Enabler for Artificial Agents (I)</i> , pp. 333-338.	
Borgo, Stefano	National Research Council
Blanzieri, Enrico	University of Trento
09:18-09:21	TuATS6.7
<i>CultureNet: A Deep Learning Approach for Engagement Intensity Estimation from Face Images of Children with Autism (I)</i> , pp. 339-346.	
Rudovic, Ognjen	MIT Media Lab
Utsumi, Yuria	MIT
Lee, Jaeryoung	Chubu University
Hernandez, Javier	Massachusetts Institute of Technology
Castello Ferrer, Eduardo	MIT
Schuller, Björn	Technische Universität München
Picard, Rosalind W.	MIT Media Lab
09:21-09:24	TuATS6.8
<i>Object Assembly Guidance in Child-Robot Interaction Using RGB-D Based 3D Tracking</i> , pp. 347-354.	
Hadfield, Jack	National Technical University of Athens
Koutras, Petros	National Technical University of Athens
Efthymiou, Niki	National Technical University of Athens
Potamianos, Gerasimos	University of Thessaly
Tzafestas, Costas S.	ICCS - Inst of Communication and Computer Systems
Maragos, Petros	National Technical University of

<b>TuATS7</b>	Room 2.L3
<b>Semantics I (Regular session)</b>	
Chair: Knoll, Alois	Tech. Univ. Muenchen TUM
09:00-09:03	TuATS7.1
<i>In Pixels We Trust: From Pixel Labeling to Object Localization and Scene Categorization</i> , pp. 355-361.	
Herranz-Perdiguero, Carlos	University of Alcalá
Redondo-Cabrera, Carolina	University of Alcalá
López-Sastre, Roberto	University of Alcalá
09:03-09:06	TuATS7.2
<i>Self-Supervised Learning of the Drivable Area for Autonomous Vehicles</i> , pp. 362-369.	
Mayr, Jakob	BMW Group
Unger, Christian	BMW Group
Tombari, Federico	Technische Universität München
09:06-09:09	TuATS7.3
<i>Reachset Conformance of Forward Dynamic Models for the Formal Analysis of Robots</i> , pp. 370-376.	
Liu, Stefan Boson	Technical University of Munich
Althoff, Matthias	Technische Universität München
09:09-09:12	TuATS7.4
<i>Timestamp Offset Calibration for an IMU-Camera System under Interval Uncertainty</i> , pp. 377-384.	
Voges, Raphael	Leibniz Universität Hannover
Wagner, Bernardo	Leibniz Universität Hannover
09:12-09:15	TuATS7.5
<i>Fast and Accurate Semantic Mapping through Geometric-Based Incremental Segmentation</i> , pp. 385-392.	
Nakajima, Yoshikatsu	Keio University
Tateno, Keisuke	Technische Universität München
Tombari, Federico	Technische Universität München
Saito, Hideo	Keio University
09:15-09:18	TuATS7.6
<i>Semantic Monocular SLAM for Highly Dynamic Environments</i> , pp. 393-400.	
Brasch, Nikolas	BMW AG
Bozic, Aljaz	Technical University Munich
Lallemant, Joé	BMW AG
Tombari, Federico	Technische Universität München
09:18-09:21	TuATS7.7
<i>Path-Following through Control Funnel Functions</i> , pp. 401-408.	
Ravanbakhsh, Hadi	University of Colorado
Aghli, Sina	University of Colorado Boulder
Heckman, Christoffer	University of Colorado at Boulder
Sankaranarayanan, Sriram	University of Colorado, Boulder
09:21-09:24	TuATS7.8
<i>Online Inference of Human Belief for Cooperative Robots</i> , pp. 409-415.	
Buehler, Moritz C.	TU Darmstadt
Weisswange, Thomas H	Honda Research Institute Europe GmbH
<b>TuATS8</b>	Room 2.R1
<b>Robot Design I (Regular session)</b>	
Co-Chair: Secoli, Riccardo	Imperial College London
09:00-09:03	TuATS8.1

*An Omnidirectional Jumper with Expanded Movability Via Steering, Self-Righting and Take-Off Angle Adjustment*, pp. 416-421.

Yim, Sojung	Seoul National University
Baek, Sang-Min	Seoul National University
Jung, Gwang-Pil	SeoulTech
Cho, Kyu-Jin	Seoul National University, Biorobotics Laboratory

09:03-09:06 TuATS8.2

*Delineating Boundaries of Feasibility between Robot Designs*, pp. 422-429.

Ghasemlou, Shervin	University of South Carolina
O'Kane, Jason	University of South Carolina
Shell, Dylan	Texas A&M University

09:06-09:09 TuATS8.3

*Discrete Configuration Space Methods for Determining Modular Connector Area of Acceptance in Higher Dimensions*, pp. 430-435.

Eckenstein, Nick	University of Pennsylvania
Yim, Mark	University of Pennsylvania

09:09-09:12 TuATS8.4

*An Origami-Inspired Flexible Pneumatic Actuator*, pp. 436-441.

Schmitt, François	ICube, University of Strasbourg
Piccin, Olivier	ICube-AVR
Barbé, Laurent	University of Strasbourg, ICUBE CNRS
Bayle, Bernard	University of Strasbourg

09:12-09:15 TuATS8.5

*Design and Development of Biaxial Active Nozzle with Flexible Flow Channel for Air Floating Active Scope Camera*, pp. 442-449.

Ishii, Akihiro	Tohoku University
Ambe, Yuichi	Tohoku University
Yamauchi, Yu	Tohoku University
Ando, Hisato	Tohoku University
Konyo, Masashi	Tohoku University
Tadakuma, Kenjiro	Tohoku University
Tadokoro, Satoshi	Tohoku University

09:15-09:18 TuATS8.6

*Design and Implementation of Programmable Drawing Automata Based on Cam Mechanisms for Representing Spatial Trajectory*, pp. 450-455.

Takahashi, Takuto	Waseda University
Okuno, Hiroshi G.	Waseda University

09:18-09:21 TuATS8.7

*The Seednoid Robot Platform: Designing a Multi-Purpose Compact Robot from Continuous Evaluation and Lessons from Competitions*, N/A.

Sasabuchi, Kazuhiro	University of Tokyo
Yaguchi, Hiroaki	The University of Tokyo
Nagahama, Kotaro	Shinshu University
Hori, Shintaro	The University of Tokyo
Mizohana, Hiroto	University of Tokyo
Inaba, Masayuki	The University of Tokyo

09:21-09:24 TuATS8.8

*Auxetic Sleeves for Soft Actuators with Kinematically Varied Surfaces*, pp. 464-471.

Sedal, Audrey	University of Michigan
Fisher, Michael	University of Michigan
Bishop-Moser, Josh	ElastoRobotics
Wineman, Alan	University of Michigan
Kota, Sridhar	University of Michigan

TuATS9 Room 4.L1

**Special Session: Methods and Algorithms for Automatic Manipulation of Deformable Objects** (Regular session)

Chair: Navarro-Alarcon, David	Hong Kong Polytechnic University
Co-Chair: Cherubini, Andrea	LIRMM - Universite De Montpellier CNRS

09:00-09:03 TuATS9.1

*A Unified Controller for Region-Reaching and Deforming of Soft Objects (I)*, pp. 472-478.

Wang, Zerui	The Chinese University of Hong Kong
Li, Xiang	The Chinese University of Hong Kong

Navarro-Alarcon, David	Hong Kong Polytechnic University
Liu, Yunhui	Chinese University of Hong Kong

09:03-09:06 TuATS9.2

*Dual-Arm Robotic Manipulation of Flexible Cables (I)*, pp. 479-484.

Zhu, Jihong	LIRMM
Navarro, Benjamin	University of Orléans
Fraisse, Philippe	LIRMM
Crosnier, André	LIRMM
Cherubini, Andrea	LIRMM - Universite De Montpellier CNRS

09:06-09:09 TuATS9.3

*Towards Vision-Based Manipulation of Plastic Materials (I)*, pp. 485-490.

Cherubini, Andrea	LIRMM - Universite De Montpellier CNRS
Leitner, Jurgen	Australian Centre for Robotic Vision / Queensland University Of
Ortenzi, Valerio	Queensland University of Technology / ACRV
Corke, Peter	Queensland University of Technology

09:09-09:12 TuATS9.4

*Capturing Deformations of Interacting Non-Rigid Objects Using RGB-D Data (I)*, pp. 491-497.

Petit, Antoine	Inia
Cotin, Stephane	INRIA
Lippiello, Vincenzo	University of Naples FEDERICO II
Siciliano, Bruno	Univ. Napoli Federico II

09:12-09:15 TuATS9.5

*Contact Detection and Size Estimation Using a Modular Soft Gripper with Embedded Flex Sensors (I)*, pp. 498-503.

Elgeneidy, Khaled	University of Lincoln
Neumann, Gerhard	University of Lincoln
Pearson, Simon	University of Lincoln
Jackson, Mike	Loughborough University
Lohse, Niels	Loughborough University, EPSRC Centre for Innovative Manufacturi

09:15-09:18 TuATS9.6

*Online Shape Estimation Based on Tactile Sensing and Deformation Modeling for Robot Manipulation (I)*, pp. 504-511.

Sanchez, Jose Manuel	Institut Pascal, UMR 6602 - UCA/CNRS/SIGMA
Mateo, Carlos M.	University of Alicante
Corrales Ramon, Juan	Sigma-Clermont Engineering

Antonio	School
Bouzgarrou, Belhassen	Universite Blaise Pascal - IFMA
Chedli	
Mezouar, Youcef	SIGMA-Clermont
09:18-09:21	TuATS9.7
<i>Accounting for Directional Rigidity and Constraints in Control for Manipulation of Deformable Objects without Physical Simulation (I)</i> , pp. 512-519.	
Ruan, Mengyao	Mengyao Ruan
McConachie, Dale Steven	University of Michigan, Ann Arbor
Berenson, Dmitry	University of Michigan
09:21-09:24	TuATS9.8
<i>A Series Elastic Tactile Sensing Array for Tactile Exploration of Deformable and Rigid Objects (I)</i> , pp. 520-525.	
Kappassov, Zhanat	Pierre and Marie Curie University
Baimukashev, Daulet	Nazarbayev University
Adiyatov, Olzhas	Nazarbayev University
Salakchinov, Shyngys	Nazarbayev University
Massalin, Yerzhan	Nazarbayev University
Varol, Huseyin Atakan	Nazarbayev University
<b>TuBTS1</b>	Room 1.L5
<b>Deep Learning II</b> (Regular session)	
Co-Chair: Neumann, Gerhard	University of Lincoln
10:00-10:03	TuBTS1.1
<i>Learning Symbolic Representations for Planning with Parameterized Skills</i> , pp. 526-533.	
Ames, Barrett	Duke University
Thackston, Allison	Oceaneering Space Systems
Konidaris, George	Brown University
10:03-10:06	TuBTS1.2
<i>Regularizing Reinforcement Learning with State Abstraction</i> , pp. 534-539.	
Akrour, Riad	TU Darmstadt
Veiga, Filipe Fernandes	Technische Universität Darmstadt
Peters, Jan	Technische Universität Darmstadt
Neumann, Gerhard	University of Lincoln
10:06-10:09	TuBTS1.3
<i>CReaM: Condensed Real-Time Models for Depth Prediction Using Convolutional Neural Networks</i> , pp. 540-547.	
Spek, Andrew	Monash University
Dharmasiri, Thanuja	Monash University
Drummond, Tom	Monash University
10:09-10:12	TuBTS1.4
<i>Generating Adaptive Attending Behaviors Using User State Classification and Deep Reinforcement Learning</i> , pp. 548-555.	
Kohari, Yoshiki	Toyohashi University of Technology
Miura, Jun	Toyohashi University of Technology
Oishi, Shuji	National Institute of Advanced Industrial Science and Technology
10:12-10:15	TuBTS1.5
<i>A Bio-Inspired Reinforcement Learning Rule to Optimise Dynamical Neural Networks for Robot Control</i> , pp. 556-561.	
Wei, Tianqi	University of Edinburgh

Webb, Barbara	University of Edinburgh
10:15-10:18	TuBTS1.6
<i>Teaching Robots to Predict Human Motion</i> , pp. 562-567.	
Gui, Liang-Yan	Carnegie Mellon University
Zhang, Kevin	Carnegie Mellon University
Wang, Yu-Xiong	Carnegie Mellon University
Liang, Xiaodan	Carnegie Mellon University
Moura, José M. F.	Carnegie Mellon University
Veloso, Manuela	Carnegie Mellon University
10:18-10:21	TuBTS1.7
<i>Variational Autoencoder for End-To-End Control of Autonomous Driving with Novelty Detection and Training De-Biasing</i> , pp. 568-575.	
Amini, Alexander	Massachusetts Institute of Technology
Schwarting, Wilko	Massachusetts Institute of Technology (MIT)
Rosman, Guy	Massachusetts Institute of Technology
Araki, Brandon	MIT
Karaman, Sertac	Massachusetts Institute of Technology
Rus, Daniela	MIT
10:21-10:24	TuBTS1.8
<i>Virtual-To-Real-World Transfer Learning for Robots on Wilderness Trails</i> , pp. 576-582.	
Iuzzolino, Michael Louis	University of Colorado Boulder
Walker, Michael	University of Colorado Boulder
Szafir, Daniel J.	University of Colorado Boulder
<b>TuBTS2</b>	Room 2.L5 KUKA
<b>Visual Tracking II</b> (Regular session)	
Chair: Montano, Luis	Universidad De Zaragoza
Co-Chair: Ahmad, Aamir	Max Planck Institute for Intelligent Systems
10:00-10:03	TuBTS2.1
<i>Asynchronous Corner Detection and Tracking for Event Cameras in Real-Time</i> , N/A.	
Alzugaray, Ignacio	ETH Zürich
Chli, Margarita	ETH Zurich
10:03-10:06	TuBTS2.2
<i>Deep Neural Network-Based Cooperative Visual Tracking through Multiple Micro Aerial Vehicles</i> , N/A.	
Price, Eric	Max Planck Institute for Intelligent Systems
Lawless, Guilherme	Institute for Systems and Robotics, Instituto Superior Tecnico,
Ludwig, Roman	Max-Planck-Institute for Intelligent Systems
Martinović, Igor	Max Planck Institute for Intelligent Systems
Buelthoff, Heinrich H.	Max Planck Institute for Biol. Cybernetics
Black, Michael	Max Planck Institute for Intelligent Systems in Tübingen
Ahmad, Aamir	Max Planck Institute for Intelligent Systems
10:06-10:09	TuBTS2.3
<i>High-Frame-Rate Target Tracking with CNN-Based Object Recognition</i> , pp. 599-606.	
Jiang, Mingjun	Hiroshima University

Gu, Yihao	Hiroshima University
Takaki, Takeshi	Hiroshima University
Ishii, Idaku	Hiroshima University
10:09-10:12	TuBTS2.4
<i>Real-Time Edge Template Tracking Via Homography Estimation</i> , pp. 607-612.	
Qin, Xuebin	University of Alberta
He, Shida	University of Alberta
Zhang, Zichen	University of Alberta, Canada
Dehghan, Masood	University of Alberta
Jin, Jun	University of Alberta
Jagersand, Martin	University of Alberta
10:12-10:15	TuBTS2.5
<i>Robust Model-Predictive Deformation Control of a Soft Object by Using a Flexible Continuum Robot</i> , pp. 613-618.	
Ouyang, Bo	City University of Hong Kong
Mo, Hangjie	City University of HongKong
Chen, Haoyao	Harbin Institute of Technology
Liu, Yunhui	Chinese University of Hong Kong
Sun, Dong	City University of Hong Kong
10:15-10:18	TuBTS2.6
<i>Tracking Control for the Grasping of a Tumbling Satellite with a Free-Floating Robot</i> , N/A.	
Lampariello, Roberto	German Aerospace Center (DLR)
Mishra, Hrishik	German Aerospace Center (DLR)
Oumer, Nassir W.	DLR - German Aerospace Center
Schmidt, Phillip	DLR
De Stefano, Marco	DLR - German Aerospace Center
Albu-Schäffer, Alin	DLR - German Aerospace Center
10:18-10:21	TuBTS2.7
<i>Closed Form Solution for Rotation Estimation Using Photometric Spherical Moments</i> , pp. 627-634.	
Hadj-Abdelkader, Hicham	IBISC
Tahri, Omar	INSA Centre Val-De-Loire
Benseddik, Housseem-Eddine	IBISC Laboratory Evry University
10:21-10:24	TuBTS2.8
<i>City-Scale Road Audit System Using Deep Learning</i> , pp. 635-640.	
Yarram, Sudhir	IIIT Hyderabad
Varma, Girish	IIIT Hyderabad
Jawahar, C.V.	IIIT, Hyderabad

**TuBTS3** Room 1.L2  
**Localization and Mapping II** (Regular session)

Chair: Moon, Hyungpil	Sungkyunkwan University
Co-Chair: Sun, Li	University of Birmingham
10:00-10:03	TuBTS3.1
<i>Closed-Loop Single-Beacon Passive Acoustic Navigation for Low-Cost Autonomous Underwater Vehicles</i> , pp. 641-648.	
Rypkema, Nicholas	Massachusetts Institute of Technology
Fischell, Erin Marie	Woods Hole Oceanographic Institution
Schmidt, Henrik	Massachusetts Institute of Technology
10:03-10:06	TuBTS3.2

*Unscented Kalman Filter on Lie Groups for Visual Inertial Odometry*, pp. 649-655.

Brossard, Martin	Mines ParisTech
Bonnabel, Silvere	Mines ParisTech
Barrau, Axel	Safran
10:06-10:09	TuBTS3.3
<i>A Multi-Position Joint Particle Filtering Method for Vehicle Localization in Urban Area</i> , pp. 656-662.	
Gu, Shuxia	Zhejiang University
Xiang, Zhiyu	Zhejiang University
Zhang, Yi	Zhejiang University
Qian, Qi	Zhejiang University
10:09-10:12	TuBTS3.4
<i>Courteous Autonomous Cars</i> , pp. 663-670.	
Sun, Liting	University of California, Berkeley
Zhan, Wei	Univeristy of California, Berkeley
Tomizuka, Masayoshi	University of California
Dragan, Anca	University of California Berkeley
10:12-10:15	TuBTS3.5
<i>Joint Egomotion Estimation Using a Laser Scanner and a Monocular Camera through Relative Orientation Estimation and 1-DoF ICP</i> , pp. 671-676.	
Huang, Kaihong	University of Bonn
Stachniss, Cyrill	University of Bonn
10:15-10:18	TuBTS3.6
<i>LandmarkBoost: Efficient Visual Context Classifiers for Robust Localization</i> , pp. 677-684.	
Dymczyk, Marcin Tomasz	ETH Zurich, Autonomous Systems Lab
Gilitschenski, Igor	Massachusetts Institute of Technology
Nieto, Juan	ETH Zürich
Lynen, Simon	ETH Zurich
Zeisl, Bernhard	Google
Sieglwart, Roland	ETH Zurich
10:18-10:21	TuBTS3.7
<i>Fire-Aware Planning of Aerial Trajectories and Ignitions</i> , pp. 685-692.	
Beachly, Evan	Drone Amplified
Detweiler, Carrick	University of Nebraska-Lincoln
Elbaum, Sebastian	University of Nebraska - Lincoln
Duncan, Brittany	University of Nebraska, Lincoln
Hilderbrandt, Carl	University of Nebraska - Lincoln
Twidwell, Dirac	University of Nebraska, Lincoln
Allen, Craig	University of Nebraska - Lincoln
10:21-10:24	TuBTS3.8
<i>Embedding Temporally Consistent Depth Recovery for Real-Time Dense Mapping in Visual-Inertial Odometry</i> , pp. 693-698.	
Cheng, Hui	Sun Yat-Sen University
Zheng, Zhuoqi	Sun Yat-Sen University
He, Jinhao	Sun Yat-Sen University
Chen, Chongyu	Sun Yat-Sen University
Wang, Keze	Sun Yat-Sen University
Lin, Liang	Sun Yat-Sen University
<b>TuBTS4</b> Room 2.L2	
<b>Humanoid Robots II</b> (Regular session)	
Chair: Goodwine, Bill	University of Notre Dame
Co-Chair: Tsagarakis, Nikos	Istituto Italiano Di Tecnologia
10:00-10:03	TuBTS4.1

*Fractional-Order Trajectory-Following Control for Two-Legged Dynamic Walking*, pp. 699-704.

Leyden, Kevin Lockheed Martin  
Goodwine, Bill University of Notre Dame

10:03-10:06 TuBTS4.2

*Walking on a Steep Slope Using a Rope by a Life-Size Humanoid Robot*, pp. 705-712.

Bando, Masahiro The University of Tokyo  
Murooka, Masaki The University of Tokyo  
Nozawa, Shunichi The University of Tokyo  
Okada, Kei The University of Tokyo  
Inaba, Masayuki The University of Tokyo

10:06-10:09 TuBTS4.3

*Perception Based Locomotion System for a Humanoid Robot with Adaptive Footstep Compensation under Task Constraints*, pp. 713-719.

Kumagai, Iori National Inst. of AIST  
Morisawa, Mitsuharu National Inst. of AIST  
Nakaoka, Shin'ichiro AIST  
Sakaguchi, Takeshi AIST  
Kaminaga, Hiroshi National Institute of Advanced Industrial Science and Technology  
Kaneke, Kenji National Inst. of AIST  
Kanehiro, Fumio National Inst. of AIST

10:09-10:12 TuBTS4.4

*Adaptive Step Rotation in Biped Walking*, pp. 720-725.

Bohorquez, Nestor INRIA  
Wieber, Pierre-Brice INRIA Rhône-Alpes

10:12-10:15 TuBTS4.5

*Implementing Full-Body Torque Control in Humanoid Robot with High Gear Ratio Using Pulse Width Modulation Voltage*, pp. 726-732.

Lee, Kang Kyu KAIST Hubolab  
Sim, Okkee KAIST  
Jeong, Hyobin KAIST  
Oh, Jaesung KAIST  
Bae, Hyoln KAIST, HuboLab  
Hong, Seungwoo Korea Advanced Institute of Science and Technology  
Oh, Jun Ho Korea Advanced Inst. of Sci. and Tech

10:15-10:18 TuBTS4.6

*Towards Minimal Intervention Control with Competing Constraints*, pp. 733-738.

Huang, Yanlong Istituto Italiano Di Tecnologia  
Silvério, João Istituto Italiano Di Tecnologia  
Caldwell, Darwin G. Istituto Italiano Di Tecnologia

10:18-10:21 TuBTS4.7

*Design and Evaluation of Torque Based Bipedal Walking Control System That Prevent Fall Over by Impulsive Disturbance*, pp. 739-746.

Shirai, Takuma Tokyo University  
Nagamatsu, Yuya The University of Tokyo  
Suzuki, Hiroto The University of Tokyo  
Nozawa, Shunichi The University of Tokyo  
Okada, Kei The University of Tokyo  
Inaba, Masayuki The University of Tokyo

10:21-10:24 TuBTS4.8

*Humanoid Robot COM Kinematics Estimation Based on Compliant Inverted Pendulum Model and Robust State Estimator*, pp. 747-753.

Bae, Hyoln KAIST, HuboLab  
Jeong, Hyobin KAIST  
Oh, Jaesung KAIST  
Lee, Kang Kyu KAIST Hubolab  
Oh, Jun Ho Korea Advanced Inst. of Sci. and Tech

**TuBTS5 Room 2.R3**

**Medical Robots II (Regular session)**

Chair: Kroeger, Torsten Karlsruhe Institut Für Technologie (KIT)

Co-Chair: Ganguly, Amartya Marsi Bionics SL

10:00-10:03 TuBTS5.1

*Robotic Sewing and Knot Tying for Personalized Stent Graft Manufacturing*, pp. 754-760.

Hu, Yang Imperial College London  
Zhang, Lin Imperial College London  
Li, Wei Imperial College London  
Yang, Guang-Zhong Imperial College London

10:03-10:06 TuBTS5.2

*Estimation of Interaction Forces in Robotic Surgery Using a Semi-Supervised Deep Neural Network Model*, pp. 761-768.

Marban Gonzalez, Arturo Fraunhofer Heinrich Hertz Institute (FHFI)  
Srinivasan, Vignesh Fraunhofer Heinrich Hertz Institute  
Samek, Wojciech Fraunhofer Heinrich Hertz Institute  
Fernandez, Josep Technical University of Catalonia  
Casals, Alicia Universitat Politècnica De Catalunya, Barcelona Tech

10:06-10:09 TuBTS5.3

*Cross-Scene Suture Thread Parsing for Robot Assisted Anastomosis Based on Joint Representation Learning*, pp. 769-776.

Gu, Yun SJTU  
Hu, Yang Imperial College London  
Zhang, Lin Imperial College London  
Yang, Jie Shanghai Jiaotong University  
Yang, Guang-Zhong Imperial College London

10:09-10:12 TuBTS5.4

*Unsupervised Trajectory Segmentation and Promoting of Multi-Modal Surgical Demonstrations*, pp. 777-782.

Shao, Zhenzhou Capital Normal University  
Zhao, Hongfa Capital Normal University  
Xie, Jiexin Capital Normal University  
Qu, Ying The University of Tennessee, Knoxville  
Guan, Yong Capital Normal University  
Tan, Jindong University of Tennessee, Knoxville

10:12-10:15 TuBTS5.5

*Autonomous Localization, Navigation and Hausrat Fold Detection for Robotic Endoscopy*, pp. 783-790.

Prendergast, Joseph Micah University of Colorado at Boulder  
Formosa, Gregory University of Colorado, Boulder  
Heckman, Christoffer University of Colorado at Boulder  
Rentschler, Mark University of Colorado at Boulder

10:15-10:18 TuBTS5.6

*Towards a Robotic Assisted System for Percutaneous Nephrolithotomy*, pp. 791-797.

Li, Hsieh-Yu	Singapore University of Technology and Design
Paranawithana, Ishara	Singapore University of Technology and Design
Chau, Zhong Hoo	Singapore University of Technology and Design
Yang, Liangjing	Massachusetts Institute of Technology
Lim, Terence Sey Kiat	Changi General Hospital
Foong, Shaohui	Singapore University of Technology and Design
Ng, Foo Cheong	Changi General Hospital
Tan, U-Xuan	Singapore University of Technology and Design

10:18-10:21 TuBTS5.7

*On Muscle Activation for Improving Robotic Rehabilitation after Spinal Cord Injury*, pp. 798-805.

Cheng, Richard	California Institute of Technology
Sui, Yanan	California Institute of Technology
Sayenko, Dimitry	University of California Los Angeles
Burdick, Joel	California Institute of Technology

10:21-10:24 TuBTS5.8

*Printing Strain Gauges on Intuitive Surgical Da Vinci Robot End Effectors*, pp. 806-812.

Peña, Rut	Harvard University Wyss Institute for Biologically Inspired Engi
Smith, Michael	Harvard University
Ontiveros, Nicolas	Harvard University
Hammond III, Frank L.	Georgia Institute of Technology
Wood, Robert	Harvard University

**TuBTS6** Room 1.L3  
**Human-Robot Interaction I** (Regular session)

Chair: Zhang, Hong	University of Alberta
Co-Chair: Hanheide, Marc	University of Lincoln

10:00-10:03 TuBTS6.1

*Group Emotion Recognition Strategies for Entertainment Robots*, pp. 813-818.

Cosentino, Sarah	Waseda University
Randria, Estelle Irinala Sylvana	Université Paul Sabatier (Upssitech)
Lin, Jia-Yeu	Waseda University
Pellegrini, Thomas	Université De Toulouse, UPS, IRIT, Toulouse
Sessa, Salvatore	Waseda University
Takanishi, Atsuo	Waseda University

10:03-10:06 TuBTS6.2

*Learning How Pedestrians Navigate: A Deep Inverse Reinforcement Learning Approach*, pp. 819-826.

Fahad, Muhammad	Stevens Institute of Technology
Chen, Zhuo	Stevens Institute of Technology
Guo, Yi	Stevens Institute of Technology

10:06-10:09 TuBTS6.3

*Situated Human--Robot Collaboration: Predicting Intent from Grounded Natural Language*, pp. 827-833.

Brawer, Jake	Yale University
Mangin, Olivier	Yale University
Roncone, Alessandro	Yale University
Widder, Sarah	Yale University
Scassellati, Brian	Yale

10:09-10:12 TuBTS6.4

*Social Coordination for Looking-Together Situations*, pp. 834-841.

Akita, Shohei	Keio University
Satake, Satoru	ATR
Shiomi, Masahiro	ATR
Imai, Michita	Keio University
Kanda, Takayuki	Kyoto University

10:12-10:15 TuBTS6.5

*Policy Shaping with Supervisory Attention Driven Exploration*, pp. 842-847.

Kessler Faulkner, Taylor	University of Texas at Austin
Short, Elaine Schaertl	University of Texas at Austin
Thomaz, Andrea Lockerd	University of Texas at Austin

10:15-10:18 TuBTS6.6

*Friendly Motion Learning towards Sustainable Human Robot Interaction*, pp. 848-853.

Sato, Shuhei	Osaka University
Kamide, Hiroko	Nagoya University
Mae, Yasushi	Osaka University
Kojima, Masaru	Osaka University
Arai, Tatsuo	University of Electro-Communications

10:18-10:21 TuBTS6.7

*On the Robustness of Speech Emotion Recognition for Human-Robot Interaction with Deep Neural Networks*, pp. 854-860.

Lakomkin, Egor	University of Hamburg
Zamani, Mohammad Ali	University of Hamburg
Weber, Cornelius	Knowledge Technology Group, University of Hamburg
Magg, Sven	University of Hamburg
Wermter, Stefan	University of Hamburg

10:21-10:24 TuBTS6.8

*Modeling Supervisor Safe Sets for Improving Collaboration in Human-Robot Teams*, pp. 861-868.

McPherson, David	University of California, Berkeley
Scobee, Dexter	University of California, Berkeley
Menke, Joseph	University of California, Berkeley
Yang, Allen	University of California, Berkeley
Sastry, Shankar	University of California, Berkeley

**TuBTS7** Room 2.L3  
**Semantics II** (Regular session)

Chair: Tan, Jindong	University of Tennessee, Knoxville
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10:00-10:03 TuBTS7.1

*Deep Semantic Lane Segmentation for Mapless Driving*, pp. 869-875.

Meyer, Annika	FZI Research Center for Information Technology
Salscheider, Niels Ole	FZI Forschungszentrum Informatik
Orzechowski, Piotr Franciszek	FZI Research Center for Information Technology
Stiller, Christoph	Karlsruhe Institute of Technology

10:03-10:06 TuBTS7.2

*Closed-Loop Robot Task Planning Based on Referring Expressions*, pp. 876-881.

Kuhner, Daniel	University of Freiburg
Aldinger, Johannes	University of Freiburg
Burget, Felix	University of Freiburg

Göbelbecker, Moritz	Albert-Ludwigs-Universität Freiburg
Burgard, Wolfram	University of Freiburg
Nebel, Bernhard	Albert-Ludwigs-Universität, Freiburg
10:06-10:09	TuBTS7.3
<i>Learning Robotic Grasping Strategy Based on Natural-Language Object Descriptions</i> , pp. 882-887.	
Bharath Rao, Achyutha	Wichita State University
Krishnan, Krishna Kumar	Wichita State University
He, Hongsheng	Wichita State University
10:09-10:12	TuBTS7.4
<i>Semantic Grid Estimation with a Hybrid Bayesian and Deep Neural Network Approach</i> , pp. 888-895.	
Erkent, Ozgur	Inria
Wolf, Christian	INSA-Lyon
Laugier, Christian	INRIA
Sierra González, David	Inria Grenoble Rhône-Alpes
Romero-Cano, Victor	Universidad Autónoma De Occidente
10:12-10:15	TuBTS7.5
<i>PRISM: Pose Registration for Integrated Semantic Mapping</i> , pp. 896-902.	
Hart, Justin	University of Texas at Austin
Shah, Rishi	The University of Texas at Austin
Kirmani, Sean	The University of Texas at Austin
Walker, Nick	The University of Texas at Austin
Baldauf, Kathryn	University of Texas at Austin
John, Nathan	University of Texas at Austin
Stone, Peter	University of Texas at Austin
10:15-10:18	TuBTS7.6
<i>3D Deep Object Recognition and Semantic Understanding for Visually-Guided Robotic Service</i> , pp. 903-910.	
Lee, Sukhan	Sungkyunkwan University
Naguib, Ahmed Mohammed	Intelligent Systems Research Institute (ISRI), Sungkyunkwan Univ
Islam, Naeem Ul	Intelligent Systems Research Institute (ISRI), Sungkyunkwan Univ
Nguyen, Tuan Anh	Sungkyunkwan University
10:18-10:21	TuBTS7.7
<i>Semantic Mapping with Simultaneous Object Detection and Localization</i> , pp. 911-918.	
Zeng, Zhen	University of Michigan
Zhou, Yunwen	University of Michigan
Jenkins, Odest Chadwicke	University of Michigan
Desingh, Karthik	University of Michigan
10:21-10:24	TuBTS7.8
<i>Real-Time Fully Incremental Scene Understanding on Mobile Platforms</i> , N/A.	
Wald, Johanna	Technische Universität München
Tateno, Keisuke	Technische Universität München
Sturm, Jürgen	Metaio GmbH
Navab, Nassir	TU Munich
Tombari, Federico	Technische Universität München
<b>TuBTS8</b>	Room 2.R1
<b>Robot Design II (Regular session)</b>	
Chair: Ma, Shugen	Ritsumeikan University
Co-Chair: Jardon, Alberto	Universidad Carlos III De Madrid

10:00-10:03	TuBTS8.1
<i>Optimization-Based Design and Analysis of Planar Rotary Springs</i> , pp. 927-934.	
Georgiev, Nikola	Caltech
Burdick, Joel	California Institute of Technology
10:03-10:06	TuBTS8.2
<i>Quaternion Joint: Dexterous 3-DOF Joint Representing Quaternion Motion for High-Speed Safe Interaction</i> , pp. 935-942.	
Kim, Yong-Jae	Korea University of Technology and Education
Kim, Jong-In	Korea University of Technology and Education
Jang, Wooseok	Korea University of Technology and Education (Koreatech)
10:06-10:09	TuBTS8.3
<i>Design of a 2 Motor 2 Degrees-Of-Freedom Coupled Tendon-Driven Joint Module</i> , pp. 943-948.	
Li, Wenyang	University of Electro-Communications
Chen, Peng	The University of Electro-Communications
Bai, Dianchun	Shenyang University of Technology
Zhu, Xiaoxiao	SJTU
Togo, Shunta	Graduate School of Informatics and Engineering, the University O
Yokoi, Hiroshi	The University of Electro-Communications
Jiang, Yinlai	The University of Electro-Communications
10:09-10:12	TuBTS8.4
<i>A Differential Elastic Joint for Multi-Linked Pipeline Inspection Robots</i> , pp. 949-954.	
Kakogawa, Atsushi	Ritsumeikan University
Ma, Shugen	Ritsumeikan University
10:12-10:15	TuBTS8.5
<i>A Novel Design of Extended Coaxial Spherical Joint Module for a New Modular Type-Multiple DOFs Robotic Platform</i> , pp. 955-960.	
Lee, Jaeyong	Kwangwoon University
Noh, Jaeho	Kwangwoon University
Yang, Jinho	Hankook Mirae Technology Co., Ltd
Yang, Woosung	Kwangwoon University
10:15-10:18	TuBTS8.6
<i>A Novel Cable Actuation Mechanism for 2-DOF Hyper-Redundant Bending Robot Composed of Pulleyless Rolling Joints</i> , pp. 961-966.	
Suh, Jung-wook	ETRI (Electronics and Telecommunications Research Institute)
10:18-10:21	TuBTS8.7
<i>Design of Robotic Gripper with Constant Transmission Ratio Based on Twisted String Actuator: Concept and Evaluation</i> , pp. 967-972.	
Nedelchev, Simeon	Korea University of Technology and Education
Gaponov, Igor	Korea University of Technology and Education
Ryu, Jee-Hwan	Korea Univ. of Tech. and Education
10:21-10:24	TuBTS8.8
<i>Stopper Angle Design for a Multi-Link Articulated Wheeled In-Pipe Robot with Underactuated Twisting Joints</i> , pp. 973-978.	



Oka, Yoshimichi	Ritsumeikan University
Kakogawa, Atsushi	Ritsumeikan University
Ma, Shugen	Ritsumeikan University

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**TuBTS9** Room 4.L1  
**Special Session: UAV Indoors Navigation** (Regular session)

Chair: Campoy, Pascual	Computer Vision Group. Universidad Politécnica De Madrid
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Co-Chair: de Croon, Guido	TU Delft / ESA
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10:00-10:03 TuBTS9.1

*Image-Based Visual Servoing Controller for Multirotor Aerial Robots Using Deep Reinforcement Learning (I)*, pp. 979-986.

Sampedro, Carlos	Universidad Politecnica De Madrid
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Rodriguez-Ramos, Alejandro	Universidad Politécnica De Madrid
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Gil Moreno, Ignacio	Universidad Politécnica De Madrid
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Mejias, Luis	Queensland University of Technology
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Campoy, Pascual	Computer Vision Group. Universidad Politécnica De Madrid
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10:03-10:06 TuBTS9.2

*Perspective Correcting Visual Odometry for Agile MAVs Using a Pixel Processor Array (I)*, pp. 987-994.

Greatwood, Colin	University of Bristol
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Bose, Laurie	University of Bristol
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Richardson, Thomas	University of Bristol
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Mayol, Walterio	University of Bristol
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Chen, Jianing	The University of Manchester
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Carey, Stephen J.	The University of Manchester
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Dudek, Piotr	The University of Manchester
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10:06-10:09 TuBTS9.3

*C-Blox: A Scalable and Consistent TSDF-Based Dense Mapping Approach*, pp. 995-1002.

Millane, Alexander James	ETH Zurich
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Taylor, Zachary Jeremy	ETH Zürich
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Oleynikova, Helen	ETH Zürich
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Nieto, Juan	ETH Zürich
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Sieglwart, Roland	ETH Zurich
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Cadena Lerma, Cesar	ETH Zurich
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10:09-10:12 TuBTS9.4

*Challenges of Autonomous Flight in Indoor Environments (I)*, pp. 1003-1009.

de Croon, Guido	TU Delft / ESA
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De Wagter, Christophe	Delft University of Technology
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10:12-10:15 TuBTS9.5

*A Deep Reinforcement Learning Technique for Vision-Based Autonomous Multirotor Landing on a Moving Platform (I)*, pp. 1010-1017.

Rodriguez-Ramos, Alejandro	Universidad Politécnica De Madrid
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Sampedro, Carlos	Universidad Politecnica De Madrid
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Bavle, Hriday	PhD Student at Universidad Politecnica De Madrid
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Gil Moreno, Ignacio	Universidad Politécnica De Madrid
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Campoy, Pascual	Computer Vision Group. Universidad Politécnica De Madrid
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10:15-10:18 TuBTS9.6

*Stereo Visual Odometry and Semantics Based Localization of Aerial Robots in Indoor Environments (I)*, pp. 1018-1023.

Bavle, Hriday	PhD Student at Universidad Politecnica De Madrid
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Manthe, Stephan	University of Koblenz-Landau
de la Puente, Paloma	Universidad Politécnica De Madrid

Rodriguez-Ramos, Alejandro	Universidad Politécnica De Madrid
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Sampedro, Carlos	Universidad Politecnica De Madrid
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Campoy, Pascual	Computer Vision Group. Universidad Politécnica De Madrid
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10:18-10:21 TuBTS9.7

*Laser-Based Reactive Navigation for Multirotor Aerial Robots Using Deep Reinforcement Learning (I)*, pp. 1024-1031.

Sampedro, Carlos	Universidad Politecnica De Madrid
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Bavle, Hriday	PhD Student at Universidad Politecnica De Madrid
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Rodriguez-Ramos, Alejandro	Universidad Politécnica De Madrid
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de la Puente, Paloma	Universidad Politécnica De Madrid
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Campoy, Pascual	Computer Vision Group. Universidad Politécnica De Madrid
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10:21-10:24 TuBTS9.8

*Drone Detection Using Depth Maps (I)*, pp. 1032-1037.

Carrio, Adrian	Technical University of Madrid
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Vemprala, Sai	Texas A&M University
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Ripoll, Andres	TU Delft
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Saripalli, Srikanth	Texas A&M
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Campoy, Pascual	Computer Vision Group. Universidad Politécnica De Madrid
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**TuCTS1** Room 1.L5

**Deep Learning III** (Regular session)

Chair: Demiris, Yiannis	Imperial College London
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Co-Chair: Sakaino, Sho	Saitama University
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14:30-14:33 TuCTS1.1

*Real-Time Dance Generation to Music for a Legged Robot*, pp. 1038-1044.

Bi, Thomas	ETH Zurich
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Fankhauser, Péter	ETH Zurich
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Bellicoso, C. Dario	ETH Zurich
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Hutter, Marco	ETH Zurich
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14:33-14:36 TuCTS1.2

*Robust Fruit Counting Combining Deep Learning, Tracking, and Structure from Motion*, pp. 1045-1052.

Liu, Xu	University of Pennsylvania
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Chen, Steven W	University of Pennsylvania
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Aditya, Shreyas	University of Pennsylvania
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Sivakumar, Nivedha	University of Pennsylvania
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Dcunha, Sandeep	University of Pennsylvania
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Qu, Chao	University of Pennsylvania
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Taylor, Camillo Jose	University of Pennsylvania
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Das, Jnaneshwar	University of Pennsylvania
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Kumar, Vijay	University of Pennsylvania
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14:36-14:39	TuCTS1.3
<i>Towards View-Invariant Intersection Recognition from Videos Using Deep Network Ensembles</i> , pp. 1053-1060.	
Kumar, Abhijeet	IIIT Hyderabad
Gunshi, Gupta	IIIT Hyderabad
Sharma, Avinash	International Institute of Information Technology, Krishna, Madhava
14:39-14:42	TuCTS1.4
<i>Semantically Meaningful View Selection</i> , pp. 1061-1066.	
Joris, Guérin	Arts Et Métiers ParisTech
Gibaru, Olivier	Arts Et Métiers ParisTech
Eric, Nyiri	ENSAM
Thiery, Stéphane	ENSAM
Boots, Byron	Georgia Institute of Technology
14:42-14:45	TuCTS1.5
<i>Distributed Deep Reinforcement Learning for Fighting Forest Fires with a Network of Aerial Robots</i> , pp. 1067-1074.	
Haksar, Ravi N.	Stanford University
Schwager, Mac	Stanford University
14:45-14:48	TuCTS1.6
<i>Tree Species Identification from Bark Images Using Convolutional Neural Networks</i> , pp. 1075-1081.	
Carpentier, Mathieu	Laval University
Giguere, Philippe	Université Laval
Gaudreault, Jonathan	Laval University
14:48-14:51	TuCTS1.7
<i>UnDEMoN: Unsupervised Deep Network for Depth and Ego-Motion Estimation</i> , pp. 1082-1088.	
Vankadari, Madhu Babu	TCS
Das, Kaushik	Indian Institute of Science
Majumder, Anima	Tata Consultancy Services
Kumar, Swagat	Tata Consultancy Services
14:51-14:54	TuCTS1.8
<i>Leveraging Convolutional Pose Machines for Fast and Accurate Head Pose Estimation</i> , pp. 1089-1094.	
Cao, Yuanzhouhan	IDIAP Research Institute
Canevet, Olivier	Idiap Research Institute
Odohez, Jean-Marc	IDIAP
<b>TuCTS2</b>	Room 2.L5 KUKA
<b>Visual Learning</b> (Regular session)	
Chair: Roa, Maximo A.	DLR - German Aerospace Center
14:30-14:33	TuCTS2.1
<i>Conceptualization of Object Compositions Using Persistent Homology</i> , pp. 1095-1102.	
Mueller, Christian Atanas	Jacobs University
Birk, Andreas	Jacobs University
14:33-14:36	TuCTS2.2
<i>Kitting in the Wild through Online Domain Adaptation</i> , pp. 1103-1109.	
Mancini, Massimiliano	Sapienza University of Rome
Karaoguz, Hakan	Royal Institute of Technology KTH
Ricci, Elisa	University of Perugia
Jensfelt, Patric	KTH - Royal Institute of Technology
Caputo, Barbara	Sapienza University
14:36-14:39	TuCTS2.3

<i>CalibNet: Geometrically Supervised Extrinsic Calibration Using 3D Spatial Transformer Networks</i> , pp. 1110-1117.	
Iyer, Ganesh	International Institute of Information Technology, Hyderabad
Ramesh Kumar, Karnik Ram	IIIT Hyderabad
Jatavallabhula, Krishna Murthy	International Institute of Information Technology Hyderabad
Krishna, Madhava	IIIT Hyderabad
14:39-14:42	TuCTS2.4
<i>Compact &amp; Comprehensive Canonical Appearances Discovered Autonomously</i> , pp. 1118-1123.	
Türksoy, Kadir	Boğaziçi University
Bozma, H. Isil	Bogazici University
14:42-14:45	TuCTS2.5
<i>Deep Learning for Exploration and Recovery of Uncharted and Dynamic Targets from UAV-Like Vision</i> , pp. 1124-1131.	
Andrew, William	University of Bristol
Greatwood, Colin	University of Bristol
Burghardt, Tilo	University of Bristol
14:45-14:48	TuCTS2.6
<i>Hybrid Multi-Camera Visual Servoing to Moving Target</i> , pp. 1132-1137.	
Cuevas-Velasquez, Hanz	University of Edinburgh
Li, Nanbo	University of Edinburgh
Tylecek, Radim	University of Edinburgh
Saval-Calvo, Marcelo	University of Alicante
Fisher, Robert	University of Edinburgh
14:48-14:51	TuCTS2.7
<i>Detecting and Picking of Folded Objects with a Multiple Sensor Integrated Robot Hand</i> , pp. 1138-1145.	
Hasegawa, Shun	The University of Tokyo
Wada, Kentaro	The University of Tokyo
Okada, Kei	The University of Tokyo
Inaba, Masayuki	The University of Tokyo
<b>TuCTS3</b>	Room 1.L2
<b>Localization and Mapping III</b> (Regular session)	
Chair: Takamatsu, Jun	Nara Institute of Science and Technology
14:30-14:33	TuCTS3.1
<i>Information Sparsification in Visual Inertial Odometry</i> , pp. 1146-1153.	
Hsiung, Shih-Chieh	Carnegie Mellon University
Hsiao, Ming	Carnegie Mellon University
Westman, Eric	Carnegie Mellon University
Valencia, Rafael	Zenuity AB
Kaess, Michael	Carnegie Mellon University
14:33-14:36	TuCTS3.2
<i>Towards Robust Visual Odometry with a Multi-Camera System</i> , pp. 1154-1161.	
Liu, Peidong	ETH Zurich
Geppert, Marcel	ETH Zürich
Heng, Lionel	DSO National Laboratories
Sattler, Torsten	ETH Zurich
Geiger, Andreas	Max Planck Institute for Intelligent Systems, Tübingen
Pollefeys, Marc	ETH Zurich
14:36-14:39	TuCTS3.3
<i>Stabilize an Unsupervised Feature Learning for LiDAR-Based</i>	

Place Recognition, pp. 1162-1167.

Yin, Peng	Shenyang Institute of Automation, Chinese Academy of Sciences
Xu, Lingyun	Chinese Academy of Sciences
Liu, Zhe	The Chinese University of Hong Kong
Li, Lu	Carnegie Mellon University
Salman, Hadi	Carnegie Mellon University
He, Yuqing	Shenyang Institute of Automation, Chinese Academy of Sciences
Xu, Weiliang	The University of Auckland
Wang, Hesheng	Shanghai Jiao Tong University
Choset, Howie	Carnegie Mellon University

14:39-14:42 TuCTS3.4

*DS-SLAM: A Semantic Visual SLAM towards Dynamic Environments*, pp. 1168-1174.

Yu, Chao	Tsinghua University
Liu, Zuxin	Beihang University
Liu, Xin-Jun	Tsinghua University
Xie, Fugui	Tsinghua University
Yang, Yi	Tsinghua University
Wei, Qi	Tsinghua University
Qiao, Fei	Tsinghua University

14:42-14:45 TuCTS3.5

*A Robust Pose Graph Approach for City Scale LiDAR Mapping*, pp. 1175-1182.

Yang, Sheng	Ditu (Beijing) Technology Co., Ltd
Zhu, Xiaoling	Ditu (Beijing) Technology Co., Ltd
Xing, Nian	Didi Chuxing
Feng, Lu	Didi
Qu, Xiaozhi	Didichuxing
Ma, Teng	Ditu (Beijing) Technology Co., Ltd

14:45-14:48 TuCTS3.6

*Good Feature Selection for Least Squares Pose Optimization in VO/VSLAM*, pp. 1183-1189.

Zhao, Yipu	Georgia Institute of Technology
Vela, Patricio	Georgia Institute of Technology

14:48-14:51 TuCTS3.7

*Dynamic Scaling Factors of Covariances for Accurate 3D Normal Distributions Transform Registration*, pp. 1190-1196.

Hong, Hyunki	Seoul National University
Lee, Beom-Hee	Seoul National University

14:51-14:54 TuCTS3.8

*HMAPs – Hybrid Height-Voxel Maps for Environment Representation*, pp. 1197-1203.

Garrote, Luis Carlos	Institute of Systems and Robotics
Premebida, Cristiano	University of Coimbra
Silva, David	DEEC ISR-UC
Nunes, Urbano	Instituto De Sistemas E Robotica

**TuCTS4** Room 2.L2

**Humanoid Robots III** (Regular session)

Chair: Metta, Giorgio	Istituto Italiano Di Tecnologia (IIT)
Co-Chair: Suleiman, Wael	University of Sherbrooke

14:30-14:33 TuCTS4.1

*Kalman Filter Based Observer for an External Force Applied to Medium-Sized Humanoid Robots*, pp. 1204-1211.

Hawley, Louis	University of Sherbrooke
Rahem, Remy	University of Sherbrooke
Suleiman, Wael	University of Sherbrooke

14:33-14:36 TuCTS4.2

*CPG-Based Controllers Can Generate Both Discrete and Rhythmic Movements*, pp. 1212-1217.

Jouaiti, Melanie	Université De Lorraine, CNRS, Inria, LORIA, F-54000 Nancy, Franc
Henaff, Patrick	Université De Lorraine, CNRS, INRIA, LORIA, F-54000 Nancy, Fra

14:36-14:39 TuCTS4.3

*A 3D Template Model for Healthy and Impaired Walking*, pp. 1218-1225.

Ahmad Sharbafi, Maziar	Technical University of Darmstadt
Zadravec, Matjaž	University Rehabilitation Institute Republic of Slovenia
Matjacic, Zlatko	University Rehabilitation Institute, Republic of Slovenia
Seyfarth, Andre	TU Darmstadt

14:39-14:42 TuCTS4.4

*Exploiting Friction in Torque Controlled Humanoid Robots*, pp. 1226-1232.

Nava, Gabriele	Istituto Italiano Di Tecnologia
Ferigo, Diego	Istituto Italiano Di Tecnologia
Pucci, Daniele	Italian Institute of Technology

14:42-14:45 TuCTS4.5

*Structure Preserving Multi-Contact Balance Control for Series-Elastic and Visco-Elastic Humanoid Robots*, pp. 1233-1240.

Werner, Alexander	German Aerospace Center (DLR)
Henze, Bernd	German Aerospace Center (DLR)
Keppler, Manuel	German Aerospace Center (DLR)
Loeffl, Florian	German Aerospace Center (DLR)
Leyendecker, Sigrid	University of Erlangen-Nuremberg
Ott, Christian	German Aerospace Center (DLR)

14:45-14:48 TuCTS4.6

*Feedback Control for Cassie with Deep Reinforcement Learning*, pp. 1241-1246.

Xie, Zhaoming	University of British Columbia
Berseth, Glen	University of British Columbia
Clary, Patrick	Oregon State University
Hurst, Jonathan	Oregon State University
van de Panne, Michiel	University of British Columbia

14:48-14:51 TuCTS4.7

*Robust and Stretched-Knee Biped Walking Using Joint-Space Motion Control*, pp. 1247-1254.

Nguyen, Kim-Ngoc-Khanh	The University of Tokyo
Noda, Shintaro	The University of Tokyo
Kojio, Yuta	The University of Tokyo
Sugai, Fumihito	The University of Tokyo
Nozawa, Shunichi	The University of Tokyo
Kakiuchi, Yohei	The University of Tokyo

Okada, Kei	The University of Tokyo
Inaba, Masayuki	The University of Tokyo
14:51-14:54	TuCTS4.8
<i>Public Perception of Android Robots: Indications from an Analysis of YouTube Comments</i> , pp. 1255-1260.	
Vlachos, Evgenios	University of Southern Denmark
Tan, Zheng-Hua	Aalborg University
<b>TuCTS5</b>	Room 2.R3
<b>Medical Robots III (Regular session)</b>	
Chair: Dario, Paolo	Scuola Superiore Sant'Anna
Co-Chair: Gonçalves, Paulo	Instituto Politecnico De Castelo Branco
14:30-14:33	TuCTS5.1
<i>Towards Automatic 3D Shape Instantiation for Deployed Stent Grafts: 2D Multiple-Class and Class-Imbalance Marker Segmentation with Equally-Weighted Focal U-Net</i> , pp. 1261-1267.	
Zhou, Xiao-Yun	Imperial College London
Riga, Celia	Imperial College London
Lee, Su-Lin	Imperial College London
Yang, Guang-Zhong	Imperial College London
14:33-14:36	TuCTS5.2
<i>A Confidence-Based Shared Control Strategy for the Smart Tissue Autonomous Robot (STAR)</i> , pp. 1268-1275.	
Saeidi, Hamed	University of Maryland College Park
Opfermann, Justin	Children's National Medical Center
Kam, Michael	University of Maryland
Raghunathan, Sudarshan	1994
Leonard, Simon	The Johns Hopkins University
Krieger, Axel	University of Maryland
14:36-14:39	TuCTS5.3
<i>A 3D Laparoscopic Imaging System Based on Stereo-Photogrammetry with Random Patterns</i> , pp. 1276-1282.	
Sui, Congying	The Chinese University of Hong Kong
Wang, Zerui	The Chinese University of Hong Kong
Liu, Yunhui	Chinese University of Hong Kong
14:39-14:42	TuCTS5.4
<i>Magnetic-Visual Sensor Fusion-Based Dense 3D Reconstruction and Localization for Endoscopic Capsule Robots</i> , pp. 1283-1289.	
Turan, Mehmet	Max Planck Institute Stuttgart
Almalioğlu, Yasin	Bogazici University
Ornek, Evin Pinar	TU Munich
Araujo, Helder	University of Coimbra
Yanik, Mehmet Fatih	ETH
Sitti, Metin	Max-Planck Institute for Intelligent Systems
14:42-14:45	TuCTS5.5
<i>Robust Generalized Point Cloud Registration with Expectation Maximization Considering Anisotropic Positional Uncertainties</i> , pp. 1290-1297.	
Min, Zhe	The Chinese University of Hong Kong
Wang, Jiaole	The Chinese University of Hong Kong
Song, Shuang	Harbin Institute of Technology Shenzhen Graduate School
Meng, Max Q.-H.	The Chinese University of Hong

14:45-14:48	TuCTS5.6
<i>Vision-Based Surgical Tool Pose Estimation for the Da Vinci Robotic Surgical System</i> , pp. 1298-1305.	
Hao, Ran	Case Western Reserve University
Ozguner, Orhan	Case Western Reserve University
Cavusoglu, M. Cenk	Case Western Reserve University
14:48-14:51	TuCTS5.7
<i>A Parallel Robotic Mechanism for the Stabilization and Guidance of an Endoscope Tip in Laser Osteotomy</i> , pp. 1306-1311.	
Eugster, Manuela	University of Basel, BIROMED-Lab
C.Cattin, Philippe	Department of Biomedical Engineering, University of Basel
Zam, Azhar	Department of Biomedical Engineering, University of Basel
Rauter, Georg	University of Basel
14:51-14:54	TuCTS5.8
<i>RoboTracker: Collaborative Robotic Assistant Device with Electro-Mechanical Patient Tracking for Spinal Surgery</i> , pp. 1312-1317.	
Amarillo Espitia, Andres	Ceit, Manuel Lardizabal 15, 20018 Donostia / San Sebastián
Oñativia, Jon	EGILE Innovative Solutions, E 20850, Mendara
Sánchez, Emilio	CEIT
<b>TuCTS6</b>	Room 1.L3
<b>Human-Robot Interaction II (Regular session)</b>	
Chair: Sugano, Shigeki	Waseda University
Co-Chair: Santos, Cristina	University of Minho
14:30-14:33	TuCTS6.1
<i>A Sliding Mode Control Architecture for Human-Manipulator Cooperative Surface Treatment Tasks</i> , pp. 1318-1325.	
Gracia, Luis	Technical University of Valencia
Solanes, J. Ernesto	Universitat Politècnica De València
Muñoz-Benavent, Pau	Universitat Politècnica De València
Valls Miro, Jaime	University of Technology Sydney
Perez, Carlos	Universidad Miguel Hernandez De Elche
Tornero, Josep	Technical University of Valencia
14:33-14:36	TuCTS6.2
<i>Human Intention Estimation Based on Neural Networks for Enhanced Collaboration with Robots</i> , pp. 1326-1333.	
Nicolis, Davide	Politecnico Di Milano
Zanchettin, Andrea Maria	Politecnico Di Milano
Rocco, Paolo	Politecnico Di Milano
14:36-14:39	TuCTS6.3
<i>Variable Admittance Control for Human-Robot Collaboration Based on Online Neural Network Training</i> , pp. 1334-1339.	
Sharkawy, Abdel-Nasser	University of Patras
Koustoumpardis, Panagiotis	University of Patras
Aspragathos, Nikos A.	University of Patras
14:39-14:42	TuCTS6.4
<i>Online Human Muscle Force Estimation for Fatigue Management in Human-Robot Co-Manipulation</i> , pp. 1340-1346.	
Petermel, Luka	Istituto Italiano Di Tecnologia
Fang, Cheng	Fondazione Istituto Italiano Di

	Tecnologia	
Tsagarakis, Nikos	Istituto Italiano Di Tecnologia	
Ajoudani, Arash	Istituto Italiano Di Tecnologia	
14:42-14:45		TuCTS6.5
<i>Evolutionary Motion Control Optimization in Physical Human-Robot Interaction</i> , pp. 1347-1353.		
Nadeau, Nicholas A.	École De Technologie Supérieure	
Bonev, Ilian	École De Technologie Supérieure	
14:45-14:48		TuCTS6.6
<i>Human-Robot Cooperative Object Manipulation with Contact Changes</i> , pp. 1354-1360.		
Gienger, Michael	Honda Research Institute Europe	
Ruiken, Dirk	Honda Research Institute Europe	
Bates, Tamas	Technical University of Delft	
Regaieg, Mohamed	TU Munich	
Michael, Meißner	TU Munich	
Kober, Jens	TU Delft	
Seiwald, Philipp	Technical University of Munich	
Hildebrandt, Arne-Christoph	Technische Universität München	
14:48-14:51		TuCTS6.7
<i>From Human Physical Interaction to Online Motion Adaptation Using Parameterized Dynamical Systems</i> , pp. 1361-1366.		
Khoramshahi, Mahdi	EPFL	
Laurens, Antoine, Marin, Alix	EPFL	
Triquet, Thomas	EPFL	
Billard, Aude	EPFL	
14:51-14:54		TuCTS6.8
<i>A Series Elastic Brake Pedal to Preserve Conventional Pedal Feel under Regenerative Braking</i> , pp. 1367-1373.		
Caliskan, Umut	Sabancı University	
Apaydin, Ardan	Sabancı University	
Otaran, Ata	Queen Mary University of London	
Patoglu, Volkan	Sabancı University	
<b>TuCTS7</b>		Room 2.L3
<b>Field Robotics (Regular session)</b>		
Chair: Robuffo Giordano, Paolo	Centre National De La Recherche Scientifique (CNRS)	
Co-Chair: Malfaz, Maria	Universidad Carlos III De Madrid	
14:30-14:33		TuCTS7.1
<i>Unmanned Aerial Auger for Underground Sensor Installation</i> , pp. 1374-1381.		
Sun, Yue	University of Nebraska	
Plowcha, Adam	University of Nebraska	
Nail, Mark	University of Nebraska	
Elbaum, Sebastian	University of Nebraska - Lincoln	
Terry, Benjamin S.	University of Nebraska-Lincoln	
Detweiler, Carrick	University of Nebraska-Lincoln	
14:33-14:36		TuCTS7.2
<i>Enhanced Non-Steady Gliding Performance of the MultiMo-Bat through Optimal Airfoil Configuration and Control Strategy</i> , pp. 1382-1388.		
Kim, Hyungyu	Max Planck Institute	
Woodward, Matthew	Carnegie Mellon University	
Sitti, Metin	Max-Planck Institute for Intelligent Systems	

14:36-14:39		TuCTS7.3
<i>Active Range and Bearing-Based Radiation Source Localization</i> , pp. 1389-1394.		
Lee, Michael	Carnegie Mellon University	
Shy, Daniel	University of Michigan	
Whittaker, William	Carnegie Mellon University	
Michael, Nathan	Carnegie Mellon University	
14:39-14:42		TuCTS7.4
<i>Development of Camber-Flat Wing Structure Convert Mechanism for Asymmetric Flapping Micro Air Vehicle</i> , pp. 1395-1400.		
Jang, JaeHyung	Korea Institute of Industrial Technology	
Yang, Gi-Hun	KITECH	
14:42-14:45		TuCTS7.5
<i>Robotic Boreblending: The Future of In-Situ Gas Turbine Repair</i> , pp. 1401-1406.		
Alatorre, David	University of Nottingham	
Nasser, Bilal	Rolls-Royce Plc	
Rabani, Amir	The University of Nottingham	
Nagy, Adam	University of Nottingham	
Dong, Xin	University of Nottingham	
Axinte, Dragos	University of Nottingham	
Kell, James	University of Nottingham	
14:45-14:48		TuCTS7.6
<i>Design of an Autonomous Robot for Mapping, Navigation, and Manipulation in Underground Mines</i> , pp. 1407-1412.		
Lösch, Robert	TU Bergakademie Freiberg	
Grehl, Steve	TU Bergakademie Freiberg	
Donner, Marc	TU Bergakademie Freiberg	
Buhl, Claudia	TU Bergakademie Freiberg	
Jung, Bernhard	TU Bergakademie Freiberg	
14:48-14:51		TuCTS7.7
<i>Design and Performance Evaluation of an Infotaxis-Based Three-Dimensional Algorithm for Odor Source Localization</i> , pp. 1413-1420.		
Ruddick, Julian	École Polytechnique Fédérale De Lausanne	
Marjovi, Ali	EPFL	
Rahbar, Faezeh	EPFL	
Martinoli, Alcherio	EPFL	
14:51-14:54		TuCTS7.8
<i>Cognition-Enabled Framework for Mixed Human-Robot Rescue Teams</i> , pp. 1421-1428.		
Yazdani, Fereshta	University Bremen	
Kazhoyan, Gayane	University of Bremen	
Bozcuoglu, Asil Kaan	University of Bremen	
Haidu, Andrei	University Bremen	
Balint-Benczedi, Ferenc	University of Bremen	
Beßler, Daniel	Universität Bremen	
Pomarlan, Mihai	Universitatea Politehnica Timisoara	
Beetz, Michael	University of Bremen	
<b>TuCTS8</b>		Room 2.R1
<b>Robot Design III (Regular session)</b>		
Chair: Bonsignorio, Fabio Paolo	Heron Robots Srl and the Biorobotics Insitute Scuola Superiore S. Anna	
Co-Chair: Matsumoto, Yoshio	AISt	
14:30-14:33		TuCTS8.1

*Pulleys and Force Sensors Influence on Payload Estimation of Cable-Driven Parallel Robots*, pp. 1429-1436.

Picard, Etienne	IRT Jules Verne and LS2N, Nantes
Caro, Stéphane	CNRS/LS2N
Claveau, Fabien	IMT-Atlantique, Nantes
Plestan, Franck	Ecole Centrale De Nantes- CNRS

14:33-14:36 TuCTS8.2

*3D-Printed Flexure-Based Finger Joints for Anthropomorphic Hands*, pp. 1437-1442.

Garcia Rodriguez, Luis	University of Twente
Naves, Mark	University of Twente
Brouwer, Dannis M.	University of Twente

14:36-14:39 TuCTS8.3

*Body-Mounted Robot for Image-Guided Percutaneous Interventions: Mechanical Design and Preliminary Accuracy Evaluation*, pp. 1443-1448.

Patel, Niravkumar	Johns Hopkins University
Yan, Jiawen	Harbin Institute of Technology
Levi, David	Johns Hopkins University, Galen Robotics
Monfaredi, Reza	Children's National Medical Center
Cleary, Kevin	Children's National Medical Center
Iordachita, Ioan Iulian	Johns Hopkins University

14:39-14:42 TuCTS8.4

*HERI II: A Robust and Flexible Robotic Hand Based on Modular Finger Design and under Actuation Principles*, pp. 1449-1455.

Ren, Zeyu	Istituto Italiano Di Tecnologia
Kashiri, Navvab	Istituto Italiano Di Tecnologia
Zhou, Chengxu	Fondazione Istituto Italiano Di Tecnologia
Tsagarakis, Nikos	Istituto Italiano Di Tecnologia

14:42-14:45 TuCTS8.5

*Design, Modeling and Control of a Soft Robotic Arm*, pp. 1456-1463.

Hofer, Matthias	ETH Zurich
D'Andrea, Raffaello	ETHZ

14:45-14:48 TuCTS8.6

*Energy-Efficient Design and Control of a Vibro-Driven Robot*, pp. 1464-1469.

Liu, Pengcheng	University of Lincoln
Neumann, Gerhard	University of Lincoln
Fu, Qinbing	University of Lincoln
Pearson, Simon	University of Lincoln
Yu, Hongnian	Bournemouth University

14:48-14:51 TuCTS8.7

*Design of Compliant Mechanosensory Composite (CMC) and Its Application Toward the Sensible Mesoscale Robotics*, pp. 1470-1475.

Kwak, Bokeon	Ulsan National Institute of Science and Technology (UNIST)
Bae, Joonbum	UNIST

14:51-14:54 TuCTS8.8

*Conductive Knit-Covered Pneumatic Artificial Muscle (k-PAM) Actuator*, pp. 1476-1481.

Jamil, Babar	Hanyang University University
Lee, Seulah	Hanyang University
Choi, Youngjin	Hanyang University

TuCTS9 Room 4.L1

**Special Session: Raw Materials, Tough Robots** (Regular session)

Co-Chair: Rossi, Claudio Universidad Politecnica De Madrid

14:30-14:33 TuCTS9.1

*Underwater Robot Navigation for Maintenance and Inspection of Flooded Mine Shafts (I)*, pp. 1482-1487.

Alvarez-Tunon, Olaya	Carlos III Madrid
Rodríguez, Angel J.	Universidad Carlos Iii
Jardon, Alberto	Universidad Carlos Iii De Madrid
Balaguer, Carlos	Universidad Carlos III De Madrid

14:33-14:36 TuCTS9.2

*Mechanical Subsystems Integration and Structural Analysis for the Autonomous Underwater Explorer (I)*, pp. 1488-1493.

Heininen, Arttu Aleks	Tampere University of Technology
Villa, Jose	Tampere University of Technology (TUT)
Zavari, Soheil	TTY
Salomaa, Tuomas	Tampere University of Technology, Mechanical Engineering and Int
Usenius, Olli	Tampere University of Technology
Laitinen, Jouko Kalevi	Tampere University of Technology
Aaltonen, Jussi Matti	Tampere University of Technology
Koskinen, Kari Tapio	Tampere University of Technology

14:36-14:39 TuCTS9.3

*UX 1 System Design - a Robotic System for Underwater Mining Exploration (I)*, pp. 1494-1500.

Martins, Alfredo	INESC TEC
Almeida, Jose	ISEP - Instituto Superior De Engenharia Do Porto
Almeida, Carlos	Instituto Superior De Engenharia Do Porto
Dias, André	INESC TEC and School of Engineering, Polytechnic Institute of Po
Dias, Nuno	Institute for Systems and Computer Engineering, Technology and S
Aaltonen, Jussi Matti	Tampere University of Technology
Heininen, Arttu Aleks	Tampere University of Technology
Koskinen, Kari Tapio	Tampere University of Technology
Rossi, Claudio	Universidad Politecnica De Madrid
Dominguez, Sergio	Technical University of Madrid
Voros, Csaba	Institute of Mineralogy - Geology, University of Miskolc
Henley, Stephen	Resources Computing International Ltd
McLoughlin, Mike	Resources Computing International Ltd
van Moerkerk, Hilco	Resources Computing International Ltd
Tweedie, James	Resources Computing International Ltd
Bodo, Balazs	La Palma Research Centre

Zajzon, Norbert	Institute of Mineralogy and Geology, University of Miskolc
Silva, Eduardo Alexandre Pereira da	Instituto Superior De Engenharia Do Porto
14:39-14:42	TuCTS9.4
<i>Automation in Sensing and Raw Material Characterization – a Conceptual Framework (I)</i> , pp. 1501-1506.	
Desta, Feven Solomon	Delft University of Technology
Buxton, Mike	Delft University of Technology
14:42-14:45	TuCTS9.5
<i>The Benefits and Challenges of Robotics in the Mineral Raw Materials Sector – an Overview (I)</i> , pp. 1507-1512.	
Lopes, Luis	La Palma Research Centre
Miklovicz, Tamás	La Palma Research Centre
Bakker, Edine	La Palma Research Centre
Milosevic, Zorana	Technical University of Madrid
14:45-14:48	TuCTS9.6
<i>Design, Modeling and Control of a Spherical Autonomous Underwater Vehicle for Mine Exploration (I)</i> , pp. 1513-1519.	
Suarez Fernandez, Ramon A.	Universidad Politecnica De Madrid
Parra Ricaurte, Edgar Andres	Universidad Politécnica De Madrid
Milosevic, Zorana	Technical University of Madrid
Dominguez, Sergio	Technical University of Madrid
Rossi, Claudio	Universidad Politecnica De Madrid
14:48-14:51	TuCTS9.7
<i>VAMOS Underwater Mining Machine Navigation System (I)</i> , pp. 1520-1526.	
Almeida, Jose	ISEP - Instituto Superior De Engenharia Do Porto
Almeida Bernardo Ferreira, António João	INESC TEC
Matias, Bruno	INESC TEC
Lomba, Caio	INESC TEC
Martins, Alfredo	INESC TEC
Silva, Eduardo Alexandre Pereira da	Instituto Superior De Engenharia Do Porto
14:51-14:54	TuCTS9.8
<i>Positioning, Navigation and Awareness of the VAMOS Underwater Robotic Mining System (I)</i> , pp. 1527-1533.	
Almeida, Jose	ISEP - Instituto Superior De Engenharia Do Porto
Martins, Alfredo	INESC TEC
Almeida, Carlos	Instituto Superior De Engenharia Do Porto
Dias, André	INESC TEC and School of Engineering, Polytechnic Institute of Po
Matias, Bruno	INESC TEC
Almeida Bernardo Ferreira, António João	INESC TEC
Jorge, Pedro	INESC TEC
Martins, Rui	INESC TEC
Bleier, Michael	Zentrum Fuer Telematik E.V
Nuechter, Andreas	University of Würzburg
Pidgeon, John	BMT
Kaspuniak, Stef	SMD Soil Machine Dynamics
Silva, Eduardo Alexandre Pereira da	Instituto Superior De Engenharia Do Porto

TuDTS1

Room 1.L5

#### Deep Learning IV (Regular session)

Chair: Quattrini Li, Alberto	Dartmouth College
Co-Chair: Chen, Nutan	Volkswagen Group
17:00-17:03	TuDTS1.1
<i>Multi-Agent Imitation Learning for Driving Simulation</i> , pp. 1534-1539.	
Bhattacharyya, Raunak	Stanford University
Phillips, Derek	Stanford University
Wulfe, Blake	Stanford University
Morton, Jeremy	Stanford University
Kuefler, Alex	Osaro, Inc
Kochenderfer, Mykel	Stanford University
17:03-17:06	TuDTS1.2
<i>Model-Based Action Exploration for Learning Dynamic Motion Skills</i> , pp. 1540-1546.	
Berseth, Glen	University of British Columbia
van de Panne, Michiel	University of British Columbia
17:06-17:09	TuDTS1.3
<i>Active Learning Based on Data Uncertainty and Model Sensitivity</i> , pp. 1547-1554.	
Chen, Nutan	Volkswagen Group
Klushyn, Alexej	Volkswagen Group
Paraschos, Alexandros	Volkswagen Group
Benbouzid, Djalel	Laboratoire De L'accélérateur Linéaire, Université Paris Sud 11
van der Smagt, Patrick	TUM
17:09-17:12	TuDTS1.4
<i>Deep Reinforcement Learning for Audio-Visual Gaze Control</i> , pp. 1555-1562.	
Lathuilière, Stéphane	Inria
Massé, Benoit	Inria
Mesejo, Pablo	Inria
Horaud, Radu	INRIA Grenoble Rhone-Alpes
17:12-17:15	TuDTS1.5
<i>An Ensemble with Shared Representations Based on Convolutional Networks for Continually Learning Facial Expressions</i> , pp. 1563-1568.	
Siqueira, Henrique	University of Hamburg
Barros, Pablo	University of Hamburg
Magg, Sven	University of Hamburg
Wermter, Stefan	University of Hamburg
17:15-17:18	TuDTS1.6
<i>Deep Q-Learning for Dry Stacking Irregular Objects</i> , pp. 1569-1576.	
Liu, Yifang	University at Buffalo
Shamsi, Seyed Mahdi	SUNY at Buffalo
Fang, Le	University at Buffalo
Chen, Changyou	University at Buffalo
Napp, Nils	SUNY Buffalo
17:18-17:21	TuDTS1.7
<i>Learning Actionable Representations from Visual Observations</i> , pp. 1577-1584.	
Dwibedi, Debidatta	Google
Tompson, Jonathan	Google
Lynch, Corey	Google Brain
Sermanet, Pierre	Google
17:21-17:24	TuDTS1.8
<i>Interactive Text2Pickup Networks for Natural Language Based Human-Robot Collaboration</i> , N/A.	
Ahn, Hyemin	Seoul National University

Choi, Sungjoon	Seoul National University
Kim, Nuri	Seoul National University
Cha, Geonho	Seoul National University
Oh, Songhwa	Seoul National University

Ho, Van	Japan Advanced Institute of Science and Technology
Hirai, Shinichi	Ritsumeikan Univ

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**TuDTS2** Room 2.L5 KUKA  
**Tactile and Force Sensing I** (Regular session)

Chair: Asfour, Tamim	Karlsruhe Institute of Technology (KIT)
Co-Chair: Bernardino, Alexandre	IST - Técnico Lisboa

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17:00-17:03 TuDTS2.1

*Efficient Distributed Torque Computation for Large Scale Robot Skin*, pp. 1593-1599.

Bergner, Florian	Technical University of Munich
Dean-Leon, Emmanuel	Technischen Universitaet Muenchen

Cheng, Gordon	Technical University of Munich
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17:03-17:06 TuDTS2.2

*A Robust and Efficient Dynamic Network Protocol for a Large-Scale Artificial Robotic Skin*, pp. 1600-1605.

Bader, Christian	Technical University of Munich
Bergner, Florian	Technical University of Munich
Cheng, Gordon	Technical University of Munich

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17:06-17:09 TuDTS2.3

*3D Shape Perception from Monocular Vision, Touch, and Shape Priors*, pp. 1606-1613.

Wang, Shaoxiong	MIT
Wu, Jiajun	MIT
Sun, Xingyuan	Shanghai Jiao Tong University
Yuan, Wenzhen	MIT
Freeman, William	Massachusetts Institute of Technology
Tenenbaum, Joshua	Massachusetts Institute of Technology
Adelson, Edward	MIT

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17:09-17:12 TuDTS2.4

*Exploration and Reconstruction of Unknown Objects Using a Novel Normal and Contact Sensor*, pp. 1614-1620.

Ottenhaus, Simon	Karlsruhe Institute of Technology (KIT)
Weiner, Pascal	Karlsruhe Institute of Technology
Kaul, Lukas	Karlsruhe Institute of Technology
Tulbure, Andreea Roxana	Karlsruhe Institute of Technology
Asfour, Tamim	Karlsruhe Institute of Technology (KIT)

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17:12-17:15 TuDTS2.5

*Soft Curvature and Contact Force Sensors for Deep-Sea Grasping Via Soft Optical Waveguides*, pp. 1621-1627.

Teepel, Clark	Harvard University
Becker, Kaitlyn	Harvard University
Wood, Robert	Harvard University

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17:15-17:18 TuDTS2.6

*Realtime State Estimation with Tactile and Visual Sensing for Inserting a Suction-Held Object*, pp. 1628-1635.

Yu, Kuan-Ting	MIT
Rodriguez, Alberto	Massachusetts Institute of Technology

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17:18-17:21 TuDTS2.7

*Mechanical and Perceptual Characterizations of the Localized Shearing Using a Novel Haptic Display*, pp. 1636-1642.

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17:21-17:24 TuDTS2.8

*Finding Safe 3D Robot Grasps through Efficient Haptic Exploration with Unscented Bayesian Optimization and Collision Penalty*, pp. 1643-1648.

Castanheira, João	Institute for Systems and Robotics (ISR-Lisboa-LARSyS), Institut
Vicente, Pedro	Institute for Systems and Robotics (ISR-Lisboa-LARSyS), Institut
Martinez-Cantin, Ruben	Centro Universitario De La Defensa
Jamone, Lorenzo	Queen Mary University London
Bernardino, Alexandre	IST - Técnico Lisboa

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**TuDTS3** Room 1.L2  
**Localization and Mapping IV** (Regular session)

Chair: Choi, Hyun-Taek	Korea Institute of Oceans Science and Technology
Co-Chair: Uhm, Taeyoung	Korean Institute of Robot and Convergence

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17:00-17:03 TuDTS3.1

*Indoor Mapping and Localization for Pedestrians Using Opportunistic Sensing with Smartphones*, pp. 1649-1656.

Liang, Qing	Hong Kong University of Science and Technology
Wang, Lujia	Shenzhen Institutes of Advanced Technology
Li, You-Fu	City University of Hong Kong
Liu, Ming	Hong Kong University of Science and Technology

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17:03-17:06 TuDTS3.2

*Navigation without Localisation: Reliable Teach and Repeat Based on the Convergence Theorem*, pp. 1657-1664.

Krajník, Tomáš	Czech Technical University
Majer, Filip	FEE, Czech Technical University
Halodová, Lucie	Czech Technical University
Vintr, Tomas	FEE, Czech Technical University in Prague

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17:06-17:09 TuDTS3.3

*Accurate Mix-Norm-Based Scan Matching*, pp. 1665-1671.

Wang, Di	Xi'an Jiaotong University
Xue, Jianru	Xi'an Jiaotong University
Tao, Zhongxing	Xi'an Jiaotong University
Zhong, Yang	Xi'an Jiaotong University
Cui, Dixiao	Xi'an Jiaotong University
Du, Shaoyi	Xi'an Jiaotong University
Zheng, Nanning	Xi'an Jiaotong University

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17:09-17:12 TuDTS3.4

*StreetMap - Mapping and Localization on Ground Planes Using a Downward Facing Camera*, pp. 1672-1679.

Chen, Xu	ETH Zürich
Vempati, Anurag Sai	ETH Zurich, Disney Research Zurich
Beadsley, Paul	Disney Research Zurich

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17:12-17:15 TuDTS3.5

*The TUM VI Benchmark for Evaluating Visual-Inertial Odometry*, pp. 1680-1687.

Schubert, David	Technical University of Munich
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Goll, Thore	Technische Universität München
Demmel, Nikolaus	Technische Universität München
Usenko, Vladyslav	TU Munich
Stueckler, Joerg	Max-Planck Institute for Intelligent Systems
Cremers, Daniel	Technical University of Munich
17:15-17:18	TuDTS3.6
<i>Scale-Robust Localization Using General Object Landmarks</i> , pp. 1688-1694.	
Holliday, Andrew	McGill University
Dudek, Gregory	McGill University
17:18-17:21	TuDTS3.7
<i>Localization of an Acoustic Fish-Tag Using the Time-Of-Arrival Measurements: Preliminary Results Using Exogenous Kalman Filter</i> , pp. 1695-1702.	
Jain, R. Praveen	Faculty of Engineering (FEUP), University of Porto
Zolich, Artur Piotr	Norwegian University of Science and Technology
Erstorp, Elias Strandell	KTH Royal Institute of Technology
Johansen, Tor Arne	Norwegian University of Science and Technology
Alfredsen, Jo Arve	Norwegian University of Science and Technology
Aguiar, A. Pedro	Faculty of Engineering, University of Porto (FEUP)
Kuttenkeuler, Jakob	KTH Royal Institute of Technology
Sousa, João	Universidade Porto - Faculdade Engenharia
17:21-17:24	TuDTS3.8
<i>Invariant Smoothing on Lie Groups</i> , pp. 1703-1710.	
Chauchat, Paul	Mines Paristech, Safran
Bonnabel, Silvere	Mines ParisTech
Barrau, Axel	Safran
<b>TuDTS4</b>	Room 2.L2
<b>Legged Robots I (Regular session)</b>	
Chair: Kheddar, Abderrahmane	CNRS-AIST JRL (Joint Robotics Laboratory), UMI3218/CRT
Co-Chair: Meek, Sanford	University of Utah
17:00-17:03	TuDTS4.1
<i>Online Self-Body Image Acquisition Considering Changes in Muscle Routes Caused by Softness of Body Tissue for Tendon-Driven Musculoskeletal Humanoids</i> , pp. 1711-1717.	
Kawaharazuka, Kento	The University of Tokyo
Makino, Shogo	The University of Tokyo
Kawamura, Masaya	The University of Tokyo
Fujii, Ayaka	University of Tokyo
Asano, Yuki	The University of Tokyo
Okada, Kei	The University of Tokyo
Inaba, Masayuki	The University of Tokyo
17:03-17:06	TuDTS4.2
<i>A Combined RGB and Depth Descriptor for SLAM with Humanoids</i> , pp. 1718-1724.	
Sheikh, Rasha	University of Bonn
Osswald, Stefan	University of Bonn
Bennewitz, Maren	University of Bonn
17:06-17:09	TuDTS4.3
<i>Neural-Network-Controlled Spring Mass Template for Humanoid</i>	

<i>Running</i> , pp. 1725-1731.	
Xin, Songyan	Istituto Italiano Di Tecnologia (IIT)
Delhaisse, Brian	Istituto Italiano Di Tecnologia
You, Yangwei	Istituto Italiano Di Tecnologia
Zhou, Chengxu	Fondazione Istituto Italiano Di Tecnologia
Shahbazi, Mohammad	Istituto Italiano Di Tecnologia (IIT)
Tsagarakis, Nikos	Istituto Italiano Di Tecnologia
17:09-17:12	TuDTS4.4
<i>Quadruped Locomotion Control Based on Two Bipedes Jointly Carrying Model</i> , pp. 1732-1738.	
Zhang, Guoteng	Ritsumeikan University
Ma, Shugen	Ritsumeikan University
Liang, Felix	University of Washington
Li, Yibin	Shandong University
17:12-17:15	TuDTS4.5
<i>An Investigation of 2nd-Order Fixed Point SLIP Behavior</i> , pp. 1739-1744.	
Kontolatis, Ioannis	National Technical University of Athens
Papadopoulos, Evangelos	National Technical University of Athens
17:15-17:18	TuDTS4.6
<i>Cost of Transport Estimation for Legged Robot Based on Terrain Features Inference from Aerial Scan</i> , pp. 1745-1750.	
Pragr, Milos	Czech Technical University in Prague, FEE
Cizek, Petr	Czech Technical University in Prague, Faculty of Electrical Engi
Faigl, Jan	Czech Technical University in Prague
17:18-17:21	TuDTS4.7
<i>Determining Optimal Gait Parameters for a Statically Stable Walking Human Assistive Quadruped Robot</i> , pp. 1751-1756.	
McClain, Eric	University of Utah
Meek, Sanford	University of Utah
17:21-17:24	TuDTS4.8
<i>An Adaptive Landing Gear for Extending the Operational Range of Helicopters</i> , pp. 1757-1763.	
Stolz, Boris	ETH Zürich
Brödermann, Tim	ETH Zürich
Castiello, Enea	ZHAW
Englberger, Gokula	ETH Zürich
Erne, Daniel	ETH Zürich
Gasser, Jan	ETH Zürich
Hayoz, Eric	ETH Zürich
Müller, Stephan	ETH Zürich
Mühlebach, Lorin	ETH Zürich
Löw, Tobias	ETH Zürich
Scheuer, Dominique	ZHAW
Vandeventer, Luca	ETH Zürich
Bjelonic, Marko	ETH Zurich
Günther, Fabian	ETH Zürich
Kolvenbach, Hendrik	ETHZ
Höpfinger, Mark	Armasuisse
Hutter, Marco	ETH Zurich
<b>TuDTS5</b>	Room 2.R3

<b>Medical Robots IV (Regular session)</b>	
Chair: Stramigioli, Stefano	University of Twente
17:00-17:03	TuDTS5.1
<i>Designing Concentric Tube Manipulators for Stability Using Topology Optimization</i> , pp. 1764-1769.	
Ai Xin Jue Luo, Kevin	University of Toronto
Looi, Thomas	Hospital for Sick Children
Sabetian, Saba	University of Toronto
Drake, James	Hospital for Sick Children, University of Toronto
17:03-17:06	TuDTS5.2
<i>Haptic Feedback and Dynamic Active Constraints for Robot-Assisted Endovascular Catheterization</i> , pp. 1770-1775.	
Dagnino, Giulio	Imperial College London
Liu, Jindong	Imperial College London
Abdelaziz, Mohamed Essam Mohamed Kassem	Imperial College London
Chi, Wenqiang	Imperial College London
Riga, Celia	Imperial College London
Yang, Guang-Zhong	Imperial College London
17:06-17:09	TuDTS5.3
<i>Intuitive Gaze-Control of a Robotized Flexible Endoscope</i> , pp. 1776-1782.	
Oude Vrielink, Timo Joric Corman	Imperial College London
González-Bueno Puyal, Juana	Imperial College London
Kogkas, Alexandros	Imperial College London
Mylonas, George	Imperial College London
Darzi, Ara	Imperial College London
17:09-17:12	TuDTS5.4
<i>A Soft Robot to Navigate the Lumens of the Body Using Undulatory Locomotion Generated by a Rotating Magnetic Dipole Field</i> , pp. 1783-1788.	
Pham, Lan	University of Utah
Abbott, Jake	University of Utah
17:12-17:15	TuDTS5.5
<i>A Robot System for Automated Wound Filling with Jetted Materials</i> , pp. 1789-1794.	
Hosseini Jafari, Bashir	Universit of Texas Atdallas
Lee, Namhyung	University of Texas at Dallas
Thompson, Rachael	MIT
Schellhorn, Jackson	University of Texas at Dallas
Antohe, Bogdan	Microfab Inc
Gans, Nicholas (Nick)	University Texas at Dallas
17:15-17:18	TuDTS5.6
<i>State Estimation for MRI-Actuated Catheters Via Catadioptric Stereo Camera</i> , pp. 1795-1800.	
Greigarn, Tipakorn	Case Western Reserve University
Jackson, Russell	Case Western Reserve University
Cavusoglu, M. Cenk	Case Western Reserve University
17:18-17:21	TuDTS5.7
<i>Unsupervised Odometry and Depth Learning for Endoscopic Capsule Robots</i> , pp. 1801-1807.	
Turan, Mehmet	Max Planck Institute Stuttgart
Ornek, Evin Pinar	TU Munich
Ibrahimi, Nail	Technical University of Munich
Giracoglu, Can	Technical University of Munich
Almalioglu, Yasin	Bogazici University

Yanik, Mehmet Fatih	ETH
Sitti, Metin	Max-Planck Institute for Intelligent Systems
17:21-17:24	TuDTS5.8
<i>Evaluation of Torque Measurement Surrogates As Applied to Grip Torque and Jaw Angle Estimation of Robotic Surgical Tools</i> , N/A.	
O'Neill, John	University of Minnesota
Stephens, Trevor Keith	University of Minnesota
Kowalewski, Timothy	University of Minnesota
<b>TuDTS6</b>	Room 1.L3
<b>Human-Robot Interaction III (Regular session)</b>	
Chair: Asada, Minoru	Osaka University
Co-Chair: Hagita, Norihiro	ATR
17:00-17:03	TuDTS6.1
<i>Bayesian-Inferred Flexible Path Generation in Human-Robot Collaborative Networks</i> , pp. 1816-1822.	
Bentz, William	University of Michigan
Panagou, Dimitra	University of Michigan, Ann Arbor
17:03-17:06	TuDTS6.2
<i>Head-Mounted Augmented Reality for Explainable Robotic Wheelchair Assistance</i> , pp. 1823-1829.	
Zolotas, Mark	Imperial College London
Elsdon, Joshua	Imperial College London
Demiris, Yiannis	Imperial College London
17:06-17:09	TuDTS6.3
<i>Progressive Automation with DMP Synchronization and Variable Stiffness Control</i> , N/A.	
Kastritsi, Theodora	Aristotle University of Thessaloniki
Dimeas, Fotios	Aristotle University of Thessaloniki
Doulgeri, Zoe	Aristotle University of Thessaloniki
17:09-17:12	TuDTS6.4
<i>Robot Programming through Augmented Trajectories in Augmented Reality</i> , pp. 1838-1844.	
Perez Quintero, Camilo Alfonso	University of Alberta
Li, Hui Qing	University of Washington
Pan, Matthew	University of British Columbia
Chan, Wesley Patrick	University of British Columbia
Van der Loos, H.F. Machiel	University of British Columbia (UBC)
Croft, Elizabeth	Monash University
17:12-17:15	TuDTS6.5
<i>The HRC Model Set for Human-Robot Collaboration Research</i> , pp. 1845-1852.	
Zeylikman, Sofya	Yale University
Widder, Sarah	Yale University
Ronccone, Alessandro	Yale University
Mangin, Olivier	Yale University
Scassellati, Brian	Yale
17:15-17:18	TuDTS6.6
<i>Band of Brothers and Bolts: Caring about Your Robot Teammate</i> , pp. 1853-1858.	
Wen, James	United States Air Force Academy
Stewart, Amanda	United States Air Force Academy

Billingshurst, Mark	Univ of Canterbury
Tossell, Chad	USAF Academy
17:18-17:21	TuDTS6.7
<i>DNN-Based Speech Recognition System Dealing with Motor State As Auxiliary Information of DNN for Head Shaking Robot</i> , pp. 1859-1863.	
Lee, Moa	Hanyang University
Chang, Joon-Hyuk	Hanyang University
17:21-17:24	TuDTS6.8
<i>The Power of a Hand-Shake in Human-Robot Interactions</i> , pp. 1864-1869.	
Avelino, João	Instituto Superior Técnico, Universidade De Lisboa
Correia, Filipa	INESC-ID and Instituto Superior Técnico, Technical University Of
Catarino, João	Departamento De Engenharia Informática, Instituto Superior Técnico
Ribeiro, Pedro	Departamento De Engenharia Informática, Instituto Superior Técnico
Moreno, Plinio	IST-ID
Bernardino, Alexandre	IST - Técnico Lisboa
Paiva, Ana	INESC-ID and Instituto Superior Técnico, TechnicalUniversity Of
<b>TuDTS7</b>	Room 2.L3
<b>Marine Robotics I (Regular session)</b>	
Chair: Ridao, Pere	Universitat De Girona
Co-Chair: From, Pål Johan	Norwegian University of Life Sciences
17:00-17:03	TuDTS7.1
<i>Received Signal Strength of Electromagnetic Waves Aided Integrated Inertial Navigation System for Underwater Vehicle</i> , pp. 1870-1876.	
Park, Daegil	POSTECH
Jung, Jaehoon	Pohang University of Science and Technology(POSTECH)
Kwak, Kyung min	Seoul National University of Science and Technology (SEOULTECH)
Kim, Jinhyun	Seoul National University of Science and Technology
Chung, Wan Kyun	POSTECH
17:03-17:06	TuDTS7.2
<i>Multibeam Data Processing for Underwater Mapping</i> , pp. 1877-1884.	
Vaz Teixeira, Pedro	Massachusetts Institute of Technology
Kaess, Michael	Carnegie Mellon University
Hover, Franz	MIT
Leonard, John	MIT
17:06-17:09	TuDTS7.3
<i>Vision-Based Autonomous Underwater Swimming in Dense Coral for Combined Collision Avoidance and Target Selection</i> , pp. 1885-1891.	
Manderson, Travis	McGill University
Gamboa Higuera, Juan Camilo	McGill University
Cheng, Ran	McGill University
Dudek, Gregory	McGill University
17:09-17:12	TuDTS7.4
<i>Robust Continuous System Integration for Critical Deep-Sea</i>	

<i>Robot Operations Using Knowledge-Enabled Simulation in the Loop</i> , pp. 1892-1899.	
Mueller, Christian Atanas	Jacobs University
Doernbach, Tobias	Jacobs University
Gomez Chavez, Arturo	Jacobs University Bremen GmbH
Köhntopp, Daniel	Jacobs University
Birk, Andreas	Jacobs University
17:12-17:15	TuDTS7.5
<i>Reliable Fusion of Black-Box Estimates of Underwater Localization</i> , pp. 1900-1905.	
Ferreira Chame, Hendry	Federal University of Rio Grande (FURG)
Machado, dos Santos, Matheus	FURG
Botelho, Silvia	University Federal of Rio Grande (FURG)
17:15-17:18	TuDTS7.6
<i>Coverage Optimization with Non-Actuated, Floating Mobile Sensors Using Iterative Trajectory Planning in Marine Flow Fields</i> , pp. 1906-1912.	
Hansen, Johanna	McGill University
Dudek, Gregory	McGill University
17:18-17:21	TuDTS7.7
<i>A Deformable Spiral Based Algorithm to Smooth Coverage Path Planning for Marine Growth Removal</i> , pp. 1913-1918.	
Hassan, Mahdi	University of Technology, Sydney
Liu, Dikai	University of Technology, Sydney
17:21-17:24	TuDTS7.8
<i>Acoustic Tag State Estimation with Unsynchronized Hydrophones on AUVs</i> , pp. 1919-1926.	
Shi, Jingnan	Harvey Mudd College
Ma, Tianyi	Harvey Mudd College
Lee, Chi-Yen	Harvey Mudd College
Shimelis, Eyassu	Harvey Mudd College
Van Eijk, Charles	Harvey Mudd College
Lowe, Christopher G.	California State University, Long Beach
Clark, Christopher M.	Harvey Mudd College
<b>TuDTS8</b>	Room 2.R1
<b>Robot Design IV (Regular session)</b>	
Chair: Gimenez, Antonio	University of Almeria
Co-Chair: Tolley, Michael T.	University of California, San Diego
17:00-17:03	TuDTS8.1
<i>GelSlim: A High-Resolution, Compact, Robust, and Calibrated Tactile-Sensing Finger</i> , pp. 1927-1934.	
Donlon, Elliott	MIT
Dong, Siyuan	MIT
Liu, Melody	MIT
Li, Jianhua	Massachusetts Institute of Technology
Adelson, Edward	MIT
Rodriguez, Alberto	Massachusetts Institute of Technology
17:03-17:06	TuDTS8.2
<i>Long Duration Surface Anchoring with a Hybrid Electrostatic and Gecko-Inspired Adhesive</i> , N/A.	
Ruffatto III, Donald	NASA Jet Propulsion Lab

Glick, Paul	UCSD Bioinspired Robotics and Design Lab
Tolley, Michael T.	University of California, San Diego
Parness, Aaron	Nasa Jet Propulsion Laboratory
17:06-17:09	TuDTS8.3
<i>Single-Grasp, Model-Free Object Classification Using a Hyper-Adaptive Hand, Google Soli, and Tactile Sensors</i> , pp. 1943-1950.	
Flintoff, Zak Jake	University of Auckland
Johnston, Bruno Douglas	The University of Auckland
Liarokapis, Minas	The University of Auckland
17:09-17:12	TuDTS8.4
<i>Design of a Bioinspired Robotic Hand: Magnetic Synapse Sensor Integration for a Robust Remote Tactile Sensing</i> , N/A.	
Kim, Sang-Hun	Seoul National University
Oh, Sunjong	Korea Institute of Machinery and Materials
Kim, Kyu Bum	Seoul National University
Jung, Youngdo	Korea Institute of Machinery and Materials
Lim, Hyuneui	Korea Institute of Machinery & Materials
Cho, Kyu-Jin	Seoul National University, Biorobotics Laboratory
17:12-17:15	TuDTS8.5
<i>A Soft Optical Waveguide Coupled with Fiber Optics for Dynamic Pressure and Strain Sensing</i> , N/A.	
To, Celeste	Carnegie Mellon
Hellebrekers, Tess	Carnegie Mellon University
Jung, Jaewoong	Seoul National University
Yoon, Sohee John	Seoul National University
Park, Yong-Lae	Seoul National University
17:15-17:18	TuDTS8.6
<i>Development of New Terminal Fixation Method for Synthetic Fiber Rope</i> , N/A.	
Horigome, Atsushi	Tokyo Institute of Technology
Endo, Gen	Tokyo Institute of Technology
Takata, Atsushi	Tokyo Institute of Technology
Wakabayashi, Youki	Tokyo Institute of Technology
17:18-17:21	TuDTS8.7
<i>The PREHydra: A Passive Return, High Force Density, Electro-Hydrostatic Actuator Concept for Wearable Robotics</i> , N/A.	
Staman, Kyrian	University of Twente
Veale, Allan Joshua	University of Twente
Van der Kooij, Herman	University of Twente
17:21-17:24	TuDTS8.8
<i>Analytical and Experimental Analysis for Position Optimization of a Grasp Assistance Supernumerary Robotic Hand</i> , N/A.	
Ciullo, Andrea Stefano	Istituto Italiano Di Tecnologia
Felici, Federica	Istituto Italiano Di Tecnologia
Catalano, Manuel Giuseppe	Istituto Italiano Di Tecnologia
Grioli, Giorgio	Istituto Italiano Di Tecnologia
Ajoudani, Arash	Istituto Italiano Di Tecnologia
Bicchi, Antonio	Università Di Pisa

**TuDTS9** Room 4.L1

**Special Session: Cultural Factors in Human-Robot Interaction (Regular session)**

Chair: Sgorbissa, Antonio University of Genova  
 Co-Chair: Chong, Nak Young Japan Advanced Inst. of Sci. and

	Tech
17:00-17:03	TuDTS9.1
<i>Encoding Guidelines for a Culturally Competent Robot for Elderly Care (I)</i> , pp. 1988-1995.	
Sgorbissa, Antonio	University of Genova
Papadopoulos, Irena	Middlesex University Higher Education Corporation
Bruno, Barbara	University of Genova
Koulouglioti, Christina	Middlesex University Higher Education Corporation, the Burroughs
Recchiuto, Carmine Tommaso	University of Genova
17:03-17:06	TuDTS9.2
<i>Embedding Ethics in the Design of Culturally Competent Socially Assistive Robots (I)</i> , pp. 1996-2001.	
Battistuzzi, Linda	University of Genova
Papadopoulos, Chris	University of Bedfordshire
Papadopoulos, Irena	Middlesex University Higher Education Corporation
Koulouglioti, Christina	Middlesex University Higher Education Corporation, the Burroughs
Sgorbissa, Antonio	University of Genova
17:06-17:09	TuDTS9.3
<i>Developing a New Brand of Culturally-Aware Personal Robots Based on Local Cultural Practices in the Danish Health Care System (I)</i> , pp. 2002-2007.	
Rehm, Matthias	Aalborg University
Krummheuer, Antonia	Aalborg University
Rodil, Kasper	Aalborg University
17:09-17:12	TuDTS9.4
<i>Emotional Bodily Expressions for Culturally Competent Robots through Long Term Human-Robot Interaction (I)</i> , pp. 2008-2013.	
Tuyen, Nguyen Tan Viet	Japan Advanced Institute of Science and Technology
Jeong, Sungmoon	Japan Advanced Institute of Science and Technology
Chong, Nak Young	Japan Advanced Inst. of Sci. and Tech
17:12-17:15	TuDTS9.5
<i>Identification of the User's Habits Based on Activity Information (I)</i> , pp. 2014-2019.	
Melo, Nicholas	Chubu University
Lee, Jaeryoung	Chubu University
Suzuki, Ryo	Chubu University
17:15-17:18	TuDTS9.6
<i>AIBO Robot Mortuary Rites in the Japanese Cultural Context (I)</i> , pp. 2020-2025.	
Knox, Elena	Waseda University
Watanabe, Katsumi	Waseda University
17:18-17:21	TuDTS9.7
<i>Social Robots As a Means of Integration? an Explorative Acceptance Study Considering Gender and Non-Verbal Behaviour (I)</i> , pp. 2026-2032.	
Lugrin, Birgit	University of Wuerzburg
Bergmann, Kirsten	University of Applied Sciences Bielefeld
Dippold, Jessica	University of Wuerzburg
17:21-17:24	TuDTS9.8
<i>Do I Act Familiar? Investigating the Similarity-Attraction Principle on Culture-Specific Communicative Behaviour for Social Robots (I)</i> , pp. 2033-2039.	

Lugrin, Birgit	University of Wuerzburg
Bartl, Andrea	University of Wuerzburg
Striepe, Hendrik	University of Wuerzburg
Lax, Jennifer	University of Wuerzburg
Toriizuka, Takashi	Nihon University

<b>TuETS1</b>	Room 1.L5
<b>Deep Learning V</b> (Regular session)	
Co-Chair: Matellan, Vicente	Universidad De Leon
18:00-18:03	TuETS1.1
<i>Dexterous Manipulation Graphs</i> , pp. 2040-2047.	
Cruciani, Silvia	KTH Royal Institute of Technology
Smith, Claes Christian	KTH Royal Institute of Technology
Kragic, Danica	KTH
Hang, Kaiyu	Yale University
18:03-18:06	TuETS1.2
<i>Instance Segmentation of Visible and Occluded Regions for Finding and Picking Target from a Pile of Objects</i> , pp. 2048-2055.	
Wada, Kentaro	The University of Tokyo
Kitagawa, Shingo	University of Tokyo
Okada, Kei	The University of Tokyo
Inaba, Masayuki	The University of Tokyo
18:06-18:09	TuETS1.3
<i>Online Prediction of Threading Task Failure Using Convolutional Neural Networks</i> , pp. 2056-2061.	
Ribeiro Moreira, Guilherme	University of Sao Paulo
Giardini Lahr, Gustavo Jose	University of Sao Paulo
Savazzi, Jose Otavio	EMBRAER
Boaventura, Thiago	University of Sao Paulo
Caurin, Glauco Augusto de Paula	Eesc - Usp
18:09-18:12	TuETS1.4
<i>Deep Reinforcement Learning for Robotic Assembly of Mixed Deformable and Rigid Objects</i> , pp. 2062-2069.	
Luo, Jianlan	UC Berkeley
Solowjow, Eugen	Hamburg University of Technology
Wen, Chengtao	Siemens
Aparicio Ojea, Juan	Siemens
Agogino, Alice	University of California Berkeley
18:12-18:15	TuETS1.5
<i>More Than a Feeling: Learning to Grasp and Regrasp Using Vision and Touch</i> , N/A.	
Calandra, Roberto	University of California Berkeley
Owens, Andrew	MIT
Jayaraman, Dinesh	University of California, Berkeley
Lin, Justin	University of California, Berkeley
Yuan, Wenzhen	MIT
Malik, Jitendra	UC Berkeley
Adelson, Edward	MIT
Levine, Sergey	UC Berkeley
18:15-18:18	TuETS1.6
<i>A Multimodal Classifier Generative Adversarial Network for Carry and Place Tasks from Ambiguous Language Instructions</i> , N/A.	
Magassouba, Aly	NICT
Sugiura, Komei	National Institute of Information and Communications Tech
Kawai, Hisashi	National Institute of Information

	and Communications Technology
18:18-18:21	TuETS1.7
<i>RT3D: Real-Time 3D Vehicle Detection in LiDAR Point Cloud for Autonomous Driving</i> , N/A.	
Zeng, Yiming	Institute of Computing Technology, Chinese Academy of Sciences,
Hu, Yu	Institute of Computing Technology Chinese Academy of Sciences
Liu, Shice	Institute of Computing Technology Chinese Academy of Sciences
Ye, Jing	Institute of Computing Technology, Chinese Academy of Sciences
Han, Yinhe	Institute of Computing Technology, Chinese Academy of Sciences
Li, Xiaowei	Institute of Computing Technology, Chinese Academy of Sciences
Sun, Ninghui	Institute of Computing Technology, Chinese Academy of Sciences
18:21-18:24	TuETS1.8
<i>Inference Over Distribution of Posterior Class Probabilities for Reliable Bayesian Classification and Object-Level Perception</i> , N/A.	
Tchuiuev, Vladimir	Technion Israel Institute of Technology
Indelman, Vadim	Technion - Israel Institute of Technology
<b>TuETS2</b>	Room 2.L5 KUKA
<b>Tactile and Force Sensing II</b> (Regular session)	
Chair: Lepora, Nathan	University of Bristol
Co-Chair: Feliu, Vicente	Escuela Técnica Superior De Ingenieros Industriales/Universidad De Castilla La-Mancha
18:00-18:03	TuETS2.1
<i>A Sensor-Less Catheter Contact Force Estimation Approach in Endovascular Intervention Procedures</i> , pp. 2100-2106.	
Razban, Masoud	Concordia University
Dargahi, Javad	Concordia University
Boulet, Benoit	McGill University, Centre for Intelligent Machines
18:03-18:06	TuETS2.2
<i>Contact Force Control of an Aerial Manipulator in Pressing an Emergency Switch Process</i> , pp. 2107-2113.	
Meng, Xiangdong	Shenyang Institute of Automation, Chinese Academy of Sciences
He, Yuqing	Shenyang Institute of Automation, Chinese Academy of Sciences
Li, Qi	SAP
Gu, Feng	Shenyang Institute of Automation, CAS
Yang, Liying	Shenyang Institute of Automation
Yan, Tengfei	State Key Laboratory of Robotics, Shenyang Institute of Automati
Han, Jianda	Shenyang Institute of

		Automation, Chinese Academy of Sciences
18:06-18:09		TuETS2.3
<i>Mechatronic Fingernail with Static and Dynamic Force Sensing</i> , pp. 2114-2119.		
Köiva, Risto		Bielefeld University
Schwank, Tobias		Bielefeld University
Walck, Guillaume		Bielefeld University
Haschke, Robert		Bielefeld University
Ritter, Helge Joachim		Bielefeld University
18:09-18:12		TuETS2.4
<i>Contact Force and Joint Torque Estimation Using Skin</i> , N/A.		
Andrade Chavez, Francisco Javier		Istituto Italiano Di Tecnologia
Kangro, Joan		Italian Institute of Technology
Traversaro, Silvio		Istituto Italiano Di Tecnologia
Nori, Francesco		DeepMind
Pucci, Daniele		Italian Institute of Technology
18:12-18:15		TuETS2.5
<i>Slip Detection with a Biomimetic Tactile Sensor</i> , N/A.		
James, Jasper Wollaston		University of Bristol
Pestell, Nicholas		University of Bristol
Lepora, Nathan		University of Bristol
18:15-18:18		TuETS2.6
<i>Active Sensing for Measuring Contact of Thin Film Gecko-Inspired Adhesives</i> , N/A.		
Huh, Tae Myung		Stanford University
Liu, Cheng		Stanford University
Hashizume, Jiro		Hitachi America Ltd
Chen, Tony G.		Stanford University
Chang, Fu-Kuo		Stanford University
Cutkosky, Mark		Stanford University
18:18-18:21		TuETS2.7
<i>Dynamic Locomotion Gaits of a Compliantly Actuated Quadruped with SLIP-Like Articulated Legs Embodied in the Mechanical Design</i> , N/A.		
Lakatos, Dominic		German Aerospace Center (DLR)
Ploeger, Kai		Technische Universität Darmstadt
Loeffl, Florian		German Aerospace Center (DLR)
Seidel, Daniel		Technische Universität München
Schmidt, Florian		German Aerospace Center
Gumpert, Thomas		German Aerospace Center (DLR)
John, Freia Irina		TU Dortmund University
Bertram, Prof. Dr. Prof. h.c. Torsten		Technical University Ilmenau
Albu-Schäffer, Alin		DLR - German Aerospace Center
18:21-18:24		TuETS2.8
<i>Friction Variability in Planar Pushing Data: Anisotropic Friction and Data-Collection Bias</i> , N/A.		
Ma, Daolin		Massachusetts Institute of Technology
Rodriguez, Alberto		Massachusetts Institute of Technology

Chair: Sandamirskaya, Yulia		University and ETH Zurich
Co-Chair: Uhm, Taeyoung		Korean Institute of Robot and Convergence
18:00-18:03		TuETS3.1
<i>Pose Estimation and Map Formation with Spiking Neural Networks: Towards Neuromorphic SLAM</i> , pp. 2159-2166.		
Kreiser, Raphaela		Institute of Neuroinformatics, University Zurich and ETH Zurich
Pienroj, Panin		D-ITET, ETH Zurich
Renner, Alpha		Institute of Neuroinformatics, University of Zurich and ETH Zurich
Sandamirskaya, Yulia		University and ETH Zurich
18:03-18:06		TuETS3.2
<i>Precise Localization in High-Definition Road Maps for Urban Regions</i> , pp. 2167-2174.		
Poggenhans, Fabian		FZI Research Center for Information Technology
Salscheider, Niels Ole		FZI Forschungszentrum Informatik
Stiller, Christoph		Karlsruhe Institute of Technology
18:06-18:09		TuETS3.3
<i>Virtual Occupancy Grid Map for Submap-Based Pose Graph SLAM and Planning in 3D Environments</i> , pp. 2175-2182.		
Ho, Bing-Jui		Carnegie Mellon University
Sodhi, Paloma		Carnegie Mellon University
Vaz Teixeira, Pedro		Massachusetts Institute of Technology
Hsiao, Ming		Carnegie Mellon University
Kusnur, Tushar		BITS Pilani, K. K. Birla Goa Campus
Kaess, Michael		Carnegie Mellon University
18:09-18:12		TuETS3.4
<i>Decentralized Localization Framework Using Heterogeneous Map-Matchings</i> , pp. 2183-2189.		
Lee, Soomok		Seoul National University
Kim, Junghoon		Seoul National University
Kim, JungWoo		Seoul National University
Oh, Gyu-Min		Seoul National University
Seo, Seung-Woo		Seoul National University
18:12-18:15		TuETS3.5
<i>HBST: A Hamming Distance Embedding Binary Search Tree for Feature-Based Visual Place Recognition</i> , N/A.		
Schlegel, Dominik		Sapienza - University of Rome
Grisetti, Giorgio		Sapienza University of Rome
18:15-18:18		TuETS3.6
<i>LDSO: Direct Sparse Odometry with Loop Closure</i> , pp. 2198-2204.		
Gao, Xiang		Technical University of Munich
Wang, Rui		Technical University of Munich
Demmel, Nikolaus		Technische Universität München
Cremers, Daniel		Technical University of Munich
18:18-18:21		TuETS3.7
<i>Omnidirectional DSO: Direct Sparse Odometry with Fisheye Cameras</i> , N/A.		
Matsuki, Hidenobu		The University of Tokyo
von Stumberg, Lukas		Technische Universität München
Usenko, Vladyslav		TU Munich
Stueckler, Joerg		Max-Planck Institute for Intelligent Systems
Cremers, Daniel		Technical University of Munich

**TuETS3**

Room 1.L2

**Localization and Mapping V** (Regular session)

18:21-18:24	TuETS3.8
<i>Parking Spot Estimation and Mapping for Mobile Robots</i> , N/A.	
Westfechtel, Thomas	Tohoku University
Ohno, Kazunori	Tohoku University
Mizuno, Naoki	Tohoku University
Hamada, Ryunosuke	Tohoku University
Kojima, Shotaro	Tohoku University
Tadokoro, Satoshi	Tohoku University

<b>TuETS4</b>	Room 2.L2
<b>Legged Robots II (Regular session)</b>	

Chair: Yoshida, Eiichi	National Inst. of AIST
Co-Chair: Ramirez-Amaro, Karinne	Institute for Cognitive Systems. Technische Universität München

18:00-18:03	TuETS4.1
<i>Energetic Efficiency of a Compositional Controller on a Monoped with an Articulated Leg and SLIP Dynamics</i> , pp. 2221-2228.	
Yu, Jeffrey	UCLA
Hong, Dennis	UCLA
Haberland, Matt	University of California, Los Angeles

18:03-18:06	TuETS4.2
<i>Precision Jumping Limits from Flight-Phase Control in Salto-1P</i> , pp. 2229-2236.	
Yim, Justin K.	University of California, Berkeley
Fearing, Ronald	University of California at Berkeley

18:06-18:09	TuETS4.3
<i>Analytically-Guided Design of a Tailed Bipedal Hopping Robot</i> , pp. 2237-2244.	
Shamsah, Abdulaziz	University of Pennsylvania
De, Avik	University of Pennsylvania
Koditschek, Daniel	University of Pennsylvania

18:09-18:12	TuETS4.4
<i>MIT Cheetah 3: Design and Control of a Robust, Dynamic Quadruped Robot</i> , pp. 2245-2252.	
Bledt, Gerardo	Massachusetts Institute of Technology (MIT)
Powell, Matthew	Massachusetts Institute of Technology
Katz, Benjamin	Massachusetts Institute of Technology
Di Carlo, Jared	Massachusetts Institute of Technology
Wensing, Patrick M.	University of Notre Dame
Kim, Sangbae	Massachusetts Institute of Technology

18:12-18:15	TuETS4.5
<i>Magneto: A Versatile Multi-Limbed Inspection Robot</i> , pp. 2253-2260.	
Bandyopadhyay, Tirthankar	CSIRO
Steindl, Ryan James	CSIRO
Talbot, Fletcher	CSIRO
Kottege, Navinda	CSIRO
Dungavell, Ross	CSIRO
Wood, Brett	CSIRO
Barker, James	CSIRO
Hoehn, Karsten	CSIRO
Elfes, Alberto	CSIRO

18:15-18:18	TuETS4.6
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<i>Data-Driven Discrete Planning for Targeted Hopping of Compliantly Actuated Robotic Legs</i> , pp. 2261-2266.	
Seidel, Daniel	Technische Universität München
Lakatos, Dominic	German Aerospace Center (DLR)
Albu-Schäffer, Alin	DLR - German Aerospace Center

18:18-18:21	TuETS4.7
<i>Quadrupedal Walking Motion and Footstep Placement through Linear Model Predictive Control</i> , pp. 2267-2273.	
Laurenzi, Arturo	Istituto Italiano Di Tecnologia
Mingo Hoffman, Enrico	Fondazione Istituto Italiano Di Tecnologia
Tsagarakis, Nikos	Istituto Italiano Di Tecnologia

<b>TuETS5</b>	Room 2.R3
<b>Rehabilitation Robotics (Regular session)</b>	

Co-Chair: Jardon, Alberto	Universidad Carlos Iii De Madrid
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18:00-18:03	TuETS5.1
<i>A Synergetic Voluntary Control for Exoskeleton Based on Spinal Cord Mapping of Peripheral Bioelectric Activity</i> , pp. 2274-2279.	
Ishikawa, Shotaro	University of Tsukuba
Kadone, Hideki	University of Tsukuba
Suzuki, Kenji	University of Tsukuba

18:03-18:06	TuETS5.2
<i>Learning-Based Walking Assistance Control Strategy for a Lower Limb Exoskeleton with Hemiplegia Patients</i> , pp. 2280-2285.	
Huang, Rui	University of Electronic Science and Technology of China
Peng, Zhinan	University of Electronic Science and Tehcnology of China
Cheng, Hong	University of Electronic Science and Technology
Hu, Jiangping	University of Electronic Science and Technology of China
Qiu, Jing	University of Electronic Science and Technology of China
Zou, Chaobin	University of Electronic Science and Technology of China
Chen, Qiming	University of Electronic Science and Technology of China

18:06-18:09	TuETS5.3
<i>Similarity of the Impact of Humanoid and In-Person Communications on Frontal Brain Activity of Older People</i> , pp. 2286-2291.	
Keshmiri, Soheil	Advanced Telecommunications Research Institute International (AT
Sumioka, Hidenobu	ATR
Yamazaki, Ryuji	Advanced Telecommunications Research Institute
Okubo, Masataka	Osaka Univ
Ishiguro, Hiroshi	Osaka University

18:09-18:12	TuETS5.4
<i>A Phase Variable Approach to Volitional Control of Powered Knee-Ankle Prostheses</i> , pp. 2292-2298.	
Rezazadeh, Siavash	University of Texas at Dallas
Quintero, David	University of Texas at Dallas
Divekar, Nikhil	University of Texas at Dallas
Gregg, Robert D.	University of Texas at Dallas

18:12-18:15	TuETS5.5
<i>Pre-Clinical Validation of the UHP Multifunctional Upper-Limb Rehabilitation Robot Based Platform</i> , pp. 2299-2304.	

Mancisidor, Aitziber	University of the Basque Country (UPV/EHU)
Zubizarreta, Asier	University of the Basque Country (UPV/EHU)
Cabanes, Itziar	University of the Basque Country
Asier, Brul	University of the Basque Country
Ana, Rodriguez-Larrad	University of the Basque Country (UPV/EHU)
Jung, Je Hyung	Tecnalia

18:15-18:18 TuETS5.6

*Cable Actuated Dexterous (CADEX) Glove for Effective Rehabilitation of the Hand for Patients with Neurological Diseases*, pp. 2305-2310.

Kim, Dong Hyun	Korea Advanced Institute of Science and Technology
Park, Hyung-Soon	Korea Advanced Institute of Science and Technology

18:18-18:21 TuETS5.7

*Modified Adaptive Control of an Actuated Ankle Foot Orthosis to Assist Paretic Patients*, pp. 2311-2317.

Arnez-Paniagua, Victor	Université Paris-Est Créteil
Rifai, Hala	University of Paris Est Créteil
Amirat, Yacine	University of Paris Est Créteil (UPEC)
Ghedira, Mouna	Laboratoire Analyse Et Restauration Du Mouvement - GHU Henri Mon
Gracies, Jean-Michel	APHP - CHU Henri Mondor
Mohammed, Samer	University of Paris Est Créteil - (UPEC)

18:21-18:24 TuETS5.8

*SMA Based Wrist Exoskeleton for Rehabilitation Therapy*, pp. 2318-2323.

Serrano del Cerro, David	Universidad Carlos III De Madrid
Copaci, Dorin Sabin	Universidad Carlos III De Madrid
Moreno, Luis	Carlos III University
Blanco, M. Dolores	Carlos III University

**TuETS6** Room 1.L3  
**Human-Robot Interaction IV (Regular session)**

Chair: Sanfeliu, Alberto	Universitat Politècnica De Catalunya
Co-Chair: Wermter, Stefan	University of Hamburg

18:00-18:03 TuETS6.1

*Utility Model Re-Description within a Motivational System for Cognitive Robotics*, pp. 2324-2329.

Romero, Alejandro	University of Coruna
Bellas, Francisco	University of Coruna
Prieto, Abraham	Universidade Da Coruna
Duro, Richard	University of Coruna

18:03-18:06 TuETS6.2

*A Neurobotic Experiment for Crossmodal Conflict Resolution in Complex Environments*, pp. 2330-2335.

Parisi, German Ignacio	University of Hamburg
Barros, Pablo	University of Hamburg
Fu, Di	Chinese Academy of Sciences
Magg, Sven	University of Hamburg
Wu, Haiyan	CAS Key Laboratory of Behavioral Science, Chinese Academy of Sci
Liu, Xun	CAS Key Laboratory of Behavioral Science, Chinese Academy of Sci

Wermter, Stefan University of Hamburg

18:06-18:09 TuETS6.3

*Robust Object Recognition through Symbiotic Deep Learning in Mobile Robots*, pp. 2336-2341.

Cartucho, João	Institute for Systems and Robotics, Instituto Superior Técnico,
Ventura, Rodrigo	Instituto Superior Técnico
Veloso, Manuela	Carnegie Mellon University

18:09-18:12 TuETS6.4

*People As Sensors: Imputing Maps from Human Actions*, pp. 2342-2348.

Afolabi, Oladapo	University of California, Berkeley
Driggs-Campbell, Katherine Rose	Stanford University
Dong, Roy	University of California, Berkeley
Kochenderfer, Mykel	Stanford University
Sastry, Shankar	University of California, Berkeley

18:12-18:15 TuETS6.5

*How Do Humans Read Robotics? the Matter of the Lexical Ambiguity Resolution*, pp. 2349-2354.

Pieters, Céline	LAAS-CNRS, INSA Toulouse, France - ULB, Belgium
Danblon, Emmanuelle	ULB
Laumond, Jean-Paul	LAAS-CNRS

18:15-18:18 TuETS6.6

*Free-View, 3D Gaze-Guided, Assistive Robotic System for Activities of Daily Living*, pp. 2355-2361.

Wang, Ming-Yao	Imperial College London
Kogkas, Alexandros	Imperial College London
Mylonas, George	Imperial College London
Darzi, Ara	Imperial College London

18:21-18:24 TuETS6.8

*The Future of Legal and Ethical Regulations for Autonomous Robotics*, pp. 2362-2366.

Xu, Huan	University of Maryland
Borson, Joseph	Unaffiliated

**TuETS7** Room 2.L3  
**Marine Robotics II (Regular session)**

Chair: Kim, Ayoung	Korea Advanced Institute of Science Technology
Co-Chair: Kermorgant, Olivier	École Centrale Nantes

18:00-18:03 TuETS7.1

*Uncertainty-Based Online Mapping and Motion Planning for Marine Robotics Guidance*, pp. 2367-2374.

Pairet, Éric	Edinburgh Centre for Robotics
Hernández, Juan David	Rice University
Lahijanian, Morteza	University of Oxford
Carreras, Marc	Universitat De Girona

18:03-18:06 TuETS7.2

*Heterogeneous Vehicles Routing for Water Canal Damage Assessment*, pp. 2375-2382.

Deng, Di	Carnegie Mellon University
Pang, Tao	Massachusetts Institute of Technology
Palli, Prasanth	Carnegie Mellon University
Shu, Fang	Carnegie Mellon University
Shimada, Kenji	Carnegie Mellon University

18:06-18:09 TuETS7.3



*Passive Acoustic Tracking for Behavior Mode Classification between Surface and Underwater Vehicles*, pp. 2383-2388.

Fischell, Erin Marie	Woods Hole Oceanographic Institution
Viquez, Oscar	Massachusetts Institute of Technology
Schmidt, Henrik	Massachusetts Institute of Technology

18:09-18:12 TuETS7.4

*A Rationale-Driven Team Plan Representation for Autonomous Intra-Robot Replanning*, pp. 2389-2394.

Cooksey, Philip	Carnegie Mellon University
Veloso, Manuela	Carnegie Mellon University

18:12-18:15 TuETS7.5

*Stochastic Optimization for Autonomous Vehicles with Limited Control Authority*, pp. 2395-2401.

Jones, Dylan	Oregon State University
Kuhlman, Michael J.	University of Maryland
Sofge, Donald	Naval Research Laboratory
Gupta, Satyandra K.	University of Southern California
Hollinger, Geoffrey	Oregon State University

18:15-18:18 TuETS7.6

*Proactive Collision Avoidance for ASVs Using a Dynamic Reciprocal Velocity Obstacles Method*, pp. 2402-2409.

Kufoalor, Dzordzoenyeny	Norwegian University of Science and Technology
Kwame Minde	NTNU
Brekke, Edmund	NTNU
Johansen, Tor Arne	Norwegian University of Science and Technology

18:18-18:21 TuETS7.7

*A Multi-Task Priority Framework for Redundant Robots with Multiple Kinematic Chains under Hard Joint and Cartesian Constraints*, pp. 2410-2417.

Peñalver, Antonio	Jaume I
Fernández, José Javier	University of Jaume-I
Soriano, Antonio	University of Valencia
Sanz, Pedro J	Jaume I

**TuETS8** Room 2.R1

**Wheeled Robots** (Regular session)

Chair: Oh, Sehoon	DGIST (Daegu Gyeongbuk Institute of Science and Technology)
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Co-Chair: Torres-Torriti, Miguel	Pontificia Universidad Catolica De Chile
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18:00-18:03 TuETS8.1

*Vision-Based Target Tracking for a Skid-Steer Vehicle Using Guided Policy Search with Field-Of-View Constraint*, pp. 2418-2425.

Kim, Taewan	Seoul National University
Lee, Chungkeun	Seoul National Univ
Seo, Hoseong	Seoul National University
Choi, Seungwon	Seoul Nat'l University
Kim, Wonchul	Seoul National University
Kim, H. Jin	Seoul National University

18:03-18:06 TuETS8.2

*On the Kinematics of Wheeled Motion Control of a Hybrid Wheeled-Legged CENTAURO Robot*, pp. 2426-2433.

Kamedula, Malgorzata	Istituto Italiano Di Tecnologia
Kashiri, Navvab	Istituto Italiano Di Tecnologia
Tsagarakis, Nikos	Istituto Italiano Di Tecnologia

18:06-18:09 TuETS8.3

*Development of Stone Throwing Robot and High Precision Driving Control for Curling*, pp. 2434-2440.

Choi, Jung Hyun	DGIST
Song, ChangYong	NT Robot
Kim, Kyunghwan	NT Robot
Oh, Sehoon	DGIST (Daegu Gyeongbuk Institute of Science and Technology)

18:09-18:12 TuETS8.4

*MAP - a Mobile Agile Printer Robot for On-Site Construction*, pp. 2441-2448.

Sustarevas, Julius	University College London
Butters, Daniel Benjamin	University College London
Hammid, Mohammad	University College London
Stuart-Smith, Robert	University College London
Dwyer, George	University College London
Pawar, Vijay Manohar	University College London

18:12-18:15 TuETS8.5

*Slip Modeling and Estimation for a Planetary Exploration Rover: Experimental Results from Mt. Etna*, pp. 2449-2456.

Bussmann, Kristin	German Aerospace Center (DLR)
Meyer, Lukas	German Aerospace Center (DLR)
Steidle, Florian	German Aerospace Center
Wedler, Armin	DLR - German Aerospace Center

18:15-18:18 TuETS8.6

*User-Specific Gaussian Process Model of Wheelchair Drivers with a Haptic Joystick Interface*, pp. 2457-2463.

Huntemann, Alexander	Katholieke Universiteit Leuven
Vander Poorten, Emmanuel B	KU Leuven
Demeester, Eric	KU Leuven

18:18-18:21 TuETS8.7

*A Minimalist Stair Climbing Robot (SCR) Formed As a Leg Balancing and Climbing Mobile Inverted Pendulum (MIP)*, pp. 2464-2469.

Yang, Daniel	University of California San Diego
Bewley, Thomas	Flow Control & Coordinated Robotics Labs

18:21-18:24 TuETS8.8

*Tire Force Estimation of Dynamic Wheeled Mobile Robots Using Tire-Model Based Constrained Kalman Filtering*, pp. 2470-2477.

Jeon, Sang-Yun	Seoul National University
Chung, Rakjoon	Seoul National University
Lee, Dongjun	Seoul National University

**TuETS9** Room 4.L1

**Special Session: Robot Audition** (Regular session)

Chair: Okuno, Hiroshi G.	Waseda University
Co-Chair: Ince, Gokhan	Istanbul Technical University

18:00-18:03 TuETS9.1

*Online Spatial Sound Perception Using Microphone Array on Mobile Robot (I)*, pp. 2478-2484.

Sasaki, Yoko	National Inst. of Advanced Industrial Science and Technology
Tanabe, Ryo	Tokyo University of Science
Takemura, Hiroshi	Tokyo University of Science

18:03-18:06 TuETS9.2

*Extracting the Relationship between the Spatial Distribution and Types of Bird Vocalizations Using Robot Audition System HARK (I)*, pp. 2485-2490.

Sumitani, Shinji	Nagoya University
Suzuki, Reiji	Nagoya University
Matsubayashi, Shiho	Osaka University
Arita, Takaya	Nagoya University
Nakadai, Kazuhiro	Honda Research Inst. Japan Co., Ltd
Okuno, Hiroshi G.	Waseda University

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18:06-18:09 TuETS9.3

*Failure Detection Using Proprioceptive, Auditory and Visual Modalities (I)*, pp. 2491-2496.

Inceoglu, Arda	Istanbul Technical University
Ince, Gokhan	Istanbul Technical University
Yaslan, Yusuf	Istanbul Teknik Universitesi
Sariel, Sanem	Istanbul Technical University

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18:09-18:12 TuETS9.4

*HARK-Bird-Box: A Portable Real-Time Bird Song Scene Analysis System (I)*, pp. 2497-2502.

Kojima, Ryosuke	Tokyo Institute of Technology
Sugiyama, Osamu	Kyoto University Hospital
Hoshiba, Kotaro	Kanagawa University
Suzuki, Reiji	Nagoya University
Nakadai, Kazuhiro	Honda Research Inst. Japan Co., Ltd

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18:12-18:15 TuETS9.5

*Multi-Timescale Feature-Extraction Architecture of Deep Neural Networks for Acoustic Model Training from Raw Speech Signal (I)*, pp. 2503-2510.

Takeda, Ryu	Osaka University
Nakadai, Kazuhiro	Honda Research Inst. Japan Co., Ltd
Komatani, Kazunori	Osaka University

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18:15-18:18 TuETS9.6

*Tracking a Moving Sound Source from a Multi-Rotor Drone (I)*, pp. 2511-2516.

Wang, Lin	Queen Mary University of London
Sanchez Matilla, Ricardo	Queen Mary University of London
Cavallaro, Andrea	Queen Mary University of London

**Technical Program for Wednesday October 3, 2018**

<b>WeATS1</b>		Room 1.L5
<b>Deep Learning VI (Regular session)</b>		
Chair: Shafti, Ali		Imperial College London
09:00-09:03		WeATS1.1
<i>Kinematic Morphing Networks for Manipulation Skill Transfer</i> , pp. 2517-2523.		
Englert, Peter	U Stuttgart	
Toussaint, Marc	University of Stuttgart	
09:03-09:06		WeATS1.2
<i>Vision-Aided Absolute Trajectory Estimation Using an Unsupervised Deep Network with Online Error Correction</i> , pp. 2524-2531.		
Shamwell, Earl Jared	University of Maryland, College Park; Army Research Laboratory	
Leung, Sarah	GTS/Army Research Laboratory	
Nothwang, William	Army Research Laboratory	
09:06-09:09		WeATS1.3
<i>Distributed Deep Reinforcement Learning Based Indoor Visual Navigation</i> , pp. 2532-2537.		
Hsu, Shih-Hsi	National Taiwan University	
Chan, Shao-Hung	National Taiwan University	
Wu, Ping-Tsang	National Taiwan University	
Xiao, Kun	Beihang University	
Fu, Li-Chen	National Taiwan University	
09:09-09:12		WeATS1.4
<i>Synthesizing Neural Network Controllers with Probabilistic Model-Based Reinforcement Learning</i> , pp. 2538-2544.		
Gamboa Higuera, Juan Camilo	McGill University	
Meger, David Paul	McGill University	
Dudek, Gregory	McGill University	
09:12-09:15		WeATS1.5
<i>Sequence-To-Sequence Model for Trajectory Planning of Nonprehensile Manipulation Including Contact Model</i> , N/A.		
Kutsuzawa, Kyo	Saitama University	
Sakaino, Sho	Saitama University	
Tsuji, Toshiaki	Saitama University	
09:15-09:18		WeATS1.6
<i>Composite Reinforcement Learning for Social Robot Navigation</i> , pp. 2553-2558.		
Ciou, Pei Hwai	National Taiwan University	
Hsiao, Yu-Ting	National Taiwan University	
Wu, Zong-Ze	National Taiwan University	
Tseng, Shih-Huan	National Taiwan University	
Fu, Li-Chen	National Taiwan University	
09:18-09:21		WeATS1.7
<i>Apple Counting Using Convolutional Neural Networks</i> , pp. 2559-2565.		
Häni, Nicolai	University of Minnesota	
Roy, Pravakar	University of Minnesota	
Isler, Volkan	University of Minnesota	
09:21-09:24		WeATS1.8
<i>Target Localization with Drones Using Mobile CNNs</i> , pp. 2566-2573.		
Lu, Yongxi	University of California San Diego	
Wang, Zeyangyi	University of California, San Diego	

Tang, Ziyao	University of California, San Diego
Javidi, Tara	University of California, San Diego

<b>WeATS2</b>		Room 2.L5 KUKA
<b>Sensors (Regular session)</b>		
Chair: Kwon, Dong-Soo		KAIST
Co-Chair: Svoboda, Tomas	Faculty of Electrical Engineering, Czech Technical University in Prague	
09:00-09:03		WeATS2.1
<i>A Plenum Based Calibration Device for Tactile Sensor Arrays</i> , N/A.		
Kangro, Joan	Italian Institute of Technology	
Vazhapilli Sureshbabu, Anand	Istituto Italiano Di Tecnologia	
Traversaro, Silvio	Istituto Italiano Di Tecnologia	
Pucci, Daniele	Italian Institute of Technology	
Nori, Francesco	DeepMind	
09:03-09:06		WeATS2.2
<i>An Adjustable Force Sensitive Sensor with an Electromagnet for a Soft, Distributed, Digital 3-Axis Skin Sensor</i> , pp. 2582-2588.		
Holgado, Alexis Carlos	Waseda University	
Alvarez Lopez, Javier Alejandro	Waseda University, Sugano Lab	
Schmitz, Alexander	Waseda University	
Tomo, Tito Pradhono	Waseda University	
Somlor, Sophon	Waseda University	
Jamone, Lorenzo	Queen Mary University London	
Sugano, Shigeki	Waseda University	
09:06-09:09		WeATS2.3
<i>Object Recognition through Active Sensing Using a Multi-Fingered Robot Hand with 3D Tactile Sensors</i> , pp. 2589-2595.		
Funabashi, Satoshi	Waseda University, Sugano Lab	
Morikuni, Shu	Waseda University, Graduate School of Creative Science and Engin	
Geier, Andreas	Waseda University	
Schmitz, Alexander	Waseda University	
Ogasa, Shun	Waseda University, Graduate School of Creative Science, Engineer	
Tomo, Tito Pradhono	Waseda University	
Somlor, Sophon	Waseda University	
Sugano, Shigeki	Waseda University	
09:09-09:12		WeATS2.4
<i>Sensory-Motor Augmentation of the Robot with Shared Human Perception</i> , pp. 2596-2603.		
Ishida, Ryuya	Nagoya Institute of Technology	
Meli, Leonardo	University of Siena	
Tanaka, Yoshihiro	Nagoya Institute of Technology	
Minamizawa, Kouta	Keio University	
Prattichizzo, Domenico	Università Di Siena	
09:12-09:15		WeATS2.5
<i>Data-Driven Policy Transfer with Imprecise Perception Simulation</i> , N/A.		
Pecka, Martin	Czech Technical University in Prague	
Zimmermann, Karel	Czech Technical University Prague	
Petrlík, Matej	Czech Technical University in	

	Prague, Faculty of Electrical Engi	
Svoboda, Tomas	Faculty of Electrical Engineering, Czech Technical University In	
09:15-09:18		WeATS2.6
<i>HTC Vive: Analysis and Accuracy Improvement</i> , pp. 2610-2615.		
Borges, Miguel	Instituto Superior Técnico	
Symington, Andrew	Stinger Ghaffarian Technologies	
Coltin, Brian	Carnegie Mellon University	
Smith, Trey	NASA Ames Research Center	
Ventura, Rodrigo	Instituto Superior Técnico	
09:18-09:21		WeATS2.7
<i>Improving Indoor Robots Localisation by Fusing Different Sensors</i> , pp. 2616-2623.		
Alvarado, Biel Piero Eloy	Universidad Politécnica De Madrid	
Matia, Fernando	Universidad Politecnica De Madrid	
Galan, Ramon	Universidad Politecnica De Madrid	
09:21-09:24		WeATS2.8
<i>Robust Camera Pose Estimation Via Consensus on Ray Bundle and Vector Field</i> , pp. 2624-2631.		
Li, Haoang	Wuhan University	
Zhao, Ji	ReadSense Ltd	
Bazin, Jean-Charles	CVG/CGL, ETHZ	
Luo, Lei	Wuhan University	
Wu, Junlin	Wuhan University	
Yao, Jian	Wuhan University	
<b>WeATS3</b>		Room 1.L2
<b>Localization and Mapping VI</b> (Regular session)		
Chair: Ohno, Kazunori	Tohoku University	
Co-Chair: Cheng, Hui	JD.COM	
09:00-09:03		WeATS3.1
<i>Challenges in Monocular Visual Odometry: Photometric Calibration, Motion Bias and Rolling Shutter Effect</i> , N/A.		
Yang, Nan	Technical University of Munich	
Wang, Rui	Technical University of Munich	
Gao, Xiang	Technical University of Munich	
Cremers, Daniel	Technical University of Munich	
09:03-09:06		WeATS3.2
<i>Integrating Deep Semantic Segmentation into 3D Point Cloud Registration</i> , N/A.		
Zaganidis, Anestis	University of Lincoln	
Sun, Li	University of Birmingham	
Duckett, Tom	University of Lincoln	
Cielniak, Grzegorz	University of Lincoln	
09:06-09:09		WeATS3.3
<i>Probabilistic Terrain Mapping for Mobile Robots with Uncertain Localization</i> , N/A.		
Fankhauser, Péter	ETH Zurich	
Bloesch, Michael	Imperial College	
Hutter, Marco	ETH Zurich	
09:09-09:12		WeATS3.4
<i>Colourising Point Clouds Using Independent Cameras</i> , N/A.		
Vechersky, Pavel		CSIRO
Cox, Mark		CSIRO
Borges, Paulo Vinicius		CSIRO

Koerich		
Lowe, Tom		CSIRO
09:12-09:15		WeATS3.5
<i>Local Positioning System Using UWB Range Measurements for an Unmanned Blimp</i> , N/A.		
Mai, Vincent		Université De Montréal
Kamel, Mina		Autonomous Systems Lab, ETH Zurich
Krebs, Matthias		ETH Zurich
Schaffner, Andreas		ETH Zurich
Meier, Daniel		ETH Zurich
Paull, Liam		Université De Montréal
Sieglwart, Roland		ETH Zurich
09:15-09:18		WeATS3.6
<i>IBoW-LCD: An Appearance-Based Loop Closure Detection Approach Using Incremental Bags of Binary Words</i> , N/A.		
Garcia-Fidalgo, Emilio		University of the Balearic Islands
Ortiz, Alberto		University of the Balearic Islands
09:18-09:21		WeATS3.7
<i>Efficient Map Representations for Multi-Dimensional Normal Distributions Transforms</i> , pp. 2679-2686.		
Schulz, Cornelia		University of Tübingen
Hanten, Richard		University of Tübingen
Zell, Andreas		University of Tübingen
09:21-09:24		WeATS3.8
<i>DynaSLAM: Tracking, Mapping and inpainting in Dynamic Scenes</i> , N/A.		
Bescos, Berta		University of Zaragoza
Fácil, José M.		Universidad De Zaragoza
Civera, Javier		Universidad De Zaragoza
Neira, José		Universidad De Zaragoza
<b>WeATS4</b>		Room 2.L2
<b>Legged Robots III</b> (Regular session)		
Chair: Mombaur, Katja		Heidelberg University
Co-Chair: Khamis, Alaa		University of Waterloo
09:00-09:03		WeATS4.1
<i>Modeling and Control of an Articulated Tail for Maneuvering a Reduced Degree of Freedom Legged Robot</i> , pp. 2695-2700.		
Saab, Wael		Virginia Tech
Yang, Jiteng		Virginia Tech
Ben-Tzvi, Pinhas		Virginia Tech
09:03-09:06		WeATS4.2
<i>Modeling and Fuzzy Control of One-Legged Somersaulting Robot</i> , pp. 2701-2706.		
Zabihi, Mehdi		Sharif University of Technology
Alasty, Aria		Sharif University of Technology
09:06-09:09		WeATS4.3
<i>Towards a Passive Adaptive Planar Foot with Ground Orientation and Contact Force Sensing for Legged Robots</i> , pp. 2707-2714.		
Käslin, Roman		ETH Zurich
Kolvenbach, Hendrik		ETHZ
Paez, Laura		KM-RoBoTa
Lika, Klajd		National Technical University of Athens
Hutter, Marco		ETH Zurich
09:09-09:12		WeATS4.4
<i>SLIP-Model-Based Dynamic Motion Transition between Different Fixed Points in One Stride in a Leg-Wheel Transformable Robot</i>		

pp. 2715-2720.		
Lin, Hung-Sheng		National Taiwan University
Lin, Yun-Meng		National Taiwan University
Lin, Pei-Chun		National Taiwan University

09:12-09:15 WeATS4.5

*Continuous Shape Changing Locomotion of 32-Legged Spherical Robot*, pp. 2721-2726.

Nozaki, Hiroki		Keio University
Kujirai, Yusei		Keio University
Niiyama, Ryuma		University of Tokyo
Kawahara, Yoshihiro		The University of Tokyo
Yonezawa, Takuro		Keio University
Nakazawa, Jin		Keio University

09:15-09:18 WeATS4.6

*End-Effector with a Hook and Two Fingers for the Locomotion and Simple Work of a Four-Limbed Robot*, pp. 2727-2732.

Matsuzawa, Takashi		Waseda University
Imai, Asaki		Waseda University
Hashimoto, Kenji		Meiji University
Teramachi, Tomotaka		Waseda University
Sun, Xiao		Waseda University
Kimura, Shunsuke		Waseda University
Sakai, Nobuaki		Waseda University
Yoshida, Yuki		Waseda University
Kumagai, Kengo		Waseda University
Matsubara, Takanobu		Waseda University
Yamaguchi, Koki		WASEDA University
Takanishi, Atsuo		Waseda University

09:18-09:21 WeATS4.7

*A Framework for Modeling Closed Kinematic Chains with a Focus on Legged Robots*, pp. 2733-2738.

Kamidi, Vinaykarthik		Robotics and Mechatronics Lab
Williams, Adam		Virginia Tech
Ben-Tzvi, Pinhas		Virginia Tech

09:21-09:24 WeATS4.8

*Steering of an Underactuated Legged Robot through Terrain Contact with an Active Tail*, pp. 2739-2746.

Casarez, Carlos		University of California, Berkeley
Fearing, Ronald		University of California at Berkeley

**WeATS5** Room 2.R3  
**Prosthetics and Exoskeletons I** (Regular session)

Chair: Moreno, Luis		Carlos III University
Co-Chair: Fontana, Marco		University of Trento

09:00-09:03 WeATS5.1

*Characterization of Active/Passive Pneumatic Actuators for Assistive Devices*, pp. 2747-2754.

Kaneishi, Daisuke		University of California, Berkeley
Matthew, Robert, Peter		UC Berkeley
Tomizuka, Masayoshi		University of California

09:03-09:06 WeATS5.2

*Unpowered Lower-Body Exoskeleton with Torso Lifting Mechanism for Supporting Sit-To-Stand Transitions*, pp. 2755-2761.

Paez Granados, Diego Felipe		University of Tsukuba
Kadone, Hideki		University of Tsukuba
Suzuki, Kenji		University of Tsukuba

09:06-09:09 WeATS5.3

*Development of Master-Slave Type Lower Limb Motion Teaching System*, pp. 2762-2767.

Tagami, Toshihiro		Tokyo Medical and Dental University
Kawase, Toshihiro		Tokyo Medical and Dental University
Morisaki, Daisuke		Tokyo Medical and Dental University
Miyazaki, Ryoken		Tokyo Medical and Dental University
Miyazaki, Tetsuro		Tokyo Medical and Dental University
Kanno, Takahiro		Tokyo Medical and Dental University
Kawashima, Kenji		Tokyo Medical and Dental University

09:09-09:12 WeATS5.4

*Design and Experimental Characterisation of a Hydrostatic Transmission for Upper Limb Exoskeletons*, pp. 2768-2773.

Bolignari, Marco		University of Trento
Moretti, Giacomo		Scuola Sant'Anna
Fontana, Marco		University of Trento

09:12-09:15 WeATS5.5

*Development of Tendon Driven Under-Actuated Mechanism Applied in an EMG Prosthetic Hand with Three Major Grasps for Daily Life*, pp. 2774-2779.

Jing, Xiaobei		The University of Electro-Communications, Shenzhen Institutes Of
Yong, Xu		The University of Electro-Communications, Shenzhen Institutes Of
Tian, Lan		Shenzhen Institutes of Advanced Technology Chinese Academy of Sc
Togo, Shunta		Graduate School of Informatics and Engineering, the University O
Jiang, Yinlai		The University of Electro-Communications
Yokoi, Hiroshi		The University of Electro-Communications
Li, Guanglin		Shenzhen Institutes of Advanced Technology Chinese

09:15-09:18 WeATS5.6

*Muscle Activation Source Model-Based Semp Signal Decomposition and Recognition of Interface Rotation*, pp. 2780-2786.

Kim, Minjae		POSTECH
Chung, Wan Kyun		POSTECH

09:18-09:21 WeATS5.7

*Design, Control and Preliminary Test of Robotic Ankle Prosthesis*, pp. 2787-2793.

Sun, Xiaojun		The University of Tokyo
Sugai, Fumihito		The University of Tokyo
Okada, Kei		The University of Tokyo
Inaba, Masayuki		The University of Tokyo

09:21-09:24 WeATS5.8

*Design Criteria for Hand Exoskeletons: Measurement of Forces Needed to Assist Finger Extension in Traumatic Brain Injury Patients*, N/A..

Nycz, Christopher J		Worcester Polytechnic Institute
Meier, Tess B.		Worcester Polytechnic Institute
Carvalho, Paulo		Worcester Polytechnic Institute
Meier, Gretchen R.		Pine Bush Physical Therapy

Fischer, Gregory Scott	Worcester Polytechnic Institute, WPI
<b>WeATS6</b> Room 1.L3	
<b>Human-Robot Interaction V</b> (Regular session)	
Chair: Prattichizzo, Domenico	University of Siena
Co-Chair: Ghalamzan Esfahani, Amir Masoud	University of Birmingham
09:00-09:03	WeATS6.1
<i>Operator Awareness in Human-Robot Collaboration through Wearable Vibrotactile Feedback, N/A..</i>	
Casalino, Andrea	Politecnico Di Milano
Messeri, Costanza	Politecnico Di Milano
Pozzi, Maria	University of Siena
Zanchettin, Andrea Maria	Politecnico Di Milano
Rocco, Paolo	Politecnico Di Milano
Prattichizzo, Domenico	University of Siena
09:03-09:06	WeATS6.2
<i>Human Intention Detection As a Multiclass Classification Problem: Application in Physical Human-Robot Interaction While Walking, N/A.</i>	
Lanini, Jessica	EPFL, Biorobotics Laboratory
Razavi, Hamed	EPFL
Urain, Julen	IK4 - Tekniker
Ijspeert, Auke	EPFL
09:06-09:09	WeATS6.3
<i>Trust and Social Engineering in Human Robot Interaction: Will a Robot Make You Disclose Sensitive Information, Conform to Its Recommendations or Gamble?, N/A.</i>	
Aroyo, Alexander Mois	Istituto Italiano Di Tecnologia
Rea, Francesco	Istituto Italiano Di Tecnologia
Sandini, Giulio	Italian Institute of Technology
Sciutti, Alessandra	Istituto Italiano Di Tecnologia
09:09-09:12	WeATS6.4
<i>FlyCam: Multi-Touch Gesture Controlled Drone Gimbal Photography, N/A.</i>	
Kang, Hao	Purdue University
Li, Haoxiang	Adobe Research
Zhang, Jianming	Adobe Research
Lu, Xin	Adobe Research
Benes, Bedrich	Purdue University
09:12-09:15	WeATS6.5
<i>Haptic-Based Shared-Control Methods for a Dual-Arm System, N/A.</i>	
Selvaggio, Mario	Università Degli Studi Di Napoli Federico II
Abi-Farraj, Firas	CNRS-Irisa
Pacchierotti, Claudio	Centre National De La Recherche Scientifique (CNRS)
Robuffo Giordano, Paolo	Centre National De La Recherche Scientifique (CNRS)
Siciliano, Bruno	Univ. Napoli Federico II
09:15-09:18	WeATS6.6
<i>How Should a Robot React before People's Touch?: Modeling a Pre-Touch Reaction Distance for a Robot's Face, N/A.</i>	
Shiomi, Masahiro	ATR
Shatani, Kodai	Osaka Univ
Minato, Takashi	ATR
Ishiguro, Hiroshi	Osaka University
09:18-09:21	WeATS6.7

<i>A Method for Robot Motor Fatigue Management in Physical Interaction and Human-Robot Collaboration Tasks, pp. 2850-2856.</i>	
Peternel, Luka	Istituto Italiano Di Tecnologia
Tsagarakis, Nikos	Istituto Italiano Di Tecnologia
Ajoudani, Arash	Istituto Italiano Di Tecnologia
09:21-09:24	WeATS6.8
<i>Adaptive Task Planner for Performing Home Service Tasks in Cooperation with a Human, pp. 2857-2864.</i>	
Lee, Seung-Jae	KAIST
Park, Jin-Man	KAIST
Kim, Deok-Hwa	KAIST
Kim, Jong-Hwan	KAIST
<b>WeATS7</b> Room 2.L3	
<b>Space Robotics</b> (Regular session)	
Co-Chair: Daney, David	Inria Bordeaux - Sud Ouest
09:00-09:03	WeATS7.1
<i>Design of SUPERball V2, a Compliant Tensegrity Robot for Absorbing Large Impacts, pp. 2865-2871.</i>	
Vespignani, Massimo	Usra / Nasa Arc-Ti
Friesen, Jeffrey Michael	University of California, San Diego
SunSpiral, Vytas	SGT Inc. / NASA Ames Research Center
Bruce, Jonathan	Usra / Nasa Arc-Ti
09:03-09:06	WeATS7.2
<i>Slip Avoidance in Dual-Arm Manipulation, pp. 2872-2879.</i>	
Carabis, David	Rensselaer Polytechnic Institute
Wen, John	Rensselaer Polytechnic Institute
09:06-09:09	WeATS7.3
<i>Relative and Inertial Attitude Determination in Three-Vehicle Long Formations, pp. 2880-2885.</i>	
Cruz, Pedro	Instituto Superior Tecnico, Universidade De Lisboa
Batista, Pedro	Instituto Superior Técnico, Universidade De Lisboa
09:09-09:12	WeATS7.4
<i>Steerable Locomotion Controller for Six-Strut Icosahedral Tensegrity Robots, pp. 2886-2892.</i>	
Vespignani, Massimo	Usra / Nasa Arc-Ti
Ercolani, Chiara	EPFL
Friesen, Jeffrey Michael	University of California, San Diego
Bruce, Jonathan	Usra / Nasa Arc-Ti
09:12-09:15	WeATS7.5
<i>Series Elastic Tether Management for Rappelling Rovers, pp. 2893-2900.</i>	
Brown, Travis	NASA Jet Propulsion Laboratory, California Institute of Technolo
Stefanini, Alessandro	Politecnico Di Torino
Georgiev, Nikola	Caltech
Sawoniewicz, Jacek	NASA Jet Propulsion Laboratory, California Institute of Technolo
Nesnas, Issa	Jet Propulsion Laboratory
09:15-09:18	WeATS7.6
<i>Image Based Visual Servoing for Tumbling Objects, pp. 2901-2908.</i>	
P, Mithun	International Institute of Information Technology Hyderabad
Pandya, Harit	IIIT Hyderabad

Gaud, Ayush	International Institute of Information Technology Hyderabad
Shah, Suril Vijaykumar	Indian Institute of Technology Jodhpur
Krishna, Madhava	IIIT Hyderabad

09:18-09:21 WeATS7.7

*Online Path Planning and Compliance Control of Space Robot for Capturing Tumbling Large Object*, pp. 2909-2916.

Hirano, Daichi	Japan Aerospace Exploration Agency
Kato, Hiroki	Japan Aerospace Exploration Agency
Saito, Tatsuhiko	Japan Aerospace Exploration Agency

**WeATS8** Room 2.R1  
**Grasping I** (Regular session)

Chair: Zanchettin, Andrea Maria	Politecnico Di Milano
Co-Chair: Ortenzi, Valerio	Queensland University of Technology / ACRV

09:00-09:03 WeATS8.1

*Workspace Aware Online Grasp Planning*, pp. 2917-2924.

Akinola, Ireiyayo	Columbia University
Varley, Jacob	Columbia University
Chen, Boyuan	Columbia University
Allen, Peter	Columbia University

09:03-09:06 WeATS8.2

*Robotic Grasping Using Proximity Sensors for Detecting Both Target Object and Support Surface*, pp. 2925-2932.

Sasaki, Koichi	The University of Electro Communications
Koyama, Keisuke	University of Tokyo
Ming, Aiguo	The University of Electro-Communications
Shimojo, Makoto	University of Electro-Communications
Plateaux, Régis	ISMEP (SUPMECA)
Choley, Jean-Yves	SUPMECA-LISMMA

09:06-09:09 WeATS8.3

*Model-Free and Learning-Free Grasping by Local Contact Moment Matching*, pp. 2933-2940.

Adjigble, Komlan Jean Maxime	University of Birmingham
Marturi, Naresh	University of Birmingham
Ortenzi, Valerio	Queensland University of Technology / ACRV
Rajasekaran, Vijaykumar	University of Birmingham
Corke, Peter	Queensland University of Technology
Stolkin, Rustam	University of Birmingham

09:09-09:12 WeATS8.4

*A Framework for Robot Grasping Transferring with Non-Rigid Transformation*, pp. 2941-2948.

Lin, Hsien-Chung	University of California, Berkeley
Tang, Te	University of California, Berkeley
Fan, Yongxiang	University of California, Berkeley
Tomizuka, Masayoshi	University of California

09:12-09:15 WeATS8.5

*Using Human Studies to Analyze Capabilities in Underactuated and Compliant Hands in Manipulation Tasks*, pp. 2949-2954.

Morrow, John	Oregon State University
Kothari, Ammar	Oregon State University
Ong, Yi Herng	Oregon State University
Harlan, Nathan	Oregon State University
Balasubramanian, Ravi	Oregon State University
Grimm, Cindy	Oregon State University

09:15-09:18 WeATS8.6

*Affordance Wayfields for Task and Motion Planning*, pp. 2955-2962.

McMahon, Troy	University of Michigan
Jenkins, Odest Chadwicke	University of Michigan
Amato, Nancy	Texas A&M University

09:18-09:21 WeATS8.7

*Tactile Regrasp: Grasp Adjustments Via Simulated Tactile Transformations*, pp. 2963-2970.

Hogan, Francois	Massachusetts Institute of Technology
Bauza Villalonga, Maria	Massachusetts Institute of Technology
Canal Anton, Oleguer	Massachusetts Institute of Technology
Donlon, Elliott	MIT
Rodriguez, Alberto	Massachusetts Institute of Technology

09:21-09:24 WeATS8.8

*Adaptive Autonomous Grasp Selection Via Pairwise Ranking*, pp. 2971-2976.

Kent, David	Georgia Institute of Technology
Toris, Russell	Fetch Robotics

**WeATS9** Room 4.L1  
**Model Learning for Control** (Regular session)

Chair: Hein, Björn	Karlsruhe Institute of Technology (KIT)
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09:00-09:03 WeATS9.1

*Experience-Based Model Selection to Enable Long-Term, Safe Control for Repetitive Tasks under Changing Conditions*, pp. 2977-2984.

McKinnon, Christopher	University of Toronto
Schoellig, Angela P.	University of Toronto

09:03-09:06 WeATS9.2

*Efficient Model Identification for Tensegrity Locomotion*, pp. 2985-2990.

Zhu, Shaojun	Rutgers University
Surovik, David	Rutgers University
Bekris, Kostas E.	Rutgers, the State University of New Jersey
Boularias, Abdeslam	Carnegie Mellon University

09:06-09:09 WeATS9.3

*Robot-Driven Trajectory Improvement for Feeding Tasks*, pp. 2991-2996.

Rhodes, Travers	Carnegie Mellon University
Veloso, Manuela	Carnegie Mellon University

09:09-09:12 WeATS9.4

*Accelerating Learning in Constructive Predictive Frameworks with the Successor Representation*, pp. 2997-3003.

Sherstan, Craig	University of Alberta
Machado, Marlos C	University of Alberta
Pilarski, Patrick M.	University of Alberta

09:12-09:15 WeATS9.5

*Reinforcement Learning with Symbolic Input-Output Models*, pp.

3004-3009.		
Derner, Erik	Czech Technical University in Prague	
Kubalik, Jiri	CTU in Prague	
Babuska, Robert	Delft University of Technology	
09:15-09:18		WeATS9.6
<i>A Framework for Teaching Impedance Behaviours by Combining Human and Robot 'Best Practice', pp. 3010-3015.</i>		
Zhao, YuChen	King's College London	
Sena, Aran	King's College London	
Wu, Fan	King's College London	
Howard, Matthew	King's College London	
09:18-09:21		WeATS9.7
<i>Automated Tuning of Nonlinear Model Predictive Controller by Reinforcement Learning, pp. 3016-3021.</i>		
Mehndiratta, Mohit	Nanyang Technological University	
Camci, Efe	Nanyang Technological University	
Kayacan, Erdal	Aarhus University	
09:21-09:24		WeATS9.8
<i>Soft-Obstacle Avoidance for Redundant Manipulators with Recurrent Neural Network, pp. 3022-3027.</i>		
Li, Yangming	University of Washington	
Hannaford, Blake	University of Washington	

**WeATS10** Room 4.R1  
**Special Session: Deep Learning in Robotics** (Regular session)

Chair: Demiris, Yiannis	Imperial College London
Co-Chair: Calandra, Roberto	University of California Berkeley
09:00-09:03	WeATS10.1
<i>Motion-Based Object Segmentation Based on Dense RGB-D Scene Flow, N/A.</i>	
Shao, Lin	Stanford University
Shah, Parth	Stanford University
Dwaracherla, Vikranth	Stanford University
Bohg, Jeannette	Stanford University
09:03-09:06	WeATS10.2
<i>Learning a Structured Neural Network Policy for a Hopping Task, N/A.</i>	
Viereck, Julian	Max Planck Institute for Intelligent Systems
Kozolinsky, Jules	École Normale Supérieure Paris-Saclay
Herzog, Alexander	X, Inc. (Google)
Righetti, Ludovic	New York University
09:06-09:09	WeATS10.3
<i>GONet: A Semi-Supervised Deep Learning Approach for Traversability Estimation, pp. 3044-3051.</i>	
Hirose, Noriaki	Toyota Central R&D Labs., INC
Sadeghian, Amir	Stanford University
Vázquez, Marynel	Carnegie Mellon University
Goebel, Patrick	Stanford University
Savarese, Silvio	Stanford University
09:09-09:12	WeATS10.4
<i>Motion Planning among Dynamic, Decision-Making Agents with Deep Reinforcement Learning, pp. 3052-3059.</i>	
Everett, Michael	Massachusetts Institute of Technology
Chen, Yufan	Massachusetts Institute of Technology

How, Jonathan Patrick	Massachusetts Institute of Technology
09:12-09:15	WeATS10.5
<i>Real-Time Workload Classification During Driving Using HyperNetworks, pp. 3060-3065.</i>	
Wang, Ruohan	Imperial College London
Amadori, Pierluigi Vito	Imperial College London
Demiris, Yiannis	Imperial College London
09:15-09:18	WeATS10.6
<i>Augmenting Physical Simulators with Stochastic Neural Networks: Case Study of Planar Pushing and Bouncing, pp. 3066-3073.</i>	
Ajay, Anurag	MIT
Wu, Jiajun	MIT
Fazeli, Nima	Massachusetts Institute of Technology
Bauza Villalonga, Maria	Massachusetts Institute of Technology
Kaelbling, Leslie	MIT
Tenenbaum, Joshua	Massachusetts Institute of Technology
Rodriguez, Alberto	Massachusetts Institute of Technology

**WeBTS1** Room 1.L5  
**Deep Learning VII** (Regular session)

Chair: Caldwell, Darwin G.	Istituto Italiano Di Tecnologia
Co-Chair: Burrus, Nicolas	Occipital
11:30-11:33	WeBTS1.1
<i>Learning to Pour Using Deep Deterministic Policy Gradients, pp. 3074-3079.</i>	
Do, Chau	University of Freiburg
Gordillo Chaves, Camilo Andres	University of Freiburg
Burgard, Wolfram	University of Freiburg
11:33-11:36	WeBTS1.2
<i>Learning Sample-Efficient Target Reaching for Mobile Robots, pp. 3080-3087.</i>	
Khan, Arbaaz	University of Pennsylvania
Kumar, Vijay	University of Pennsylvania
Ribeiro, Alejandro	University of Pennsylvania
11:36-11:39	WeBTS1.3
<i>Generative Modeling of Multimodal Multi-Human Behavior, pp. 3088-3095.</i>	
Ivanovic, Boris	Stanford University
Schmerling, Edward	Stanford University
Leung, Karen Yan Ming	Stanford University
Pavone, Marco	Stanford University
11:39-11:42	WeBTS1.4
<i>Predicting Part Affordances of Objects Using Two-Stream Fully Convolutional Network with Multimodal Inputs, pp. 3096-3101.</i>	
Chaudhary, Krishneel Chand	The University of Tokyo
Chen, Xiangyu	The University of Tokyo
Okada, Kei	The University of Tokyo
Inaba, Masayuki	The University of Tokyo
11:42-11:45	WeBTS1.5
<i>Deep Multi-Sensor Lane Detection, pp. 3102-3109.</i>	
Bai, Min	University of Toronto and Uber Advanced Technologies Group
Mattys, Gellert	Uber ATG
Homayounfar, Namdar	Uber ATG
Wang, Shenlong	University of Toronto



Kowshika Lakshminanth, Shrinidhi	Uber
Urtasun, Raquel	University of Toronto
11:45-11:48	WeBTS1.6
<i>Deep Reinforcement Learning to Acquire Navigation Skills for Wheel-Legged Robots in Complex Environments</i> , pp. 3110-3116.	
Chen, Xi	KTH
Ghadirzadeh, Ali	KTH Royal Institute of Technology
Folkesson, John	KTH
Björkman, Mårten	KTH
Jensfelt, Patric	KTH - Royal Institute of Technology
11:48-11:51	WeBTS1.7
<i>Learning and Generalization of Dynamic Movement Primitives by Hierarchical Deep Reinforcement Learning from Demonstration</i> , pp. 3117-3123.	
Kim, Wonchul	Seoul National University
Lee, Chungkeun	Seoul National Univ
Kim, H. Jin	Seoul National University
11:51-11:54	WeBTS1.8
<i>Fast Shadow Detection from a Single Image Using a Patched Convolutional Neural Network</i> , pp. 3124-3129.	
Hosseinzadeh, Sepideh	University of Alberta
Shakeri, Moein	University of Alberta
Zhang, Hong	University of Alberta
<b>WeBTS2</b>	Room 2.L5 KUKA
<b>Sensor Networks</b> (Regular session)	
Chair: Lee, C. S. George	Purdue University
Co-Chair: Hagita, Norihiro	ATR
11:30-11:33	WeBTS2.1
<i>Robust Decentralized Context-Aware Sensor Fault Detection with In-Place Self-Calibration</i> , pp. 3130-3136.	
Paneque, Julio L.	University of Sevilla
Martinez-de-Dios, Jose Ramiro	University of Seville
Ollero, Anibal	University of Seville
11:33-11:36	WeBTS2.2
<i>Heterogeneous Sensor-Robot Team Positioning and Mixed Strategy Scheduling</i> , pp. 3137-3144.	
Hartman, Benjamin	Government
Tatum, Richard	NSWCPCD
Bays, Matthew	Naval Surface Warfare Center
11:36-11:39	WeBTS2.3
<i>Robotic Subsurface Pipeline Mapping with a Ground-Penetrating Radar and a Camera</i> , pp. 3145-3150.	
Li, Haifeng	Civil Aviation University of China
Chou, Chieh	Texas A&M University
Fan, Longfei	Civil Aviation University of China
Li, Binbin	Texas A&M University
Wang, Di	Texas A&M University
Song, Dezhen	Texas A&M University
11:39-11:42	WeBTS2.4
<i>UAV Based Wireless Charging of Sensor Networks without Prior Knowledge</i> , pp. 3151-3158.	
Najeeb, Najeeb	University of Nebraska-Lincoln
Detweiler, Carrick	University of Nebraska-Lincoln
11:42-11:45	WeBTS2.5
<i>Mobile Robot Localization Considering Class of Sensor</i>	

*Observations*, pp. 3159-3166.

Akai, Naoki	Nagoya University
Morales Saiki, Luis Yoichi	ATR / Nagoya University
Murase, Hiroshi	Nagoya University

11:45-11:48 WeBTS2.6

*Robust Odometry Using Sensor Consensus Analysis*, pp. 3167-3173.

Palmer, Andrew William	Siemens
Nourani-Vatani, Navid	Siemens

11:48-11:51 WeBTS2.7

*Octree Map Based on Sparse Point Cloud and Heuristic Probability Distribution for Labeled Images*, pp. 3174-3181.

Berrio Perez, Julie Stephany	ACFR - the University of Sydney
Zhou, Wei	University of Sydney
Ward, James Robert	University of Sydney
Worrall, Stewart	University of Sydney
Nebot, Eduardo	University of Sydney

11:51-11:54 WeBTS2.8

*SuMo-SS: Submodular Optimization Sensor Scattering for Deploying Sensor Networks by Drones*, N/A.

Sugiura, Komei	National Institute of Information and Communications Tech
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**WeBTS3** Room 1.L2

**Localization and Mapping VII** (Regular session)

Chair: Dias, Jorge	University of Coimbra
Co-Chair: Asmar, Daniel	American University of Beirut

11:30-11:33 WeBTS3.1

*Human-In-The-Loop Augmented Mapping*, pp. 3190-3195.

Sidaoui, Abbas	American University of Beirut
Elhajj, Imad	American University of Beirut
Asmar, Daniel	American University of Beirut

11:33-11:36 WeBTS3.2

*VLASE: Vehicle Localization by Aggregating Semantic Edges*, pp. 3196-3203.

Yu, Xin	University of Utah
Chaturvedi, Sagar	American Family Insurance
Feng, Chen	New York University
Taguchi, Yuichi	Mitsubishi Electric Research Labs
Lee, Teng-Yok	Mitsubishi Electric Research Laboratories
Fernandes, Clinton	University of Utah
Ramalingam, Srikumar	University of Utah

11:36-11:39 WeBTS3.3

*A B-Spline Mapping Framework for Long-Term Autonomous Operations*, pp. 3204-3209.

T. Rodrigues, Rômulo	Faculty of Engineering, University of Porto
Aguiar, A. Pedro	Faculty of Engineering, University of Porto (FEUP)
Pascoal, Antonio	Instituto Superior Tecnico

11:39-11:42 WeBTS3.4

*Building Dense Reflectance Maps of Indoor Environments Using an RGB-D Camera*, pp. 3210-3217.

Krawez, Michael	University of Freiburg
Caselit, Tim	University of Freiburg
Büscher, Daniel	Albert-Ludwigs-Universität Freiburg
Van Loock, Mark	Toyota Motor Europe NV/SA

Burgard, Wolfram	University of Freiburg
11:42-11:45	WeBTS3.5
<i>3D Underground Mapping with a Mobile Robot and a GPR Antenna</i> , pp. 3218-3224.	
Kouros, Georgios	CERTH
Kostavelis, Ioannis	Center for Research and Technology Hellas
Skartados, Evangelos	CERTH, Thessaloniki, Greece
Giakoumis, Dimitris	Centre for Research and Technology Hellas
Simi, Alessandro	IDS GeoRadar
Guido, Manacorda	IDS GeoRadar
Tzovaras, Dimitrios	Centre for Research and Technology Hellas
11:45-11:48	WeBTS3.6
<i>Adaptive Baseline Monocular Dense Mapping with Inter-Frame Depth Propagation</i> , pp. 3225-3232.	
Wang, Kaixuan	Hong Kong University of Science and Technology
Shen, Shaojie	Hong Kong University of Science and Technology
11:48-11:51	WeBTS3.7
<i>Real Time Incremental Foveal Texture Mapping for Autonomous Vehicles</i> , pp. 3233-3240.	
Kumar, Ashish	Indian Institute of Technology, Kanpur
McBride, James	Ford Motor Company
Pandey, Gaurav	Ford Motor Company
11:51-11:54	WeBTS3.8
<i>Directional Grid Maps: Modeling Multimodal Angular Uncertainty in Dynamic Environments</i> , pp. 3241-3248.	
Senanayake, Ransalu	University of Sydney
Ramos, Fabio	University of Sydney
<b>WeBTS4</b>	Room 2.L2
<b>Legged Robots IV (Regular session)</b>	
Chair: Vasudevan, Ram	University of Michigan
Co-Chair: Malzahn, Jörn	Istituto Italiano Di Tecnologia
11:30-11:33	WeBTS4.1
<i>On the Dynamic Similarity between Bipeds and Quadrupeds: A Case Study on Bounding</i> , N/A.	
Gan, Zhenyu	University of Michigan
Jiao, Ziyuan	The University of Michigan
Remy, C. David	University of Michigan
11:33-11:36	WeBTS4.2
<i>The Effect of Swing Leg Retraction on Biped Walking Stability Is Influenced by the Walking Speed and Step-Length</i> , pp. 3257-3262.	
Bao, Ruizhi	Brunel University
Geng, Tao	Middlesex University
11:36-11:39	WeBTS4.3
<i>Body Flexibility Effects on Foot Loading in Quadruped Bounding Based on a Simple Analytical Model</i> , N/A.	
Kamimura, Tomoya	Kyoto University
Aoi, Shinya	Kyoto University
Tsuchiya, Kazuo	Kyoto University
Matsuno, Fumitoshi	Kyoto University
11:39-11:42	WeBTS4.4
<i>Application of Wrench Based Feasibility Analysis to the Online Trajectory Optimization of Legged Robots</i> , N/A.	
Orsolino, Romeo	Istituto Italiano Di Tecnologia

Focchi, Michele	Fondazione Istituto Italiano Di Tecnologia
Mastalli, Carlos	CNRS
Dai, Hongkai	Massachusetts Institute of Technology
Caldwell, Darwin G.	Istituto Italiano Di Tecnologia
Semini, Claudio	Istituto Italiano Di Tecnologia
11:42-11:45	WeBTS4.5
<i>An Analytical Study on Trotting at Constant Velocity and Height</i> , pp. 3279-3284.	
Machairas, Konstantinos	National Technical University of Athens
Papadopoulos, Evangelos	National Technical University of Athens
11:45-11:48	WeBTS4.6
<i>Development of a Musculoskeletal Humanoid Robot As a Platform for Biomechanical Research on the Underwater Dolphin Kick</i> , pp. 3285-3291.	
Ishii, Yasuaki	University of Tokyo
Nishikawa, Satoshi	University of Tokyo
Niyama, Ryuma	University of Tokyo
Kuniyoshi, Yasuo	The University of Tokyo
11:48-11:51	WeBTS4.7
<i>Design and Experiments of a Novel Hydraulic Wheel-Legged Robot (WLR)</i> , pp. 3292-3297.	
Li, Xu	Harbin Institute of Technology
Zhou, Haitao	Harbin Institute of Technology
Feng, Haibo	Harbin Institute of Technology
Zhang, Songyuan	Harbin Institute of Technology
Fu, Yili	Harbin Institute of Technology
11:51-11:54	WeBTS4.8
<i>Sensor-Based Reactive Execution of Symbolic Rearrangement Plans by a Legged Mobile Manipulator</i> , pp. 3298-3305.	
Vasilopoulos, Vasileios	University of Pennsylvania
Topping, Turner	University of Pennsylvania
Vega-Brown, William	Massachusetts Institute of Technology
Roy, Nicholas	Massachusetts Institute of Technology
Koditschek, Daniel	University of Pennsylvania
<b>WeBTS5</b>	Room 2.R3
<b>Prosthetics and Exoskeletons II (Regular session)</b>	
Chair: Tamosiunaite, Minija	University of Goettingen
Co-Chair: Torricelli, Diego	Consejo Superior De Investigaciones Cientificas
11:30-11:33	WeBTS5.1
<i>Soft Wearable Augmented Walking Suit with Pneumatic Gel Muscles and Stance Phase Detection System to Assist Gait</i> , N/A.	
Thakur, Chetan	Hiroshima University
Ogawa, Kazunori	DAIYA Industry
Tsuji, Toshio	Hiroshima University
Kurita, Yuichi	Hiroshima University
11:33-11:36	WeBTS5.2
<i>Comfort-Centered Design of a Lightweight and Backdrivable Knee Exoskeleton</i> , N/A.	
Wang, Junlin	City University of New York, City College
Li, Xiao	The City College of New York
Huang, Tzu-Hao	City College of New York
Yu, Shuangyue	City University of New York, City

	College	
Li, Yanjun	The City College of New York	
Chen, Tianyao	Catholic University of America	
Carriero, Alessandra	The City College of New York	
Oh-Park, Mooyeon	Burke Rehabilitation Hospital	
Su, Hao	City University of New York, City College	
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11:36-11:39		WeBTS5.3
<i>An Assist-As-Needed Velocity Field Control Scheme for Rehabilitation Robots</i> , pp. 3322-3327.		
Jabbariasl, Hamed	Toyota Technological Institute	
Narikiyo, Tatsuo	Toyota Technological Institute	
Kawanishi, Michihiro	Toyota Technological Institute	
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11:39-11:42		WeBTS5.4
<i>The KIT Prosthetic Hand: Design and Control</i> , pp. 3328-3334.		
Weiner, Pascal	Karlsruhe Institute of Technology	
Starke, Julia	Karlsruhe Institute of Technology	
Hundhausen, Felix	Karlsruhe Institute of Technology	
Beil, Jonas	Karlsruhe Institute of Technology (KIT)	
Asfour, Tamim	Karlsruhe Institute of Technology (KIT)	
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11:42-11:45		WeBTS5.5
<i>Robot Controllers Compatible with Human Beam Balancing Behavior</i> , pp. 3335-3341.		
Lee, Jongwoo	Massachusetts Institute of Technology (MIT)	
Huber, Meghan	Massachusetts Institute of Technology	
Sternad, Dagmar	Northeastern University	
Hogan, Neville	Massachusetts Institute of Technology	
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11:45-11:48		WeBTS5.6
<i>Shock Absorbing Exoskeleton for Vertical Mobility System: Concept and Feasibility Study</i> , pp. 3342-3349.		
Ueda, Jun	Georgia Institute of Technology	
Turkseven, Melih	Georgia Institute of Technology	
Kim, Euisun	Georgia Institute of Technology	
Lowery, Quincey	Georgia Tech	
Bivens, Courtland	Georgia Tech Research Institute	
Mayo, Michael	Georgia Tech Research Institute	
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11:48-11:51		WeBTS5.7
<i>Prediction of Manipulation Action Classes Using Semantic Spatial Reasoning</i> , pp. 3350-3357.		
Ziaetabar, Fatemeh	Georg August University_Physics 3-BCCN	
Kulvicius, Tomas	University of Goettingen	
Tamosiunaite, Minija	University of Goettingen	
Wörgötter, Florentin	University of Göttingen	
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<b>WeBTS6</b>		Room 1.L3
<b>Human-Robot Interaction VI (Regular session)</b>		
Chair: Dillmann, Rüdiger	Karlsruhe Institute of Technology (KIT)	
Co-Chair: Giakoumis, Dimitris	Centre for Research and Technology Hellas	
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11:30-11:33		WeBTS6.1
<i>Human Motion Prediction under Social Grouping Constraints</i> , pp. 3358-3364.		
Rudenko, Andrey	Robert Bosch GmbH	
Palmieri, Luigi	Robert Bosch GmbH	

	Lilienthal, Achim J.	Örebro University
	Arras, Kai Oliver	Bosch Research
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11:33-11:36		WeBTS6.2
<i>Risk-Based Human-Aware Multi-Robot Coordination in Dynamic Environments Shared with Humans</i> , pp. 3365-3372.		
Talebpour, Zeynab	École Polytechnique Fédérale De Lausanne	
Martinoli, Alcherio	EPFL	
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11:36-11:39		WeBTS6.3
<i>Modeling Social Interaction Based on Joint Motion Significance</i> , pp. 3373-3380.		
Cho, Nam Jun	Hanyang University	
Lee, Sang Hyoung	Korea Institute of Industrial Technology	
Suh, Il Hong	Hanyang University	
Kwon, Taesoo	Carnegie Mellon University	
Kim, Hong-Seok	Korea Institute of Industrial Technology	
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11:39-11:42		WeBTS6.4
<i>Effects of Integrated Intent Recognition and Communication on Human-Robot Collaboration</i> , pp. 3381-3386.		
Chang, Mai Lee	University of Texas at Austin	
Gutierrez, Reymundo A.	University of Texas at Austin	
Khante, Priyanka	University of Texas at Austin	
Short, Elaine Schaertl	University of Texas at Austin	
Thomaz, Andrea Lockerd	University of Texas at Austin	
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11:42-11:45		WeBTS6.5
<i>After You: Doorway Negotiation for Human-Robot and Robot-Robot Interaction</i> , pp. 3387-3394.		
Thomas, Jack	Simon Fraser University	
Vaughan, Richard	Simon Fraser University	
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11:45-11:48		WeBTS6.6
<i>The Power of Color: A Study on the Effective Use of Colored Light in Human-Robot Interaction</i> , pp. 3395-3402.		
Pörtner, Aljoscha	Bielefeld University of Applied Sciences	
Schröder, Lilian	University of Applied Sciences Bielefeld, Campus Minden	
Rasch, Robin	Bielefeld University of Applied Sciences	
Sprute, Dennis	Bielefeld University of Applied Sciences	
Hoffmann, Martin	Bielefeld University of Applied Sciences	
König, Matthias	Bielefeld University of Applied Sciences	
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11:48-11:51		WeBTS6.7
<i>Neuroscientifically-Grounded Research for Improved Human-Robot Interaction</i> , pp. 3403-3408.		
Kompatsiari, Kyveli	Istituto Italiano Di Tecnologia	
Perez-Osorio, Jairo	Istituto Italiano Di Tecnologia	
Davide, De Tommaso	Istituto Italiano Di Tecnologia	
Metta, Giorgio	Istituto Italiano Di Tecnologia (IIT)	
Wykowska, Agnieszka	Istituto Italiano Di Tecnologia	
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<b>WeBTS7</b>		Room 2.L3
<b>Autonomous Vehicles I (Regular session)</b>		
Chair: Laugier, Christian		INRIA
Co-Chair: Yan, Zhi	University of Technology of Belfort-Montbéliard (UTBM)	
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11:30-11:33		WeBTS7.1

*Robust LIDAR Localization for Autonomous Driving in Rain*, pp. 3409-3415.

Zhang, Chen Singapore-MIT Alliance for Research and Technology  
Ang Jr, Marcelo H National University of Singapore  
Rus, Daniela MIT

11:33-11:36 WeBTS7.2

*Move Base Flex: A Highly Flexible Navigation Framework for Mobile Robots*, pp. 3416-3421.

Pütz, Sebastian Osnabrueck University  
Santos, Jorge Magazino GmbH  
Hertzberg, Joachim University of Osnabrueck

11:36-11:39 WeBTS7.3

*Just-In-Time Emergency Trajectories: A Formulation towards Safety in Autonomous Navigation*, pp. 3422-3429.

Todoran, George Vienna University of Technology  
Bader, Markus Vienna University of Technology

11:39-11:42 WeBTS7.4

*PoseMap: Lifelong, Multi-Environment 3D LiDAR Localization*, pp. 3430-3437.

Egger, Philipp ETH Zürich  
Borges, Paulo Vinicius CSIRO  
Koerich  
Catt, Gavin CSIRO  
Pfrunder, Andreas ETH Zurich  
Siegwart, Roland ETH Zurich  
Dubé, Renaud ETH Zürich

11:42-11:45 WeBTS7.5

*Personal Mobility Vehicle Autonomous Navigation through Pedestrian Flow: A Data Driven Approach for Parameter Extraction*, pp. 3438-3444.

Morales Saiki, Luis Yoichi ATR / Nagoya University  
Akai, Naoki Nagoya University  
Murase, Hiroshi Nagoya University

11:45-11:48 WeBTS7.6

*Identifying Driver Behaviors Using Trajectory Features for Vehicle Navigation*, pp. 3445-3452.

Cheung, Ernest C. The University of North Carolina at Chapel Hill  
Bera, Aniket University of North Carolina at Chapel Hill  
Kubin, Emily University of North Carolina at Chapel Hill  
Gray, Kurt University of North Carolina at Chapel Hill  
Manocha, Dinesh University of North Carolina at Chapel Hill

11:48-11:51 WeBTS7.7

*Preliminary Evaluation of Null-Space Dynamic Process Model Identification with Application to Cooperative Navigation of Underwater Vehicles*, pp. 3453-3459.

Harris, Zachary Johns Hopkins University  
Paine, Tyler Johns Hopkins University  
Whitcomb, Louis The Johns Hopkins University

11:51-11:54 WeBTS7.8

*Autonomous Acquisition of Behavior Trees for Robot Control*, pp. 3460-3467.

Banerjee, Bikramjit University of Southern Mississippi

Chair: Sun, Dong City University of Hong Kong  
Co-Chair: Natale, Lorenzo Istituto Italiano Di Tecnologia

11:30-11:33 WeBTS8.1

*Learning-Based Modular Task-Oriented Grasp Stability Assessment*, pp. 3468-3475.

Xu, Jingyi Technical University of Munich  
Bhardwaj, Amit Technical University of Munich, Munich

Sun, Ge Technical University of Munich  
Aykut, Tamay Technical University of Munich  
Alt, Nicolas Technische Universität München  
Karimi, Mojtaba Technical University of Munich  
Steinbach, Eckehard Munich University of Technology

11:33-11:36 WeBTS8.2

*Interactive Robotic Manipulation of Elastic Objects*, pp. 3476-3481.

Dünser, Simon ETH Zurich  
Bern, James ETH Zurich  
Poranne, Roi ETHZ  
Coros, Stelian Carnegie Mellon University

11:36-11:39 WeBTS8.3

*Domain Randomization and Generative Models for Robotic Grasping*, pp. 3482-3489.

Tobin, Joshua UC Berkeley  
Zaremba, Wojciech OpenAI  
Abbeel, Pieter UC Berkeley

11:39-11:42 WeBTS8.4

*Improving Grasping Forces During the Manipulation of Unknown Objects*, pp. 3490-3495.

Montano, Andres Universitat Politècnica De Catalunya  
Suarez, Raul Universitat Politècnica De Catalunya (UPC)

11:42-11:45 WeBTS8.5

*Intrinsically Motivated Self-Supervised Deep Sensorimotor Learning for Grasping*, pp. 3496-3502.

Takahashi, Takeshi University of Massachusetts, Amherst  
Lanighan, Michael University of Massachusetts Amherst  
Gruppen, Rod University of Massachusetts

11:45-11:48 WeBTS8.6

*Manipulation Planning under Changing External Forces*, pp. 3503-3510.

Chen, Lipeng University of Leeds  
Figueredo, Luis Felipe Cruz University of Leeds  
Dogar, Mehmet Remzi University of Leeds

11:48-11:51 WeBTS8.7

*Jacquard: A Large Scale Dataset for Robotic Grasp Detection*, pp. 3511-3516.

Depierre, Amaury Ecole Centrale De Lyon/Siléane  
Dellandrea, Emmanuel Ecole Centrale De Lyon  
Chen, Liming Ecole Centrale De Lyon

11:51-11:54 WeBTS8.8

*Planning Hand-Arm Grasping Motions with Human-Like Appearance*, pp. 3517-3522.

Garcia, Nestor Universitat Politècnica De Catalunya  
Suarez, Raul Universitat Politècnica De Catalunya (UPC)  
Rosell, Jan Universitat Politècnica De Catalunya (UPC)

**WeBTS8** Room 2.R1  
**Grasping II** (Regular session)

<b>WeBTS9</b>	Room 4.L1
<b>Planning and Mapping</b> (Regular session)	
Chair: Hamel, William R.	University of Tennessee
Co-Chair: Kaelbling, Leslie	MIT
11:30-11:33	WeBTS9.1
<i>Efficient Computation of Invariably Safe States for Motion Planning of Self-Driving Vehicles</i> , pp. 3523-3530.	
Pek, Christian	Technical University of Munich and BMW Group
Althoff, Matthias	Technische Universität München
11:33-11:36	WeBTS9.2
<i>Improving Offline Value-Function Approximations for POMDPs by Reducing Discount Factors</i> , pp. 3531-3536.	
Chen, Yi-Chun	University of California, Los Angeles
Kochenderfer, Mykel	Stanford University
Spaan, Matthijs T. J.	Delft University of Technology
11:36-11:39	WeBTS9.3
<i>Robust Exploration with Multiple Hypothesis Data Association</i> , pp. 3537-3544.	
Wang, Jinkun	Stevens Institute of Technology
Englot, Brendan	Stevens Institute of Technology
11:39-11:42	WeBTS9.4
<i>Reactive Collision Avoidance Using Real-Time Local Gaussian Mixture Model Maps</i> , pp. 3545-3550.	
Dhawale, Aditya	Carnegie Mellon University
Yang, Xuning	Carnegie Mellon University
Michael, Nathan	Carnegie Mellon University
11:42-11:45	WeBTS9.5
<i>Integrating Human-Provided Information into Belief State Representation Using Dynamic Factorization</i> , pp. 3551-3558.	
Chitnis, Rohan	Massachusetts Institute of Technology
Kaelbling, Leslie	MIT
Lozano-Perez, Tomas	MIT
11:45-11:48	WeBTS9.6
<i>Simultaneous Task Allocation and Planning under Uncertainty</i> , pp. 3559-3564.	
Faruq, Fatma	University of Birmingham
Lacerda, Bruno	University of Oxford
Hawes, Nick	University of Oxford
Parker, David	University of Birmingham

<b>WeBTS10</b>	Room 4.R1
<b>Special Session: Robotics in Challenging Environments</b> (Regular session)	
Chair: Burroughes, Guy	RACE, UKAEA
11:30-11:33	WeBTS10.1
<i>Strategic-Tactical Planning for Autonomous Underwater Vehicles Over Long Horizons (I)</i> , pp. 3565-3572.	
Bukasz, Dorian	King's College London
Cashmore, Michael	King's College London
Krarp, Benjamin	King's College London
Magazzeni, Daniele	King's College London
Ridder, Bram	King's College London
11:33-11:36	WeBTS10.2
<i>Grid-Based Motion Planning Using Advanced Motions for Hexapod Robots (I)</i> , pp. 3573-3578.	
Cheah, Wei	The University of Manchester

Hakim Khalili, Hassan	University of Manchester
Watson, Simon	University of Manchester
Lennox, Barry	The University of Manchester
Green, Peter	University of Manchester
11:36-11:39	WeBTS10.3
<i>Learning from Demonstration for Hydraulic Manipulators (I)</i> , pp. 3579-3586.	
Suomalainen, Markku Heikki	Aalto University
Koivumäki, Janne	Tampere University of Technology
Lampinen, Santeri	Tampere University of Technology
Kyrki, Ville	Aalto University
Mattila, Jouni	Tampere University of Technology
11:39-11:42	WeBTS10.4
<i>Development and Error Compensation of a Flexible Multi-Joint Manipulator Applied in Nuclear Fusion Environment (I)</i> , pp. 3587-3592.	
Shi, Shanshuang	Institute of Plasma Physics, Chinese Academy of Sciences
Cheng, Yong	Institute of Plasma Physics, Chinese Academy of Sciences
Pan, Hongtao	Shenzhen University
Zhao, Wenlong	Institute of Plasma Physics, Chinese Academy of Sciences
Wu, Huapeng	Lappeenranta University of Technology
11:42-11:45	WeBTS10.5
<i>Progress and Prospects of EAST Remote Maintenance System (I)</i> , pp. 3593-3598.	
Pan, Hongtao	Shenzhen University
Shi, Shanshuang	Institute of Plasma Physics, Chinese Academy of Sciences
Cheng, Yong	Institute of Plasma Physics, Chinese Academy of Sciences
Zhao, Wenlong	Institute of Plasma Physics, Chinese Academy of Sciences
11:45-11:48	WeBTS10.6
<i>Pose Estimation for Mobile Robots to Maximise Data Quality of Fixed-Focus Laser Diagnostics in Hazardous Environments (I)</i> , pp. 3599-3604.	
West, Andrew	The University of Manchester
Watson, Simon	University of Manchester
Lennox, Barry	The University of Manchester

<b>WeCTS1</b>	Room 1.L5
<b>Deep Learning VIII</b> (Regular session)	
Co-Chair: Detweiler, Carrick	University of Nebraska-Lincoln
12:30-12:33	WeCTS1.1
<i>A Variational Feature Encoding Method of 3D Object for Probabilistic Semantic SLAM</i> , pp. 3605-3612.	
Yu, Hyeonwoo	Seoul National University
Lee, Beom-Hee	Seoul National University
12:33-12:36	WeCTS1.2
<i>End to End Vehicle Lateral Control Using Fisheye Camera</i> , pp. 3613-3619.	
Toromanoff, Marin	Mines ParisTech/ Valeo
Wirbel, Emilie	Valeo
Wilhelm, Frédéric	Valeo
Vejarano, Camilo	Valeo
Perrotton, Xavier	Valeo

Moutarde, Fabien	MINES ParisTech - PSL Research University
12:36-12:39	WeCTS1.3
<i>Learning Trajectories for Real-Time Optimal Control of Quadrotors</i> , pp. 3620-3625.	
Tang, Gao	Duke University
Sun, Weidong	Duke University
Hauser, Kris	Duke University
12:39-12:42	WeCTS1.4
<i>A Novel OCR-RCNN for Elevator Button Recognition</i> , pp. 3626-3631.	
Zhu, Delong	The Chinese University of Hong Kong
Li, Tingguang	The Chinese University of Hong Kong
Ho, Danny	The Chinese University of Hong Kong
Zhou, Tong	The Chinese University of Hong Kong
Meng, Max Q.-H.	The Chinese University of Hong Kong
12:42-12:45	WeCTS1.5
<i>Cost Functions for Robot Motion Style</i> , pp. 3632-3639.	
Zhou, Allan	University of California, Berkeley
Dragan, Anca	University of California Berkeley
12:45-12:48	WeCTS1.6
<i>Game-Theoretic Cooperative Lane Changing Using Data-Driven Models</i> , pp. 3640-3647.	
Ding, Guohui	University of Colorado Boulder
Aghli, Sina	University of Colorado Boulder
Heckman, Christoffer	University of Colorado at Boulder
Chen, Lijun	University of Colorado at Boulder
12:48-12:51	WeCTS1.7
<i>Imitation Learning for Object Manipulation Based on Position/Force Information Using Bilateral Control</i> , pp. 3648-3653.	
Adachi, Tsuyoshi	Saitama University
Fujimoto, Kazuki	Saitama University
Sakaino, Sho	Saitama University
Tsuji, Toshiaki	Saitama University
12:51-12:54	WeCTS1.8
<i>Learning Implicit Sampling Distributions for Motion Planning</i> , pp. 3654-3661.	
Zhang, Clark	University of Pennsylvania
Huh, Jinwook	University of Pennsylvania
Lee, Daniel	Cornell Tech
<b>WeCTS2</b>	Room 2.L5 KUKA
<b>Sensor Fusion</b> (Regular session)	
Co-Chair: Castro González, Universidad Carlos III De Madrid Álvaro	
12:30-12:33	WeCTS2.1
<i>Online Temporal Calibration for Monocular Visual-Inertial Systems</i> , pp. 3662-3669.	
Qin, Tong	Hong Kong University of Science and Technology
Shen, Shaojie	Hong Kong University of Science and Technology
12:33-12:36	WeCTS2.2
<i>Modular Sensor Fusion for Semantic Segmentation</i> , pp. 3670-3677.	
Blum, Hermann	ETH Zurich

Gawel, Abel Roman	Autonomous Systems Lab, ETH Zurich
Sieglwart, Roland	ETH Zurich
Cadena Lerma, Cesar	ETH Zurich
12:36-12:39	WeCTS2.3
<i>Robust Sensor Fusion with Self-Tuning Mixture Models</i> , pp. 3678-3685.	
Pfeifer, Tim	Chemnitz University of Technology
Protzel, Peter	Chemnitz University of Technology
12:39-12:42	WeCTS2.4
<i>Trifo-VIO: Robust and Efficient Stereo Visual Inertial Odometry Using Points and Lines</i> , pp. 3686-3693.	
Zheng, Feng	Trifo
Tsai, Grace	PerceptIn
Zhang, Zhe	PerceptIn
Liu, Shaoshan	PerceptIn
Chu, Chen-Chi	PerceptIn
Hu, Hongbing	PerceptIn
12:42-12:45	WeCTS2.5
<i>Scale Correct Monocular Visual Odometry Using a LiDAR Altimeter</i> , pp. 3694-3700.	
Giubilato, Riccardo	University of Padova
Chiodini, Sebastiano	Università Degli Studi Di Padova
Pertile, Marco	Università Degli Studi Di Padova
Debei, Stefano	Università Degli Studi Di Padova
12:45-12:48	WeCTS2.6
<i>Robust Visual-Inertial State Estimation with Multiple Odometries and Efficient Mapping on an MAV with Ultra-Wide FOV Stereo Vision</i> , pp. 3701-3708.	
Müller, Marcus Gerhard	German Aerospace Center
Steidle, Florian	German Aerospace Center
Schuster, Martin Johannes	German Aerospace Center (DLR)
Lutz, Philipp	German Aerospace Center (DLR)
Maier, Moritz	German Aerospace Center (DLR)
Stoneman, Samantha	DLR (German Space Center)
Tomic, Teodor	Skydio
Stuerzl, Wolfgang	DLR, Institute of Robotics and Mechatronics
12:48-12:51	WeCTS2.7
<i>Plugo: A Scalable Visible Light Communication System towards Low-Cost Indoor Localization</i> , pp. 3709-3714.	
Liang, Qing	Hong Kong University of Science and Technology
Wang, Lujia	Shenzhen Institutes of Advanced Technology
Li, You-Fu	City University of Hong Kong
Liu, Ming	Hong Kong University of Science and Technology
12:51-12:54	WeCTS2.8
<i>On the Comparison of Gauge Freedom Handling in Optimization-Based Visual-Inertial State Estimation</i> , N/A.	
Zhang, Zichao	Robotics and Perception Group, University of Zurich
Gallego, Guillermo	University of Zurich
Scaramuzza, Davide	University of Zurich
<b>WeCTS3</b>	Room 1.L2

**Swarm and Multi-Robots I (Regular session)**

Chair: Basilico, Nicola	University of Milan
Co-Chair: Jha, Devesh	Mitsubishi Electric Research Laboratories
12:30-12:33	WeCTS3.1
<i>Formally Correct Composition of Coordinated Behaviors Using Control Barrier Certificates</i> , pp. 3723-3729.	
Li, Anqi	Georgia Institute of Technology
Wang, Li	Georgia Institute of Technology
Pierpaoli, Pietro	Georgia Institute of Technology
Egerstedt, Magnus	Georgia Institute of Technology
12:33-12:36	WeCTS3.2
<i>Approximate Distributed Spatiotemporal Topic Models for Multi-Robot Terrain Characterization</i> , pp. 3730-3737.	
Doherty, Kevin	Massachusetts Institute of Technology
Flaspohler, Genevieve	Massachusetts Institute of Technology
Roy, Nicholas	Massachusetts Institute of Technology
Girdhar, Yogesh	Woods Hole Oceanographic Institution
12:36-12:39	WeCTS3.3
<i>On the Use of Energy Tanks for Multi-Robot Interconnection</i> , pp. 3738-3743.	
Riggio, Giuseppe	University of Modena and Reggio Emilia
Fantuzzi, Cesare	Università Di Modena E Reggio Emilia
Secchi, Cristian	Univ. of Modena & Reggio Emilia
12:39-12:42	WeCTS3.4
<i>A Workbench for Quantitative Comparison of Databases in Multi-Robot Applications</i> , pp. 3744-3750.	
Ravichandran, Rubanraj	Bonn Rhein Sieg University of Applied Science
Huebel, Nico	KU Leuven
Blumenthal, Sebastian	Locomotec
Prassler, Erwin	Bonn-Rhein-Sieg Univ. of Applied Sciences
12:42-12:45	WeCTS3.5
<i>Self-Assembly of a Class of Infinitesimally Shape-Similar Frameworks</i> , pp. 3751-3756.	
Buckley, Ian	Georgia Institute of Technology
Egerstedt, Magnus	Georgia Institute of Technology
12:45-12:48	WeCTS3.6
<i>Optimal Redeployment of Multirobot Teams for Communication Maintenance</i> , pp. 3757-3764.	
Banfi, Jacopo	Politecnico Di Milano
Basilico, Nicola	University of Milan
Carpin, Stefano	University of California, Merced
12:48-12:51	WeCTS3.7
<i>Visibility-Based Monitoring of a Path Using a Heterogeneous Robot Team</i> , pp. 3765-3770.	
Maini, Parikshit	Indraprastha Institute of Information Technology, Delhi
Gupta, Gautam	IIT Delhi
Tokekar, Pratap	Virginia Tech
Pb, Sujit	Indraprastha Institute of Information Technology Delhi
12:51-12:54	WeCTS3.8
<i>Algorithms for Task Allocation in Homogeneous Swarm of Robots</i> , pp. 3771-3776.	

Jha, Devesh

Pennsylvania State University

**WeCTS4**

Room 2.L2

**Legged Robots V (Regular session)**

Chair: Nori, Francesco	DeepMind
Co-Chair: Ayusawa, Ko	AIST
12:30-12:33	WeCTS4.1
<i>Implementation of a Versatile 3D ZMP Trajectory Optimization Algorithm on a Multi-Modal Legged Robotic Platform</i> , pp. 3777-3782.	
Hooks, Joshua	UCLA
Hong, Dennis	UCLA
12:33-12:36	WeCTS4.2
<i>Hybrid Contact Preintegration for Visual-Inertial-Contact State Estimation Using Factor Graphs</i> , pp. 3783-3790.	
Hartley, Ross	University of Michigan
Ghaffari Jadidi, Maani	Univ. of Michigan
Gan, Lu	University of Michigan
Huang, Jiunn-Kai	University of Michigan
Grizzle, J.W	University of Michigan
Eustice, Ryan	University of Michigan
12:36-12:39	WeCTS4.3
<i>Stable, Autonomous, Unknown Terrain Locomotion for Quadrupeds Based on Visual Feedback and Mixed-Integer Convex Optimization</i> , pp. 3791-3798.	
Ahn, Min Sung	University of California: Los Angeles
Chae, Hosik	University of California at Los Angeles
Hong, Dennis	UCLA
12:39-12:42	WeCTS4.4
<i>Leg Design to Enable Dynamic Running and Climbing on BOBCAT</i> , pp. 3799-3806.	
Austin, Max	Florida State University
Brown, Jason	Florida State University
Young, Charles	Florida State University
Clark, Jonathan	Florida State University
12:42-12:45	WeCTS4.5
<i>Learning Hardware Dynamics Model from Experiments for Locomotion Optimization</i> , pp. 3807-3814.	
Chen, Kuo	Rutgers University
Ha, Sehoon	Disney Research
Yamane, Katsu	Honda Research Institute, USA
12:45-12:48	WeCTS4.6
<i>Iterative Learning of Energy-Efficient Dynamic Walking Gaits</i> , pp. 3815-3820.	
Kong, Felix Honglim	The University of Sydney
Manchester, Ian	University of Sydney
12:48-12:51	WeCTS4.7
<i>Bipedal Hopping: Reduced-Order Model Embedding Via Optimization-Based Control</i> , pp. 3821-3828.	
Xiong, Xiaobin	California Institute of Technology
Ames, Aaron	Caltech
12:51-12:54	WeCTS4.8
<i>An Actuator Design Criterion to Maximize Physical Balance Recovery</i> , pp. 3829-3836.	
Driessen, Josephus	Istituto Italiano Di Tecnologia
Johannes Maria	Istituto Italiano Di Tecnologia
Featherstone, Roy	Istituto Italiano Di Tecnologia
Gkikakis, Antonios	Istituto Italiano Di Tecnologia
Emmanouil	

<b>WeCTS5</b>	Room 2.R3
<b>Surgical Robots I (Regular session)</b>	
Chair: Muñoz, Victor	University of Malaga
Co-Chair: Shi, Chaoyang	University of Toronto
12:30-12:33	WeCTS5.1
<i>Passive Virtual Fixtures Adaptation in Minimally Invasive Robotic Surgery, N/A.</i>	
Selvaggio, Mario	Università Degli Studi Di Napoli Federico II
Fontanelli, Giuseppe Andrea	University of Naples Federico II
Ficuciello, Fanny	Università Di Napoli Federico II
Villani, Luigi	Univ. Napoli Federico II
Siciliano, Bruno	Univ. Napoli Federico II
12:33-12:36	WeCTS5.2
<i>Vessel Pose Estimation for Obstacle Avoidance in Needle Steering Surgery Using Multiple Forward Looking Sensors, pp. 3845-3852.</i>	
Viridyawan, Vani	Imperial College London
Rodriguez y Baena, Ferdinando	Imperial College, London, UK
12:36-12:39	WeCTS5.3
<i>A Critical Analysis of Eight-Electromagnet Manipulation Systems: The Role of Electromagnet Configuration on Strength, Isotropy, and Access, N/A.</i>	
Pourkand, Ashkan	Univerisyt of Utah
Abbott, Jake	University of Utah
12:39-12:42	WeCTS5.4
<i>Frequency-Based Temperature Compensation for a Tactile Sensor Using Acoustic Reflection, N/A.</i>	
Akita, Shun	Nagoya Institute of Technology
Fukuda, Tomohiro	Nagoya Institute of Technology
Tanaka, Yoshihiro	Nagoya Institute of Technology
Fujiwara, Michitaka	Nagoya University, Graduate School of Medicine
Sano, Akihito	Nagoya Institute of Technology
12:42-12:45	WeCTS5.5
<i>A Compliant Robotic Instrument with Coupled Tendon Driven Articulated Wrist Control for Organ Retraction, N/A.</i>	
Chu, Xiangyu	The Chinese University of Hong Kong
Cai, Yuanpei	CUHK
Chung, Tsz Yin	The Chinese University of Hong Kong
Au, Samuel	The Chinese University of Hong Kong
Yip, Hoi Wut	The Chinese University of Hong Kong
Moran, Stuart	Retraction, Inc
12:45-12:48	WeCTS5.6
<i>Trajectory Optimization of Robot-Assisted Endovascular Catheterization with Reinforcement Learning, pp. 3875-3881.</i>	
Chi, Wenqiang	Imperial College London
Liu, Jindong	Imperial College London
Abdelaziz, Mohamed Essam	Imperial College London
Mohamed Kassem	
Dagnino, Giulio	Imperial College London
Riga, Celia	Imperial College London
Bicknell, Colin	Imperial College London
Yang, Guang-Zhong	Imperial College London
12:48-12:51	WeCTS5.7

*ArthroSLAM: Multi-Sensor Robust Visual Localization for Minimally Invasive Orthopedic Surgery, pp. 3882-3889.*

Marmol, Andres	Queensland University of Technology
Corke, Peter	Queensland University of Technology
Peynot, Thierry	Queensland University of Technology (QUT)

12:51-12:54 WeCTS5.8

*Towards Robotic Eye Surgery: Marker-Free, Online Hand-Eye Calibration Using Optical Coherence Tomography Images, N/A.*

Zhou, Mingchuan	Technische Universität München
Hamad, Mahdi	Mr
Weiss, Jakob	Technische Universität München
Eslami, Abouzar	Carl Zeiss Meditec AG
Huang, Kai	Sun Yat-Sen University
Maier, Mathias	Klinikum Rechts Der Isar Der TU München
Lohmann, Chris P.	Klinikum Rechts Der Isar Der TU München
Navab, Nassir	TU Munich
Knoll, Alois	Tech. Univ. Muenchen TUM
Nasseri, M. Ali	Technische Universitaet Muenchen

**WeCTS6** Room 1.L3  
**Human-Robot Interaction VII (Regular session)**

Chair: Padir, Taskin	Northeastern University
Co-Chair: Magnusson, Martin	Örebro University

12:30-12:33 WeCTS6.1

*I Can See Your Aim: Estimating User Attention from Gaze for Handheld Robot Collaboration, pp. 3897-3904.*

Stolzenwald, Schachar Janis	University of Bristol
Immanuel	
Mayol, Walterio	University of Bristol

12:33-12:36 WeCTS6.2

*Recursive Bayesian Human Intent Recognition in Shared-Control Robotics, pp. 3905-3912.*

Jain, Siddarth	Northwestern University, Rehabilitation Institute of Chicago
Argall, Brenna	Northwestern University

12:36-12:39 WeCTS6.3

*A Novel Shared Position Control Method for Robot Navigation Via Low Throughput Human-Machine Interfaces, pp. 3913-3920.*

Sinyukov, Dmitry	Worcester Polytechnic Institute
Padir, Taskin	Northeastern University

12:39-12:42 WeCTS6.4

*Robot Identification and Localization with Pointing Gestures, pp. 3921-3928.*

Gromov, Boris	IDSIA
Gambardella, Luca	USI-SUPSI
Giusti, Alessandro	IDSIA Lugano, SUPSI

12:42-12:45 WeCTS6.5

*Establishing Appropriate Trust Via Critical States, pp. 3929-3936.*

Huang, Sandy H.	UC Berkeley
Bhatia, Kush	University of California Berkeley
Abbeel, Pieter	UC Berkeley
Dragan, Anca	University of California Berkeley

12:45-12:48 WeCTS6.6



*Learned Hand Gesture Classification through Synthetically Generated Training Samples*, pp. 3937-3942.

Lindgren, Kyle	University of Washington
Kalavakonda, Niveditha	University of Washington
Caballero, David	University of Washington
Huang, Kevin	Trinity College
Hannaford, Blake	University of Washington

12:48-12:51 WeCTS6.7

*Interaction System Based on an Avatar Projected on a Pyramidal Display*, pp. 3943-3948.

Loza Matovelle, David César	Universidad De La Fuerzas Armadas ESPE
Marcos, Samuel	CARTIF Foundation
Zalama, Eduardo	Instituto De Las Tecnologías de la Producción (ITAP). University of Va
Gomez Garcia Bermejo, Jaime	University of Valladolid

**WeCTS7** Room 2.L3  
**Autonomous Vehicles II** (Regular session)

Chair: Topp, Elin Anna	Lund University - LTH
Co-Chair: Stachniss, Cyrill	University of Bonn

12:30-12:33 WeCTS7.1

*Multimotion Visual Odometry (MVO): Simultaneous Estimation of Camera and Third-Party Motions*, pp. 3949-3956.

Judd, Kevin Michael	University of Oxford
Gammell, Jonathan	University of Oxford
Newman, Paul	Oxford University

12:33-12:36 WeCTS7.2

*Underwater Surveying Via Bearing Only Cooperative Localization*, pp. 3957-3963.

Damron, Hunter	University of South Carolina
Quattrini Li, Alberto	Dartmouth College
Rekleitis, Ioannis	University of South Carolina

12:36-12:39 WeCTS7.3

*Ego-Motion Estimate Corruption Due to Violations of the Range Flow Constraint*, pp. 3964-3969.

Monaco, Chris	Pennsylvania State University
Brennan, Sean	Penn State University

12:39-12:42 WeCTS7.4

*Semi-Supervised SLAM: Leveraging Low-Cost Sensors on Underground Autonomous Vehicles for Position Tracking*, pp. 3970-3977.

Jacobson, Adam	Queensland University of Technology
Zeng, Fan	Queensland University of Technology
Smith, David	Caterpillar
Boswell, Nigel	Caterpillar
Peynot, Thierry	Queensland University of Technology (QUT)
Milford, Michael J	Queensland University of Technology

12:42-12:45 WeCTS7.5

*An Automatic Tracked Robot Chain System for Gas Pipeline Inspection and Maintenance Based on Wireless Relay Communication*, pp. 3978-3983.

Zhao, Wen	Waseda University
Kamezaki, Mitsuhiro	Waseda University
Yoshida, Kento	Waseda University
Konno, Minoru	Tokyo Gas Co. Ltd

Onuki, Akihiko	Tokyogasa
Sugano, Shigeki	Waseda University

12:45-12:48 WeCTS7.6

*Multi-Level Bayesian Decision-Making for Safe and Flexible Autonomous Navigation in Highway Environment*, pp. 3984-3990.

Iberraken, Dimia	Sherpa Engineering, Institut Pascal UMR CNRS 6602
Adouane, Lounis	Institut Pascal, UMR CNRS 6602
Denis, Dieumet	Sherpa Engineering

12:48-12:51 WeCTS7.7

*Estimating Achievable Range of Ground Robots Operating on Single Battery Discharge for Operational Efficacy Amelioration*, pp. 3991-3998.

Tiwari, Kshitij	Aalto University
Xiao, Xuesu	Texas A&M University
Chong, Nak Young	Japan Advanced Inst. of Sci. and Tech

12:51-12:54 WeCTS7.8

*Interaction-Aware Probabilistic Behavior Prediction in Urban Environments*, pp. 3999-4006.

Schulz, Jens	Technical University of Munich, BMW Group
Hubmann, Constantin	Karlsruhe Institute of Technology, BMW Group
Löchner, Julian	BMW Group
Burschka, Darius	Technische Universität München

**WeCTS8** Room 2.R1  
**Grasping III** (Regular session)

Chair: Morales, Antonio	Universitat Jaume I
Co-Chair: Surdilovic, Dragoljub	Fraunhofer IPK

12:30-12:33 WeCTS8.1

*FEM-Based Deformation Control for Dexterous Manipulation of 3D Soft Objects*, pp. 4007-4013.

Ficuciello, Fanny	Università Di Napoli Federico II
Migliozzi, Alessandro	University of Naples
Coevoet, Eulalie	INRIA
Petit, Antoine	Inia
Duriez, Christian	INRIA

12:33-12:36 WeCTS8.2

*Robotic Edge-Rolling Manipulation: A Grasp Planning Approach*, N/A.

Specian, Andrew	University of Pennsylvania
Mucchiani, Caio	University of Pennsylvania
Yim, Mark	University of Pennsylvania
Seo, Jungwon	The Hong Kong University of Science and Technology

12:36-12:39 WeCTS8.3

*An Adaptive Robotic Gripper with L-Shape Fingers for Peg-In-Hole Tasks*, pp. 4022-4028.

Nie, Kaidi	大阪大学
Wan, Weiwei	Osaka University
Harada, Kensuke	Osaka University

12:39-12:42 WeCTS8.4

*Caging Polygonal Objects Using Formationally Similar Three-Finger Hands*, N/A.

Bunis, Hallel A.	Technion - Israel Institute of Technology
Rimon, Elon	Technion - Israel Institute of Technology

Golan, Yoav	Technology
Shapiro, Amir	Ben Gurion University of the Negev
12:42-12:45	WeCTS8.5
<i>High-Speed High-Precision Proximity Sensor for Detection of Tilt, Distance and Contact, N/A.</i>	
Koyama, Keisuke	University of Tokyo
Shimojo, Makoto	University of Electro-Communications
Senoo, Taku	University of Tokyo
Ishikawa, Masatoshi	University of Tokyo
12:45-12:48	WeCTS8.6
<i>Real-Time Grasp Planning for Multi-Fingered Hands by Finger Splitting, pp. 4045-4052.</i>	
Fan, Yongxiang	University of California, Berkeley
Tang, Te	University of California, Berkeley
Lin, Hsien-Chung	University of California, Berkeley
Tomizuka, Masayoshi	University of California
12:48-12:51	WeCTS8.7
<i>Grasp Stiffness Control in Robotic Hands through Coordinated Optimization of Pose and Joint Stiffness, N/A.</i>	
Ruiz Garate, Virginia	Istituto Italiano Di Tecnologia
Pozzi, Maria	University of Siena
Prattichizzo, Domenico	University of Siena
Tsagarakis, Nikos	Istituto Italiano Di Tecnologia
Ajoudani, Arash	Istituto Italiano Di Tecnologia
12:51-12:54	WeCTS8.8
<i>Interleaving Hierarchical Task Planning and Motion Constraint Testing for Dual-Arm Manipulation, pp. 4061-4066.</i>	
Suárez-Hernández, Alejandro	UPC-CSIC
Alenyà, Guillem	CSIC-UPC
Torrás, Carme	Csic - Upc
<b>WeCTS9</b> Room 4.L1	
<b>Learning and Adaptive Systems I</b> (Regular session)	
Chair: Lima, Pedro U.	Instituto Superior Técnico - Institute for Systems and Robotics
Co-Chair: Liu, Ming	Hong Kong University of Science and Technology
12:30-12:33	WeCTS9.1
<i>Sequence Pattern Extraction by Segmenting Time Series Data Using GP-HSMM with Hierarchical Dirichlet Process, pp. 4067-4074.</i>	
Nagano, Masatoshi	University of Electro-Communications
Nakamura, Tomoaki	The University of Electro-Communications
Nagai, Takayuki	University of Electro-Communications
Mochihashi, Daichi	Institute of Statistical Mathematics
Kobayashi, Ichiro	Ochanomizu University
Kaneko, Masahide	Graduate School of Electro-Communications, the University of Elect
12:33-12:36	WeCTS9.2
<i>Persistent Anytime Learning of Objects from Unseen Classes, pp. 4075-4082.</i>	
Denninger, Maximilian	German Aerospace Center (DLR)

Triebel, Rudolph	German Aerospace Center (DLR)
12:36-12:39	WeCTS9.3
<i>Adaptive Robot Body Learning and Estimation through Predictive Coding, pp. 4083-4090.</i>	
Lanillos, Pablo	Technische Universität München
Cheng, Gordon	Technical University of Munich
12:39-12:42	WeCTS9.4
<i>Online Learning of Body Orientation Control on a Humanoid Robot Using Finite Element Goal Babbling, pp. 4091-4098.</i>	
Loviken, Pontus	Softbank Robotics Europe
Hemion, Nikolas	SoftBank Robotics Europe
Lafraquière, Alban	AI Lab, SoftBank Robotics EU
Spranger, Michael	Sony Computer Science Laboratories Inc
Cangelosi, Angelo	University of Plymouth
12:42-12:45	WeCTS9.5
<i>Cost Adaptation for Robust Decentralized Swarm Behaviour, pp. 4099-4106.</i>	
Henderson, Peter	McGill University
Vertescher, Matthew	McGill University
Meger, David Paul	McGill University
Coates, Mark	McGill University
12:45-12:48	WeCTS9.6
<i>Active Model Learning and Diverse Action Sampling for Task and Motion Planning, pp. 4107-4114.</i>	
Wang, Zi	Massachusetts Institute of Technology
Garrett, Caelan	Massachusetts Institute of Technology
Kaelbling, Leslie	MIT
Lozano-Perez, Tomas	MIT
12:48-12:51	WeCTS9.7
<i>Improving Reinforcement Learning Pre-Training with Variational Dropout, pp. 4115-4122.</i>	
Blau, Tom	University of Sydney
Ott, Lionel	University of Sydney
Ramos, Fabio	University of Sydney
12:51-12:54	WeCTS9.8
<i>Deep Episodic Memory: Encoding, Recalling, and Predicting Episodic Experiences for Robot Action Execution, N/A..</i>	
Rothfuss, Jonas	Karlsruhe Institute of Technology
Ferreira, Fabio	Karlsruhe Institute of Technology
Aksoy, Eren Erdal	Halmstad University
Zhou, You	Karlsruhe Institute of Technology (KIT)
Asfour, Tamim	Karlsruhe Institute of Technology (KIT)
<b>WeCTS10</b> Room 4.R1	
<b>Special Session: IROSfan</b> (Regular session)	
Chair: Alvarez, David	University Carlos III of Madrid
Co-Chair: Saltaren, Roque	Universidad Politecnica De Madrid
12:30-12:33	WeCTS10.1
<i>A Framework for Dexterous Manipulation, pp. 4131-4138.</i>	
Ku, Li Yang	Umass Amherst
Rogers, Jonathan	NASA Johnson Space Center
Strawser, Philip	NASA
Badger, Julia	NASA Johnson Space Center
Learned-Miller, Erik	University of Massachusetts,

Gruppen, Rod	Amherst University of Massachusetts
12:33-12:36	WeCTS10.2
<i>An Extrinsic Dexterity Approach to the IROS 2018 Fan Robotic Challenge</i> , pp. 4139-4144.	
Kwiatkowski, Jennifer	École De Technologie Supérieure
Roberge, Jean-Philippe	École De Technologie Supérieure
Nadeau, Nicholas A.	École De Technologie Supérieure
L'Écuyer-Lapierre, Louis	École De Technologie Supérieure
Duchaine, Vincent	Ecole De Technologie Superieure
12:36-12:39	WeCTS10.3
<i>Development of a Low-Inertia High-Stiffness Manipulator LIMS2 for High-Speed Manipulation of Foldable Objects</i> , pp. 4145-4151.	
Song, Hansol	Koreatech
Kim, Yun-Soo	Koreatech
Yoon, Junsuk	Korea University of Technology and Education (Koreatech)
Yun, Seong-Ho	Koreatech, IRIM Lab
Seo, Jiwon	Koreatech
Kim, Yong-Jae	Korea University of Technology and Education
12:39-12:42	WeCTS10.4
<i>Flamen – 7 DOF Robotic Arm to Manipulate a Spanish Fan</i> , pp. 4152-4157.	
Nair, Manu Harikrishnan	SRM Institute of Science and Technology
Singh, Tarush Ghanshyam	SRM Institute of Science and Technology
Chourasia, Gunjan	SRM Institute of Science and Technology
Das, Amrit	SRM Institute of Science and Tecgnology
Shrivastava, Akarsh	SRM Institute of Science and Technology
Bhatt, Zeel Shaileshkumar	SRM Institute of Science and Technology
12:42-12:45	WeCTS10.5
<i>IROS 2018 Fan Challenge - Team DLR Augsburg</i> , pp. 4158-4163.	
Schönheits, Manfred	German Aerospace Center (DLR)
Larsen, Lars	German Aerospace Center
Schuster, Alfons	German Aerospace Center
Gänswürger, Philipp	German Aerospace Center (DLR)
<b>WeDTS1</b> Room 1.L5	
<b>Aerial Systems I</b> (Regular session)	
Chair: Ollero, Anibal	University of Seville
Co-Chair: Wolfe, Kevin	Johns Hopkins University Applied Physics Laboratory
14:30-14:33	WeDTS1.1
<i>Improved Quadcopter Disturbance Rejection Using Added Angular Momentum</i> , pp. 4164-4170.	
Bucki, Nathan	University of California, Berkeley
Mueller, Mark Wilfried	University of California, Berkeley
14:33-14:36	WeDTS1.2
<i>A Universal Controller for Unmanned Aerial Vehicles</i> , pp. 4171-4176.	

Bulka, Eitan	McGill University
Nahon, Meyer	McGill University
14:36-14:39	WeDTS1.3
<i>Passive Compliance Control of Aerial Manipulators</i> , pp. 4177-4184.	
Kim, Min Jun	DLR
Balachandran, Ribin	DLR
De Stefano, Marco	DLR - German Aerospace Center
Kondak, Konstantin	German Aerospace Center
Ott, Christian	German Aerospace Center (DLR)
14:39-14:42	WeDTS1.4
<i>Guidance Laws for Partially-Observable Interception Based on Linear Covariance Analysis</i> , pp. 4185-4191.	
Arneberg, Jasper	MIT
Tal, Ezra Amram	MIT
Karaman, Sertac	Massachusetts Institute of Technology
14:42-14:45	WeDTS1.5
<i>MMAC Height Control System of a Quadrotor for Constant Unknown Load Transportation</i> , pp. 4192-4197.	
Outeiro, Pedro	Instituto Superior Técnico
Cardeira, Carlos	IDMEC / Instituto Superior Técnico, TU Lisbon
Oliveira, Paulo	Instituto Superior Técnico
14:45-14:48	WeDTS1.6
<i>Decentralized Motion Control in a Cabled-Based Multi-Drone Load Transport System</i> , pp. 4198-4203.	
Mohammadi, Keyvan	McMaster University
Jafarinasab, Mohammad	McMaster University
Sirouspour, Shahin	McMaster University
Dyer, Eric	McMaster University
14:48-14:51	WeDTS1.7
<i>SwarmTouch: Tactile Interaction of Human with Impedance Controlled Swarm of Nano-Quadrotors</i> , pp. 4204-4209.	
Tsykunov, Evgeny	Skolkovo Institute of Science and Technology
Labazanova, Luiza	Skolkovo Institute of Science and Technology
Tleugazy, Akerke	Skoltech
Tsetserukou, Dzmitry	Skolkovo Institute of Science and Technology
14:51-14:54	WeDTS1.8
<i>Design and Implementation of a Novel Aerial Manipulator with Tandem Ducted Fans</i> , pp. 4210-4217.	
Zhang, Yibo	Beijing Institute of Technology
Xiang, Changle	Beijing Institute of Technology
Xu, Bin	Beijing Institute of Technology
Wang, Yang	China North Vehicle Research Institute
Wang, Xiaoliang	Beijing Institute of Technology
<b>WeDTS2</b> Room 2.L5 KUKA	
<b>Sensorial Perception I</b> (Regular session)	
Chair: Suh, Il Hong	Hanyang University
Co-Chair: Haschke, Robert	Bielefeld University
14:30-14:33	WeDTS2.1
<i>Real-Time Light Field Processing for Autonomous Robotics</i> , pp. 4218-4225.	
Bajpayee, Abhishek	MIT

Techet, Alexandra	MIT
Singh, Hanumant	Northeastern University
14:33-14:36	WeDTS2.2
<i>Video Motion Capture from the Part Confidence Maps of Multi-Camera Images by Spatiotemporal Filtering Using the Human Skeletal Model</i> , pp. 4226-4231.	
Ohashi, Takuya	The University of Tokyo
Ikegami, Yosuke	University of Tokyo
Yamamoto, Kazuki	The University of Tokyo
Takano, Wataru	University of Tokyo
Nakamura, Yoshihiko	University of Tokyo
14:36-14:39	WeDTS2.3
<i>Development of Wide Angle Fovea Lens for High-Definition Imager Over 3 Mega Pixels</i> , pp. 4232-4237.	
Shimizu, Sota	Shibaura Institute of Technology
Murakami, Rei	Shibaura Institute of Technology
Tominaga, Motonori	SOKEN
14:39-14:42	WeDTS2.4
<i>Learning Synergies between Pushing and Grasping with Self-Supervised Deep Reinforcement Learning</i> , pp. 4238-4245.	
Zeng, Andy	Princeton University
Song, Shuran	Princeton University
Welker, Stefan	Albert-Ludwigs-Universitaet Freiburg
Lee, Johnny	Google
Rodriguez, Alberto	Massachusetts Institute of Technology
Funkhouser, Thomas A.	Princeton University
14:42-14:45	WeDTS2.5
<i>Model Assisted Multi-Band Fusion for Single Image Enhancement and Applications to Robot Vision</i> , N/A.	
Cho, Younggun	Korea Advanced Institute of Science and Technology
Jeong, Jinyong	KAIST
Kim, Ayoung	Korea Advanced Institute of Science Technology
14:45-14:48	WeDTS2.6
<i>Fast Ellipse Detection Via Gradient Information for Robotic Manipulation of Cylindrical Objects</i> , N/A.	
Dong, Huixu	Nanyang Technological University
Sun, Guangbin	Nanyang Technological University
Pang, Wee-Ching	Nanyang Technological University
Asadi, Ehsan	Nanyang Technological University
Prasad, Dilip	Nanyang Technological University
Chen, I-Ming	Nanyang Technological University
14:48-14:51	WeDTS2.7
<i>Towards Material Classification of Scenes Using Active Thermography</i> , pp. 4262-4269.	
Bai, Haoping	Georgia Institute of Technology
Bhattacharjee, Tapomayukh	University of Washington
Chen, Haofeng	Georgia Institute of Technology
Kapusta, Ariel	Georgia Institute of Technology
Kemp, Charlie	Georgia Institute of Technology
14:51-14:54	WeDTS2.8
<i>Vision-Based State Estimation and Trajectory Tracking Control of Car-Like Mobile Robots with Wheel Skidding and Slipping</i> , pp. 4270-4275.	

Zhou, Shunbo	The Chinese University of Hong Kong
Miao, Zhiqiang	Hunan University
Liu, Zhe	The Chinese University of Hong Kong
Zhao, Hongchao	The Chinese University of Hong Kong
Wang, Hesheng	Shanghai Jiao Tong University
Chen, Haoyao	Harbin Institute of Technology
Liu, Yunhui	Chinese University of Hong Kong

**WeDTS3** Room 1.L2  
**Swarm and Multi-Robots II** (Regular session)

Chair: Althoefer, Kaspar	Queen Mary University of London
Co-Chair: Chen, Mo	Simon Fraser University
14:30-14:33	WeDTS3.1
<i>Recruitment Near Worksites Facilitates Robustness of Foraging E-Puck Swarms to Global Positioning Noise</i> , pp. 4276-4281.	
Pitonakova, Lenka	University of Bristol
Winfield, Alan	University of the West of England, Bristol
Crowder, Richard	University of Southampton
14:33-14:36	WeDTS3.2
<i>Robust and Adaptive Robot Self-Assembly Based on Vascular Morphogenesis</i> , pp. 4282-4287.	
Divband Soorati, Mohammad	University of Luebeck
Ghofrani, Javad	Dresden University of Applied Sciences
Zahadat, Payam	Karl-Franzens University Graz
Hamann, Heiko	University of Luebeck
14:36-14:39	WeDTS3.3
<i>\$Phi\$Clust: Pheromone-Based Aggregation for Robotic Swarms</i> , pp. 4288-4294.	
Arvin, Farshad	University of Manchester
Turgut, Ali Emre	University
Krajník, Tomáš	Czech Technical University
Rahimi, Salar	Middle East Technical University
Okay, Ilkin Ege	Middle East Technical University
Yue, Shigang	University of Lincoln
Watson, Simon	University of Manchester
Lennox, Barry	The University of Manchester
14:39-14:42	WeDTS3.4
<i>Decentralized Connectivity-Preserving Deployment of Large-Scale Robot Swarms</i> , pp. 4295-4302.	
Majcherczyk, Nathalie	Worcester Polytechnic Institute
Jayabalan, Adhavan	Worcester Polytechnic Institute
Beltrame, Giovanni	Ecole Polytechnique De Montreal
Pincirolì, Carlo	Worcester Polytechnic Institute
14:42-14:45	WeDTS3.5
<i>A Distributed Swarm Aggregation Algorithm for Bar Shaped Multi-Agent Systems</i> , pp. 4303-4308.	
Carpio, Renzo Fabrizio	Roma Tre University
Di Giulio, Letizia	Safety Office of the Experimental Department at CERN, 1211 Geneva
Garone, Emanuele	Université Libre De Bruxelles
Ulivi, Giovanni	Università Di Roma Tre
Gasparri, Andrea	Università Degli Studi Roma Tre

14:45-14:48	WeDTS3.6
<i>Resilient Active Information Gathering with Mobile Robots</i> , pp. 4309-4316.	
Schlotfeldt, Brent	University of Pennsylvania
Tzoumas, Vasileios	Massachusetts Institute of Technology
Thakur, Dinesh	University of Pennsylvania
Pappas, George J.	University of Pennsylvania
14:48-14:51	WeDTS3.7
<i>Generation of Context-Dependent Policies for Robot Rescue Decision-Making in Multi-Robot Teams</i> , pp. 4317-4324.	
Al-Hussaini, Sarah	University of Southern California
Gregory, Jason M.	US Army Research Laboratory
Gupta, Satyandra K.	University of Southern California
14:51-14:54	WeDTS3.8
<i>Reach-Avoid Problems Via Sum-Of-Squares Optimization and Dynamic Programming</i> , pp. 4325-4332.	
Landry, Benoit	Stanford University
Chen, Mo	Stanford
Hemley, Scott	Stanford University
Pavone, Marco	Stanford University
<b>WeDTS4</b>	Room 2.L2
<b>Legged Robots VI (Regular session)</b>	
Chair: Martinez De La Casa	Univ. Carlos III De Madrid
Diaz, Santiago	
14:30-14:33	WeDTS4.1
<i>Development of Rimless Wheel with Controlled Wobbling Mass</i> , pp. 4333-4339.	
Hanazawa, Yuta	Kyushu Institute of Technology
14:33-14:36	WeDTS4.2
<i>Maneuverability in Dynamic Vertical Climbing</i> , pp. 4340-4347.	
Brown, Jason	Florida State University
Austin, Max	Florida State University
Kanwar, Bharat	Georgia Institute of Technology
Jonas, Tyler	Florida State University
Clark, Jonathan	Florida State University
14:36-14:39	WeDTS4.3
<i>Design of Extra Robotic Legs for Augmenting Human Payload Capabilities by Exploiting Singularity and Torque Redistribution</i> , pp. 4348-4354.	
Gonzalez, Daniel	Massachusetts Institute of Technology
Asada, Harry	MIT
14:39-14:42	WeDTS4.4
<i>Multi-Limbed Robot Vertical Two Wall Climbing Based on Static Indeterminacy Modeling and Feasibility Region Analysis</i> , pp. 4355-4362.	
Lin, Xuan	UCLA
Krishnan, Hari	University of California Los Angeles
Su, Yao	UCLA MAE Department
Hong, Dennis	UCLA
14:42-14:45	WeDTS4.5
<i>Fast Walking with Rhythmic Sway of Torso in a 2D Passive Ankle Walker</i> , pp. 4363-4368.	
Bao, Ruizhi	Brunel University
Geng, Tao	Middlesex University
14:45-14:48	WeDTS4.6
<i>Torque Controlled Biped Model through a Bio-Inspired Controller</i>	

<i>Using Adaptive Learning</i> , pp. 4369-4374.	
Ferreira, César	University of Minho
Gomes Da Cunha, Tomás	Universidade Do Minho
André	
Reis, Luís Paulo	University of Minho
Santos, Cristina	University of Minho
14:48-14:51	WeDTS4.7
<i>High-Speed Stealth Walking of Underactuated Biped Utilizing Effects of Upper-Body Control and Semicircular Feet</i> , pp. 4375-4380.	
Asano, Fumihiko	Japan Advanced Institute of Science and Technology
14:51-14:54	WeDTS4.8
<i>Estimating Contact Forces and Moments for Walking Robots and Exoskeletons Using Complementary Energy Methods</i> , N/A.	
Vantilt, Jonas	KU Leuven
Giraddi, Chetan	KU Leuven
Aertbelien, Erwin	KU Leuven
De Groote, Friedl	KU Leuven
De Schutter, Joris	KU Leuven
<b>WeDTS5</b>	Room 2.R3
<b>Surgical Robots II (Regular session)</b>	
Co-Chair: Tumerdem, Ugur	Marmara University
14:30-14:33	WeDTS5.1
<i>A Comparison of Assistive Methods for Suturing in MIRS</i> , pp. 4389-4395.	
Fontanelli, Giuseppe Andrea	University of Naples Federico II
Yang, Guang-Zhong	Imperial College London
Siciliano, Bruno	Univ. Napoli Federico II
14:33-14:36	WeDTS5.2
<i>External Force/Torque Estimation on a Dexterous Parallel Robotic Surgical Instrument Wrist</i> , pp. 4396-4403.	
Yilmaz, Nural	Marmara University
Bazman, Merve	Marmara University
Tumerdem, Ugur	Marmara University
14:36-14:39	WeDTS5.3
<i>Hand-Impedance Measurement During Laparoscopic Training Coupled with Robotic Manipulators</i> , pp. 4404-4410.	
Harun, Tugal	Manchester University
Gautier, Benjamin	Heriot-Watt University
Kircicek, Merve	Heriot-Watt University
Erden, Mustafa Suphi	Heriot-Watt University
14:39-14:42	WeDTS5.4
<i>Comparison of 3D Surgical Tool Segmentation Procedures with Robot Kinematics Prior</i> , pp. 4411-4418.	
Su, Yun-Hsuan	University of Washington
Huang, Issac	University of Washington
Huang, Kevin	Trinity College
Hannaford, Blake	University of Washington
14:42-14:45	WeDTS5.5
<i>Slip Sensing for Intelligent, Improved Grasping and Retraction in Robot-Assisted Surgery</i> , N/A.	
Burkhard, Natalie	Stanford University
Cutkosky, Mark	Stanford University
Steger, Ryan	Intuitive Surgical
14:45-14:48	WeDTS5.6
<i>Model-Based Needle Steering in Soft Tissue Via Lateral Needle Actuation</i> , N/A.	

Lehmann, Thomas	University of Alberta
Sloboda, Ronald	Cross Cancer Institute
Usmani, Nawaid	Cross Cancer Institute
Tavakoli, Mahdi	University of Alberta

14:48-14:51 WeDTS5.7

*Real-Time Tumor Tracking for Pencil Beam Scanning Proton Therapy*, pp. 4434-4440.

Vemprala, Sai	Texas A&M University
Saripalli, Srikanth	Texas A&M
Vargas, Carlos	Mayo Clinic Arizona
Bues, Martin	Mayo Clinic Arizona
Hu, Yanle	Mayo Clinic Arizona
Shen, Jiajian	Mayo Clinic Arizona

**WeDTS6** Room 1.L3

**Human-Robot Interaction VIII** (Regular session)

Chair: Fukuda, Toshio	Meijo University
Co-Chair: Ku, Li Yang	Umass Amherst

14:30-14:33 WeDTS6.1

*Preference-Based Assistance Prediction for Human-Robot Collaboration Tasks*, pp. 4441-4448.

Grigore, Elena Corina	Yale University
Roncone, Alessandro	Yale University
Mangin, Olivier	Yale University
Scassellati, Brian	Yale

14:33-14:36 WeDTS6.2

*Collaborative Planning for Mixed-Autonomy Lane Merging*, pp. 4449-4455.

Bansal, Shray	Georgia Institute of Technology
Cosgun, Akansel	Monash University
Nakhaei, Alireza	Honda Research Institute USA
Fujimura, Kikuo	Honda Research Institute

14:36-14:39 WeDTS6.3

*Adaptive Modality Selection Algorithm in Robot-Assisted Cognitive Training*, pp. 4456-4461.

Taranović, Aleksandar	Institut De Robòtica I Informàtica Industrial, CSIC-UPC
Jevtić, Aleksandar	Institut De Robòtica I Informàtica Industrial, CSIC-UPC
Torras, Carme	Csic - Upc

14:39-14:42 WeDTS6.4

*Continuous Shared Control for Robotic Arm Reaching Driven by a Hybrid Gaze-Brain Machine Interface*, pp. 4462-4467.

Wang, Yanxin	Southeast University
Xu, Guozheng	Nanjing University of Posts and Telecommunications
Song, Aiguo	Southeast University
Xu, Baoguo	School of Instrument Science and Engineering, Southeast University
Li, Huijun	Southeast University
Hu, Cong	Guilin University of Electronic Technology
Zeng, Hong	Southeast University

14:42-14:45 WeDTS6.5

*The Socially Invisible Robot: Navigation in the Social World Using Robot Entitativity*, pp. 4468-4475.

Bera, Aniket	University of North Carolina at Chapel Hill
Randhavane, Tanmay	UNC
Kubin, Emily	University of North Carolina at

Wang, Austin	University of North Carolina at Chapel Hill
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Gray, Kurt	University of North Carolina at Chapel Hill
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Manocha, Dinesh	University of North Carolina at Chapel Hill
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14:45-14:48 WeDTS6.6

*Projection-Aware Task Planning and Execution for Human-In-The-Loop Operation of Robots in a Mixed-Reality Workspace*, pp. 4476-4482.

Chakraborti, Tathagata	Arizona State University
Sreedharan, Sarath	Arizona State University
Kulkarni, Anagha	Arizona State University
Kambhampati, Subbarao	Arizona State University

14:48-14:51 WeDTS6.7

*A Speech-Driven Hand Gesture Generation Method and Evaluation in Android Robots*, N/A.

Ishi, Carlos Toshinori	ATR
Machiyashiki, Daichi	ATR
Mikata, Ryusuke	ATR
Ishiguro, Hiroshi	Osaka University

**WeDTS7** Room 2.L3

**Autonomous Vehicles III** (Regular session)

Chair: Spenko, Matthew	Illinois Institute of Technology
Co-Chair: Bergasa, Luis Miguel	University of Alcalá

14:30-14:33 WeDTS7.1

*KNOWROB\_SIM — Game Engine-Enabled Knowledge Processing towards Cognition-Enabled Robot Control*, pp. 4491-4498.

Haidu, Andrei	University Bremen
Beßler, Daniel	Universität Bremen
Bozcuoglu, Asil Kaan	University of Bremen
Beetz, Michael	University of Bremen

14:33-14:36 WeDTS7.2

*Probabilistic Collision Threat Assessment for Autonomous Driving at Road Intersections Inclusive of Vehicles in Violation of Traffic Rules*, pp. 4499-4506.

Noh, Samyeul	Electronics and Telecommunications Research Institute (ETRI)
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14:36-14:39 WeDTS7.3

*Failing to Learn: Autonomously Identifying Perception Failures for Self-Driving Cars*, N/A.

Srinivasan Ramanagopal, Manikandasriram	University of Michigan
Anderson, Cyrus	University of Michigan
Vasudevan, Ram	University of Michigan
Johnson-Roberson, Matthew	University of Michigan

14:39-14:42 WeDTS7.4

*LiDAR-Based Object Tracking and Shape Estimation Using Polylines and Free-Space Information*, pp. 4515-4522.

Kraemer, Stefan	Karlsruhe Institute of Technology
Bouzouraa, Mohamed	AUDI AG
Essayed	
Stiller, Christoph	Karlsruhe Institute of Technology

14:42-14:45 WeDTS7.5

*Search-Based Optimal Motion Planning for Automated Driving*, pp. 4523-4530.

Ajanović, Zlatan	Virtual Vehicle Research Center
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Lacevic, Bakir	University of Sarajevo
Shyrokau, Barys	Delft University of Technology
Stolz, Michael	VIRTUAL VEHICLE Research Center
Horn, Martin	Graz University of Technology

14:45-14:48 WeDTS7.6

*Visual Vehicle Tracking through Noise and Occlusions Using Crowd-Sourced Maps*, pp. 4531-4538.

M S, Suraj	Georgia Institute of Technology, Blue Vision Labs
Grimmett, Hugo	Blue Vision Labs
Platinsky, Lukas	Imperial College London
Ondruska, Peter	Blue Vision Labs

14:48-14:51 WeDTS7.7

*Vehicle Rebalancing for Mobility-On-Demand Systems with Ride-Sharing*, pp. 4539-4546.

Wallar, Alexander	Massachusetts Institute of Technology
van der Zee, Menno Jaring	TU Delft
Alonso-Mora, Javier	Delft University of Technology
Rus, Daniela	MIT

14:51-14:54 WeDTS7.8

*Transferable Pedestrian Motion Prediction Models at Intersections*, pp. 4547-4553.

Shen, Macheng	Massachusetts Institute of Technology
Habibi, Golnaz	Rice University
How, Jonathan Patrick	Massachusetts Institute of Technology

**WeDTS8** Room 2.R1  
**Grippers** (Regular session)

Chair: Caldwell, Darwin G.	Istituto Italiano Di Tecnologia
Co-Chair: Suarez, Raul	Universitat Politecnica De Catalunya (UPC)

14:30-14:33 WeDTS8.1

*Model-Free Grasp Planning for Configurable Vacuum Grippers*, pp. 4554-4561.

You, Fang	Karlsruhe Institute of Technology (KIT)
Mende, Michael	Karlsruhe Institute of Technology (KIT)
Stogl, Denis	Karlsruhe Institute of Technology (KIT)
Hein, Björn	Karlsruhe Institute of Technology (KIT)
Kroeger, Torsten	Karlsruher Institut Für Technologie (KIT)

14:33-14:36 WeDTS8.2

*Five-Fingered Hand with Wide Range of Thumb Using Combination of Machined Springs and Variable Stiffness Joints*, pp. 4562-4567.

Makino, Shogo	The University of Tokyo
Kawaharazuka, Kento	The University of Tokyo
Kawamura, Masaya	The University of Tokyo
Fujii, Ayaka	University of Tokyo
Makabe, Tasuku	The University of Tokyo
Onitsuka, Moritaka	The University of Tokyo
Asano, Yuki	The University of Tokyo
Okada, Kei	The University of Tokyo
Kawasaki, Koji	The University of Tokyo
Inaba, Masayuki	The University of Tokyo

14:36-14:39 WeDTS8.3

*VARO-Fi: A Variable Orientable Gripper to Obtain In-Hand Manipulation*, pp. 4568-4575.

Rahman, Nahian	Georgia Institute of Technology
Caldwell, Darwin G.	Istituto Italiano Di Tecnologia
Cannella, Ferdinando	Istituto Italiano Di Tecnologia

14:39-14:42 WeDTS8.4

*The Co-Gripper: A Wireless Cooperative Gripper for Safe Human Robot Interaction*, pp. 4576-4581.

Salviati, Gionata	University of Siena
Iqbal, Muhammad Zubair	University of Siena
Hussain, Irfan	Khalifa Robotics Institute, University of Siena, SIRS Lab
Prattichizzo, Domenico	University of Siena
Malvezzi, Monica	University of Siena

14:42-14:45 WeDTS8.5

*Variable-Friction Finger Surfaces to Enable Within-Hand Manipulation Via Gripping and Sliding*, N/A.

Spiers, Adam	Yale University
Calli, Berk	Yale University
Dollar, Aaron	Yale University

14:45-14:48 WeDTS8.6

*The KIT Swiss Knife Gripper for Disassembly Tasks: A Multi-Functional Gripper for Bimanual Manipulation with a Single Arm*, pp. 4590-4597.

Borras Sol, Julia	Consejo Superior De Investigaciones Cientificas
Heudorfer, Raphael	Karlsruhe Institute of Technology
Rader, Samuel	Karlsruhe Institute of Technology (KIT)
Kaiser, Peter	Karlsruhe Institute of Technology (KIT)
Asfour, Tamim	Karlsruhe Institute of Technology (KIT)

14:48-14:51 WeDTS8.7

*Modeling and Prototyping of an Underactuated Gripper Exploiting Joint Compliance and Modularity*, N/A.

Hussain, Irfan	Khalifa Robotics Institute, University of Siena, SIRS Lab
Renda, Federico	Khalifa University of Science and Technology
Iqbal, Muhammad Zubair	University of Siena
Malvezzi, Monica	University of Siena
Salviati, Gionata	University of Siena
Seneviratne, Lakmal	L. D. Seneviratne Is with Kings College London, UK, and Robotics
Gan, Dongming	Khalifa University of Science AndTechnology
Prattichizzo, Domenico	University of Siena

**WeDTS9** Room 4.L1  
**Learning and Adaptive Systems II** (Regular session)

Chair: Preucil, Libor	Czech Technical University in Prague
Co-Chair: Arras, Kai Oliver	Bosch Research

14:30-14:33 WeDTS9.1

*Learning Image-Conditioned Dynamics Models for Control of Underactuated Legged Millirobots*, pp. 4606-4613.

Nagabandi, Anusha	UC Berkeley
Yang, Guangzhao	University of California, Berkeley
Asmar, Thomas Habib	University of California, Berkeley

Pandya, Ravi	UC Berkeley
Kahn, Gregory	University of California, Berkeley
Levine, Sergey	UC Berkeley
Fearing, Ronald	University of California at Berkeley

14:33-14:36 WeDTS9.2

*Online Adaptation of Robot Pushing Control to Object Properties*, pp. 4614-4621.

Krivic, Senka	University of Innsbruck
Piater, Justus	University of Innsbruck

14:36-14:39 WeDTS9.3

*Composable Learning with Sparse Kernel Representations*, pp. 4622-4628.

Tolstaya, Ekaterina	UPenn
Stump, Ethan	US Army Research Laboratory
Koppel, Alec	University of Pennsylvania
Ribeiro, Alejandro	University of Pennsylvania

14:39-14:42 WeDTS9.4

*Compensating for Context by Learning Local Models of Perception Performance*, pp. 4629-4634.

Hu, Humphrey	Carnegie Mellon University
Kantor, George	Carnegie Mellon University

14:42-14:45 WeDTS9.5

*Setting up a Reinforcement Learning Task with a Real-World Robot*, pp. 4635-4640.

Mahmood, Ashique Rupam	Kindred Inc
Korenkevych, Dmytro	Kindred Inc
Komer, Brent	University of Waterloo
Bergstra, James	Kindred Inc

14:45-14:48 WeDTS9.6

*CINet: A Learning Based Approach to Incremental Context Modeling in Robots*, pp. 4641-4646.

Doğan, Fethiye Irmak	Middle East Technical University
Bozcan, İker	Middle East Technical University
Çelik, Mehmet	Middle East Technical University
Kalkan, Sinan	Middle East Technical University

14:48-14:51 WeDTS9.7

*Dimensionality Reduction in Learning Gaussian Mixture Models of Movement Primitives for Contextualized Robot Action Selection*, N/A.

Colomé, Adrià	Institut De Robòtica I Informàtica Industrial (CSIC-UPC), Q28180
Torras, Carme	Csic - Upc

14:51-14:54 WeDTS9.8

*Learning Generalizable Robot Skills from Demonstrations in Cluttered Environments*, pp. 4655-4660.

Rana, Muhammad Asif	Georgia Institute of Technology
Mukadam, Mustafa	Georgia Institute of Technology
Ahmadzadeh, Seyed Reza	Institute for Robotics and Intelligent Machines, Georgia Institute
Chernova, Sonia	Georgia Institute of Technology
Boots, Byron	Georgia Institute of Technology

**WeDTS10** Room 4.R1

**Special Session: Symbiotic Exoskeletons - Exploring the Human Side** (Regular session)

Chair: Ganguly, Amartya	Marsi Bionics SL
Co-Chair: Garcia, Elena	Centre for Automation and Robotics Spanish National Research Council - (CSIC-UPM)

14:30-14:33 WeDTS10.1

*Interacting with a "transparent" Upper-Limb Exoskeleton: A Human Motor Control Approach (I)*, pp. 4661-4666.

Bastide, Simon	CIAMS Laboratory, Univ. Paris-Sud, Université Paris-Saclay, F-91
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Vignais, Nicolas	Univ. Paris-Sud
Geffard, Franck	Atomic Energy Commissariat (CEA)

Berret, Bastien	Université Paris-Sud 11
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14:33-14:36 WeDTS10.2

*Wearable Pediatric Gait Exoskeleton a Feasibility Study (I)*, pp. 4667-4672.

Ganguly, Amartya	Marsi Bionics SL
Sanz-Merodio, Daniel	Marsi Bionics
Puyuelo, Gonzalo	King Juan Carlos University
Goñi, Ane	Centre for Automation and Robotics, CSIC-UPM

Garcés, Elena	Marsi Bionics
Garcia, Elena	Centre for Automation and Robotics Spanish National Research

14:36-14:39 WeDTS10.3

*Verification of a Robotic Ankle Exoskeleton Control Scheme for Gait Assistance in Individuals with Cerebral Palsy (I)*, pp. 4673-4678.

Gasparri, Gian Maria	University of Pisa
Bair, Michael Owen	Northern Arizona University
Libby, Robert	Northern Arizona University
Lerner, Zachary	Northern Arizona University

14:39-14:42 WeDTS10.4

*Robot-Supported Multiplayer Rehabilitation: Feasibility Study of Haptically Linked Patient-Spouse Training (I)*, pp. 4679-4684.

Baur, Kilian	ETH Zurich
Wolf, Peter	ETH Zurich, Institute of Robotics and Intelligent Systems

Klamroth, Verena	ETH Zürich
Bierbauer, Walter	Applied Social and Health Psychology, Department of Psychology &

Scholz, Urte	Applied Social and Health Psychology, Department of Psychology &
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Riener, Robert	ETH Zurich
Duarte, Jaime Enrique	ETH Zurich

14:42-14:45 WeDTS10.5

*A Soft-Exosuit Enables Multi-Scale Analysis of Wearable Robotics in a Bipedal Animal Model (I)*, pp. 4685-4691.

Cox, Suzanne	Pennsylvania State University, Biomechanics Laboratory / Muscle
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Rubenson, Jonas	Pennsylvania State University, Biomechanics Laboratory / Muscle
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Sawicki, Gregory	Georgia Institute of Technology
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**WeETS1** Room 1.L5

**Aerial Systems II** (Regular session)

Chair: Campoy, Pascual	Computer Vision Group. Universidad Politécnica De Madrid
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Co-Chair: Kostavelis, Ioannis	Center for Research and Technology Hellas
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17:00-17:03 WeETS1.1



*Through-The-Lens Drone Filming*, pp. 4692-4699.

Huang, Chong University of California, Santa Barbara  
Yang, Zhenyu University of California, Santa Barbara

Kong, Yan UC Santa Barbara  
Chen, Peng Zhejiang University of Technology

Yang, Xin Huazhong University of Science and Technology

Cheng, Kwang-Ting (Tim) Hong Kong University of Science and Technology

17:03-17:06 WeETS1.2

*Towards Aerial Recovery of Parachute-Deployed Payloads*, pp. 4700-4707.

Shankar, Ajay University of Nebraska-Lincoln  
Elbaum, Sebastian University of Nebraska - Lincoln  
Detweiler, Carrick University of Nebraska-Lincoln

17:06-17:09 WeETS1.3

*Airborne Docking for Multi-Rotor Aerial Manipulations*, pp. 4708-4714.

Miyazaki, Ryo Ritsumeikan University  
Jiang, Rui Ritsumeikan University  
Paul, Hannibal Ritsumeikan University  
Ono, Koji Ritsumeikan University  
Shimonomura, Kazuhiro Ritsumeikan University

17:09-17:12 WeETS1.4

*Optimal Time Allocation for Quadrotor Trajectory Generation*, pp. 4715-4722.

Gao, Fei Hong Kong University of Science and Technology  
Wu, William HKUST  
Pan, Jie Hong Kong University of Science and Technology  
Zhou, Boyu Shanghai Jiao Tong University, China  
Shen, Shaojie Hong Kong University of Science and Technology

17:12-17:15 WeETS1.5

*Aerial Radio-Based Telemetry for Tracking Wildlife*, pp. 4723-4728.

Bayram, Haluk Istanbul Medeniyet University  
Stefas, Nikolaos University of Minnesota  
Isler, Volkan University of Minnesota

17:15-17:18 WeETS1.6

*Planning to Monitor Wildfires with a Fleet of UAVs*, pp. 4729-4734.

Bailon-Ruiz, Rafael CNRS-LAAS  
Bit-Monnot, Arthur University of Sassari  
Lacroix, Simon LAAS/CNRS

17:18-17:21 WeETS1.7

*Flight Motion of Passing through Small Opening by DRAGON: Transformable Multilinked Aerial Robot*, pp. 4735-4742.

Zhao, Moju The University of Tokyo  
Shi, Fan The University of Tokyo  
Anzai, Tomoki The University of Tokyo  
Chaudhary, Krishneel Chand The University of Tokyo  
Chen, Xiangyu The University of Tokyo  
Okada, Kei The University of Tokyo  
Inaba, Masayuki The University of Tokyo

17:21-17:24 WeETS1.8

*Optimal Constrained Trajectory Generation for Quadrotors through Smoothing Splines*, pp. 4743-4750.

Lai, Shupeng National University of Singapore  
Lan, Menglu National University of Singapore  
Chen, Ben M. National University of Singapore

**WeETS2** Room 2.L5 KUKA

**Sensorial Perception II (Regular session)**

Co-Chair: del Cerro, Jaime Universidad Politécnica De Madrid

17:00-17:03 WeETS2.1

*FarSight: Long-Range Depth Estimation from Outdoor Images*, pp. 4751-4757.

Reza, Md George Mason University  
David, Philip U.S. Army Research Laboratory  
Kosecka, Jana George Mason University

17:03-17:06 WeETS2.2

*LeGO-LOAM: Lightweight and Ground-Optimized Lidar Odometry and Mapping on Variable Terrain*, pp. 4758-4765.

Shan, Tixiao Stevens Institute of Technology  
Englot, Brendan Stevens Institute of Technology

17:06-17:09 WeETS2.3

*A Maximum Likelihood Approach to Extract Polylinies from 2-D Laser Range Scans*, pp. 4766-4773.

Schaefer, Alexander Freiburg University  
Büscher, Daniel Albert-Ludwigs-Universität Freiburg

Luft, Lukas Freiburg University  
Burgard, Wolfram University of Freiburg

17:09-17:12 WeETS2.4

*Learning a Local Feature Descriptor for 3D LiDAR Scans*, pp. 4774-4780.

Dewan, Ayush University of Freiburg  
Caselitz, Tim University of Freiburg  
Burgard, Wolfram University of Freiburg

17:12-17:15 WeETS2.5

*Hallucinating Robots: Inferring Obstacle Distances from Partial Laser Measurements*, pp. 4781-4787.

Lundell, Jens Aalto University  
Verdoja, Francesco Aalto University  
Kyrki, Ville Aalto University

17:15-17:18 WeETS2.6

*Optimizing Scan Homogeneity for Building Full-3D Lidars Based on Rotating a Multi-Beam Velodyne Rangefinder*, pp. 4788-4793.

Mandow, Anthony University of Malaga  
Morales, Jesús Universidad De Málaga  
Gomez-Ruiz, Jose Antonio University of Malaga  
García-Cerezo, Alfonso University of Malaga

17:18-17:21 WeETS2.7

*Laser Map Aided Visual Inertial Localization in Changing Environment*, pp. 4794-4801.

Ding, Xiaqing Zhejiang University  
Wang, Yue Zhejiang University  
Li, Dongxuan Zhejiang University  
Tang, Li Zhejiang University  
Yin, Huan Zhejiang University  
Xiong, Rong Zhejiang University

17:21-17:24 WeETS2.8

*Scan Context: Egocentric Spatial Descriptor for Place Recognition within 3D Point Cloud Map*, pp. 4802-4809.

Kim, Giseop KAIST (Korea Advanced Institute of Science and Technology)

Kim, Ayoung

Korea Advanced Institute of  
Science TechnologyTron, Roberto  
Belta, CalinBoston University  
Boston University

WeETS3	Room 1.L2
<b>Swarm and Multi-Robots III (Regular session)</b>	
Chair: Hanheide, Marc	University of Lincoln
Co-Chair: Nakamura, Yutaka	Osaka University
17:00-17:03	WeETS3.1
<i>Decentralised Mission Monitoring with Spatiotemporal Optimal Stopping</i> , pp. 4810-4817.	
Best, Graeme	Oregon State University
Huang, Shoudong	University of Technology, Sydney
Fitch, Robert	University of Technology Sydney
17:03-17:06	WeETS3.2
<i>Uncertain Local Leader Selection in Distributed Formations</i> , pp. 4818-4824.	
Rovinsky, Dany	Bar Ilan University
Agmon, Noa	Bar Ilan University
17:06-17:09	WeETS3.3
<i>Electing an Approximate Center in a Huge Modular Robot with the K-FFS SumSweep Algorithm</i> , pp. 4825-4832.	
Naz, André	University of Franche-Comte
Piranda, Benoît	Université De Franche-Comté / FEMTO-ST
Bourgeois, Julien	Institut FEMTO-ST
Goldstein, Seth	University
17:09-17:12	WeETS3.4
<i>A New Characterization of Mobility for Distance-Bearing Formations of Unicycle Robots</i> , pp. 4833-4839.	
Morbidi, Fabio	Université De Picardie Jules Verne
Bretagne, Estelle	University of Picardie Jules Verne
17:12-17:15	WeETS3.5
<i>Modeling and Control of Multiple Aerial-Ground Manipulator System (MAGMaS) with Load Flexibility</i> , pp. 4840-4847.	
Yang, Hyunsoo	Seoul National University
Staub, Nicolas	LAAS-CNRS
Franchi, Antonio	LAAS-CNRS
Lee, Dongjun	Seoul National University
17:15-17:18	WeETS3.6
<i>Determining Effective Swarm Sizes for Multi-Job Type Missions</i> , pp. 4848-4853.	
Chandarana, Meghan	Carnegie Mellon University
Lewis, Michael	University of Pittsburgh
Sycara, Katia	Carnegie Mellon University
Scherer, Sebastian	Carnegie Mellon University
17:18-17:21	WeETS3.7
<i>Multi-Robot Virtual Structure Switching and Formation Changing Strategy in an Unknown Occluded Environment</i> , pp. 4854-4861.	
Roy, Dibyendu	Tata Consultancy Services Limited
Chowdhury, Arijit	TCS Research and Innovation
Maitra, Madhubanti	JADAVPUR UNIVERSITY
Bhattacharya, Samar	Jadavpur University
17:21-17:24	WeETS3.8
<i>Distributed Sensing Subject to Temporal Logic Constraints</i> , pp. 4862-4868.	
Serlin, Zachary	Boston University
Leahy, Kevin	Boston University

WeETS4	Room 2.L2
<b>Micro and Nano Robot I (Regular session)</b>	
Chair: Maeda, Shingo	Shibaura Institute of Technology
Co-Chair: Abu-Dakka, Fares	Istituto Italiano Di Tecnologia J.
17:00-17:03	WeETS4.1
<i>Comparison of Dynamic Models for Non-Contact Micromanipulation Based on Dielectrophoretic Actuation</i> , pp. 4869-4874.	
Gauthier, Vladimir	FEMTO-ST Institute
Bolopion, Aude	Femto-St Institute
Gauthier, Michael	FEMTO-ST Institute
17:03-17:06	WeETS4.2
<i>A New Robot Fly Design That Is Easier to Fabricate and Capable of Flight and Ground Locomotion</i> , pp. 4875-4882.	
Chukewad, Yogesh	University of Washington
Madhavrao	
Singh, Avinash	University of Washington
James, Johannes	University of Washington
Fuller, Sawyer	University of Washington
17:06-17:09	WeETS4.3
<i>Milligram-Scale Micro Aerial Vehicle Design for Low-Voltage Operation</i> , pp. 4883-4888.	
Bhushan, Palak	University of California Berkeley
Tomlin, Claire	UC Berkeley
17:09-17:12	WeETS4.4
<i>Repeatability and Reproducibility Analysis of a Multistable Module Devoted to Digital Microrobotics</i> , pp. 4889-4894.	
Bouhadda, Ismail	Femto-ST
Mohand Ousaid, Abdenbi	University of Franche-Comte
Hussein, Hussein	University of Montpellier, LIRMM
Bourbon, Gilles	Femto-St
Le moal, Patrice	Femto-St
Haddab, Yassine	LIRMM
Lutz, Philippe	Université De Franche-Comté
17:12-17:15	WeETS4.5
<i>Depth Estimation of Optically Transparent Microrobots Using Convolutional and Recurrent Neural Networks</i> , pp. 4895-4900.	
Grammatikopoulou, Maria	Imperial College London
Zhang, Lin	Imperial College London
Yang, Guang-Zhong	Imperial College London
17:15-17:18	WeETS4.6
<i>On Designing 2D Discrete Workspaces to Sort or Classify Polyominoes</i> , pp. 4901-4907.	
Keldenich, Phillip	TU Braunschweig
Manzoor, Sheryl	University of Houston
Huang, Li	University of Houston
Krupke, Dominik Michael	TU Braunschweig
Schmidt, Arne	TU Braunschweig
Fekete, Sándor	Technische Universität Braunschweig
Becker, Aaron	University of Houston
17:18-17:21	WeETS4.7
<i>Miniature Robot Finger Using a Micro Linear Ultrasonic Motor and a Closed-Loop Linkage</i> , pp. 4908-4913.	
Izuhara, Shunsuke	Toyohashi University of Technology

Mashimo, Tomoaki	Toyohashi University of Technology
17:21-17:24	WeETS4.8
<i>Resistive Pulse Study of Liposome Stability: Towards Precision and Efficient Drug Delivery</i> , pp. 4914-4919.	
Lin, Yuqing	Beijing Institute of Technology
Liu, Xiaoming	Beijing Institute of Technology
Arai, Tatsuo	University of Electro-Communications
<b>WeETS5</b>	Room 2.R3
<b>Surgical Robots III (Regular session)</b>	
Chair: Okamura, Allison M.	Stanford University
Co-Chair: Ishii, Hiroyuki	Waseda University
17:00-17:03	WeETS5.1
<i>Force/Velocity Manipulability Analysis for 3D Continuum Robots</i> , pp. 4920-4926.	
Khadem, Mohsen	University College London
Bergeles, Christos	University College London
Da Cruz, Lyndon	Moorfields Eye Hospital
17:03-17:06	WeETS5.2
<i>Analysis of Dynamic Response of an MRI-Guided Magnetically-Actuated Steerable Catheter System</i> , pp. 4927-4934.	
Tuna, Eser Erdem	Case Western Reserve University
Liu, Taoming	Case Western Reserve University
Jackson, Russell	Case Western Reserve University
Poirot, Nate Lombard	Case Western Reserve University
Russell, Mac	Case Western Reserve University
Cavusoglu, M. Cenk	Case Western Reserve University
17:06-17:09	WeETS5.3
<i>Development and Validation of MRI Compatible Pediatric Surgical Robot with Modular Tooling for Bone Biopsy</i> , pp. 4935-4941.	
Alvara, Alexander Nicholas	Sick Kids Children's Hospital
Looi, Thomas	Hospital for Sick Children
Saab, Rami	University of Toronto
Shorter, Amanda	Northwestern University, the Rehabilitation Institute of Chicago
Goldenberg, Andrew	University of Toronto
Drake, James	Hospital for Sick Children, University of Toronto
17:09-17:12	WeETS5.4
<i>Safe Motion Planning for Steerable Needles Using Cost Maps Automatically Extracted from Pulmonary Images</i> , pp. 4942-4949.	
Fu, Mengyu	University of North Carolina at Chapel Hill
Kuntz, Alan	University of North Carolina at Chapel Hill
Webster III, Robert James	Vanderbilt University
Alterovitz, Ron	University of North Carolina at Chapel Hill
17:12-17:15	WeETS5.5
<i>MIS-SLAM: Real-Time Large Scale Dense Deformable SLAM System in Minimal Invasive Surgery Based on Heterogeneous Computing</i> , N/A.	
Song, Jingwei	University of Technology, Sydney
Wang, Jun	University of Technology,

Zhao, Liang	Sydney
Huang, Shoudong	Imperial College London
Dissanayake, Gamini	University of Technology, Sydney
17:15-17:18	WeETS5.6
<i>Trigonometric Ratio-Based Remote Center of Motion Mechanism for Bone Drilling</i> , pp. 4958-4963.	
Shim, Seongbo	DGIST
Lee, Seongpung	DGIST
Ji, Dae Keun	DGIST
Choi, Hyunseok	DGIS
Hong, Jaesung	DGIST
17:18-17:21	WeETS5.7
<i>Rolling-Joint Design Optimization for Tendon Driven Snake-Like Surgical Robots</i> , pp. 4964-4971.	
Berthet-Rayne, Pierre	Imperial College London
Leibrandt, Konrad	Imperial College London
Kim, Ki-Young	Korea Institute of Machinery and Materials
Seneci, Carlo Alberto	University College London
Shang, Jianzhong	Imperial College London
Yang, Guang-Zhong	Imperial College London
<b>WeETS6</b>	Room 1.L3
<b>Telerobotics I (Regular session)</b>	
Chair: Biagiotti, Luigi	University of Modena and Reggio Emilia
Co-Chair: Abderrahim, Mohamed	Carlos III University
17:00-17:03	WeETS6.1
<i>Enhancing the Command-Following Bandwidth for Transparent Bilateral Teleoperation</i> , pp. 4972-4979.	
Singh, Harsimran	DLR German Aerospace Center
Jafari, Aghil	University of the West of England
Ryu, Jee-Hwan	Korea Univ. of Tech. and Education
Peer, Angelika	University of the West of England, Bristol
17:03-17:06	WeETS6.2
<i>Preliminary Insights from the METERON SUPVIS Justin Space-Robotics Experiment</i> , N/A.	
Schmaus, Peter	German Aerospace Center (DLR)
Leidner, Daniel	German Aerospace Center (DLR)
Krueger, Thomas	European Space Agency
Schiele, Andre	European Space Agency
Pleintinger, Benedikt	Institute of Robotics and Mechatronics, German Aerospace Center (DLR)
Bayer, Ralph	German Aerospace Center (DLR), Institute of Robotics and Mechatr
Lii, Neal Y.	German Aerospace Center (DLR)
17:06-17:09	WeETS6.3
<i>Transparency-Optimal Passivity Layer Design for Time-Domain Control of Multi-DoF Haptic-Enabled Teleoperation</i> , pp. 4988-4994.	
Moreno Franco, Olmo Alonso	Istituto Italiano Di Tecnologia
Bimbo, Joao	Istituto Italiano Di Tecnologia

Pacchierotti, Claudio	Centre National De La Recherche Scientifique (CNRS)
Prattichizzo, Domenico	University of Siena
Barcelli, Davide	University of Siena
Bianchini, Gianni	University of Siena

17:09-17:12 WeETS6.4

*Development and Evaluation of an Intuitive Flexible Interface for Teleoperating Soft Growing Robots*, pp. 4995-5002.

El-Hussieny, Haitham	Faculty of Engineering(Shoubra), Benha University
Mehmood, Usman	Korea University of Technology and Education
Mehdi, Zain	KoreaTech
Jeong, Sang-Goo	KOREATECH
Usman, Muhammad	Korea University of Technology and Education
Hawkes, Elliot Wright	University of California, Santa Barbara
Okamura, Allison M.	Stanford University
Ryu, Jee-Hwan	Korea Univ. of Tech. and Education

17:12-17:15 WeETS6.5

*Comparison of Multimodal Heading and Pointing Gestures for Co-Located Mixed Reality Human-Robot Interaction*, pp. 5003-5009.

Krupke, Dennis	University of Hamburg
Steinicke, Frank	HCI / University of Hamburg
Lubos, Paul	HCI / University of Hamburg
Jonetzko, Yannick	TAMS / University of Hamburg
Görner, Michael	University of Hamburg
Zhang, Jianwei	University of Hamburg

17:15-17:18 WeETS6.6

*Humanoid Teleoperation Using Task-Relevant Haptic Feedback*, pp. 5010-5017.

Abi-Farraj, Firas	CNRS-Irisa
Henze, Bernd	German Aerospace Center (DLR)
Werner, Alexander	German Aerospace Center (DLR)
Panzirsch, Michael	DLR Institute of Robotics and Mechatronics
Ott, Christian	German Aerospace Center (DLR)
Roa, Maximo A.	DLR - German Aerospace Center

17:18-17:21 WeETS6.7

*ROS Reality: A Virtual Reality Framework Using Consumer-Grade Hardware for ROS-Enabled Robots*, pp. 5018-5025.

Whitney, David	Brown University
Rosen, Eric	Brown University
Ullman, Daniel	Brown University
Phillips, Elizabeth	Brown University
Tellex, Stefanie	Brown

17:21-17:24 WeETS6.8

*User Evaluation of a Haptic-Enabled Shared-Control Approach for Robotic Telemanipulation*, pp. 5026-5033.

Abi-Farraj, Firas	CNRS-Irisa
Pacchierotti, Claudio	Centre National De La Recherche Scientifique (CNRS)
Robuffo Giordano, Paolo	Centre National De La Recherche Scientifique (CNRS)

WeETS7

Room 2.L3

**Video Session I (Regular session)**

Chair: Burschka, Darius Technische Universitaet  
Muenchen

Co-Chair: De Momi, Elena Politecnico Di Milano

17:00-17:03 WeETS7.1

*Towards an Automatic Spasticity Assessment by Means of Collaborative Robots*, pp. 5034-5034.

Hernandez Melero, Mar	Universidad Carlos III De Madrid
Oña Simbaña, Edwin Daniel	University Carlos III of Madrid
Garcia-Haro, Juan Miguel	Carlos III University of Madrid
Jardon, Alberto	Universidad Carlos Iii De Madrid
Balaguer, Carlos	Universidad Carlos III De Madrid

17:03-17:06 WeETS7.2

*Research on Carved Turns of a Skiing Humanoid Robot on a Real-World Slope*, pp. 5035-5035.

Han, Jeakweon	Hanyang University
DongKuk, Yoon	Hangyang Univ
Kim, BaekSeok	Hanyang University
Kim, Yitaek	Hanyang University
Park, Cheonyu	Hanyang
Song, Hyunjong	Hanyang University
Eum, Younseal	Sookmyung Women's University
Moon, Jeongin	Seoul National University

17:06-17:09 WeETS7.3

*Waiver Robot Application: Balance Control for Transporting Objects*, pp. 5036-5036.

Garcia-Haro, Juan Miguel	Carlos III University of Madrid
Oña Simbaña, Edwin Daniel	University Carlos III of Madrid
Martinez, Santiago	Universidad Carlos III De Madrid
Hernandez Vicen, Juan	University Carlos Iii
Balaguer, Carlos	Universidad Carlos III De Madrid

17:09-17:12 WeETS7.4

*Visual-Inertial Teach and Repeat Powered by Google Tango*, pp. 5037-5037.

Fehr, Marius	ETH Zürich
Schneider, Thomas	ETH Zürich
Sieglwart, Roland	ETH Zurich

17:12-17:15 WeETS7.5

*Distributed Reconfigurable Formation Generator for Mini Aerial Vehicles*, pp. 5038-5038.

Briñón Arranz, Lara	CNRS
Muschinowski, Matthieu	Gipsa-Lab
Dumon, Jonathan	GIPSA-LAB
Marchand, Nicolas	GIPSA-Lab CNRS/JU of Grenoble/INRIA

17:15-17:18 WeETS7.6

*Autonomous Underwater Vehicle Navigation in Structured Environment*, pp. 5039-5039.

Park, Daegil	POSTECH
Lee, Yeongjun	Korea Research Institute of Ships and Ocean Engineering
Jung, Kwangyik	Korea Advanced Institute of Science and Technology
Kang, Hyungjoo	Korea Institute of Robot and Convergence
Ki, Hyeonseung	Korea Institute of Robot and Convergence
Lee, Jung-Woo	Korea Institute of Robot and Convergence
Choi, Young-Ho	Korean Institute of Robot and Convergence
Li, Ji-Hong	Korea Institute of Robot and

	Convergence	
Myung, Hyun	KAIST (Korea Adv. Inst. Sci. & Tech.)	
Choi, Hyun-Taek	Korea Institute of Oceans Science and Technology	
Suh, Jin-Ho	Korea Institute of Robot and Convergence	
17:18-17:21		WeETS7.7
<i>Cooperative UAVs As a Tool for Aerial Inspection of Large Scale Aging Infrastructure</i> , pp. 5040-5040.		
Kanellakis, Christoforos		LTU
Sharif Mansouri, Sina		Lulea University
Fresk, Emil		Luleå University of Technology
Kominiak, Dariusz		Luleå University of Technology
Nikolakopoulos, George		Luleå University of Technology
17:21-17:24		WeETS7.8
<i>Hear the Egg - Demonstrating Robotic Interactive Auditory Perception</i> , pp. 5041-5041.		
Strahl, Erik		Universität Hamburg
Kerzel, Matthias		Uni Hamburg
Eppe, Manfred		University of Hamburg
Griffiths, Sascha		Universität Hamburg
Wermter, Stefan		University of Hamburg
<b>WeETS8</b>		Room 2.R1
<b>Parallel and Redundant Robots</b> (Regular session)		
Chair: Saska, Martin		Czech Technical University in Prague
Co-Chair: Porta, Josep M		CSIC-UPC
17:00-17:03		WeETS8.1
<i>Computing Cross-Sections of the Workspace of Suspended Cable-Driven Parallel Robot with Sagging Cables Having Tension Limitations</i> , pp. 5042-5047.		
Merlet, Jean-Pierre		INRIA
17:03-17:06		WeETS8.2
<i>A Singularity-Robust LQR Controller for Parallel Robots</i> , pp. 5048-5054.		
Bordalba, Ricard		Institut De Robòtica I Informàtica Industrial, CSIC-UPC
Porta, Josep M		CSIC-UPC
Ros, Lluís		Consejo Superior De Investigaciones Cientificas (CSIC)
17:06-17:09		WeETS8.3
<i>Performance of an IMU-Based Sensor Concept for Solving the Direct Kinematics Problem of the Stewart-Gough Platform</i> , pp. 5055-5062.		
Schulz, Stefan		Hamburg University of Technology
Seibel, Arthur		Hamburg University of Technology
Schlattmann, Josef		Hamburg University of Technology
17:09-17:12		WeETS8.4
<i>An Active Stabilizer for Cable-Driven Parallel Robot Vibration Damping</i> , pp. 5063-5070.		
Lesellier, Maximilian		LIRMM, Icube
Cuvillon, Loic		Strasbourg I University
Gangloff, Jacques		University of Strasbourg
Gouttefarde, Marc		CNRS
17:12-17:15		WeETS8.5
<i>CPA-Wrist: Compliant Pneumatic Actuation for Antagonistic</i>		

<i>Tendon Driven Wrists</i> , N/A.		
Toedtheide, Alexander		Technical University of Munich
Haddadin, Sami		Technical University of Munich
17:15-17:18		WeETS8.6
<i>Faster Motion on Cartesian Paths Exploiting Robot Redundancy at the Acceleration Level</i> , N/A.		
Al Khudir, Khaled		Sapienza University of Rome
De Luca, Alessandro		Sapienza University of Rome
17:18-17:21		WeETS8.7
<i>Triple Scissor Extender Robot Arm: A Solution to the Last One Foot Problem of Manipulation</i> , N/A.		
Shikari, Abbas		MIT
Asada, Harry		MIT
17:21-17:24		WeETS8.8
<i>Design and Fabrication of a Bipedal Robot Using Serial-Parallel Hybrid Leg Mechanism</i> , pp. 5095-5100.		
Gim, Kevin Genehyub		University of California, Los Angeles
Kim, Joohyung		Disney Research
Yamane, Katsu		Honda Research Institute, USA
<b>WeETS9</b>		Room 4.L1
<b>Kinematics and Dynamics I</b> (Regular session)		
Chair: Lynch, Kevin		Northwestern University
Co-Chair: Gouttefarde, Marc		CNRS
17:00-17:03		WeETS9.1
<i>Configuration Space Metrics</i> , pp. 5101-5108.		
Jeon, Hong Jun		UC Berkeley
Dragan, Anca		University of California Berkeley
17:03-17:06		WeETS9.2
<i>Fused Angles and the Deficiencies of Euler Angles</i> , pp. 5109-5116.		
Allgeuer, Philipp		University of Bonn
Behnke, Sven		University of Bonn
17:06-17:09		WeETS9.3
<i>Geometric Optimization of a Large Scale CDPR Operating on a Building Facade</i> , pp. 5117-5124.		
Hussein, Hussein		University of Montpellier, LIRMM
Cavalcanti Santos, Joao		University of Montpellier, LIRMM
Gouttefarde, Marc		CNRS
17:09-17:12		WeETS9.4
<i>Learning the Forward and Inverse Kinematics of a 6-DOF Concentric Tube Continuum Robot in SE(3)</i> , pp. 5125-5132.		
Grassmann, Reinhard		Gottfried Wilhelm Leibniz Universität Hannover
Modes, Vincent		Gottfried Wilhelm Leibniz Universität Hannover
Burgner-Kahrs, Jessica		Gottfried Wilhelm Leibniz Universität Hannover
17:12-17:15		WeETS9.5
<i>Learning Forward and Inverse Kinematics Maps Efficiently</i> , pp. 5133-5140.		
Kubus, Daniel		Technische Universitaet Braunschweig
Rayyes, Rania		TU Braunschweig
Steil, Jochen J.		Technische Universität Braunschweig
17:15-17:18		WeETS9.6
<i>A Fail-Safe Semi-Centralized Impedance Controller: Validation on a Parallel Kinematics Ankle</i> , pp. 5141-5147.		

Ruscelli, Francesco	Istituto Italiano Di Tecnologia
Laurenzi, Arturo	Istituto Italiano Di Tecnologia
Mingo Hoffman, Enrico	Fondazione Istituto Italiano Di Tecnologia
Tsagarakis, Nikos	Istituto Italiano Di Tecnologia

17:18-17:21 WeETS9.7

*Probabilistic Kinematic State Estimation for Motion Planning of Planetary Rovers*, pp. 5148-5154.

Ghosh, Sourish	Indian Institute of Technology, Kharagpur
Otsu, Kyohei	California Institute of Technology
Ono, Masahiro	California Institute of Technology

17:21-17:24 WeETS9.8

*Constrained Control of Robotic Manipulators Using the Explicit Reference Governor*, pp. 5155-5162.

Merckaert, Kelly	Vrije Universiteit Brussel (VUB)
Nicotra, Marco M	University of Michigan
Vanderborght, Bram	Vrije Universiteit Brussel
Garone, Emanuele	Université Libre De Bruxelles

**WeETS10** Room 4.R1

**Special Session: Functional Electrical Stimulation and Wearable Robots - towards a Hybrid Solution for Movement Restoration** (Regular session)

Chair: Fraisse, Philippe LIRMM

17:00-17:03 WeETS10.1

*Design and Implementation of a Novel Semi-Active Hybrid Unilateral Stance Control Knee Ankle Foot Orthosis (I)*, pp. 5163-5168.

Gil, Javier	Spanish National Research Council (CSIC)
Sánchez-Villamañán, M. Carmen	Neural Rehabilitation Group - Cajal Institute - CSIC (Spanish Na
Jesús, Gómez	Spanish National Research Council (CSIC)
Ortiz, Andrea	Spanish National Research Council (CSIC)
del-Ama, Antonio J.	National Hospital for Paraplegics
Pons, Jose Luis	Spanish Research Council, CSIC
Moreno, Juan C.	Cajal Institute, CSIC

17:03-17:06 WeETS10.2

*Iterative Learning Vector Field for FES-Supported Cyclic Upper Limb Movements in Combination with Robotic Weight Compensation (I)*, pp. 5169-5174.

Passon, Arne	Technische Universität Berlin
Seel, Thomas	TU Berlin
Massmann, Jonas	Technische Universität Berlin
Freeman, Chris T	University of Southampton
Schauer, Thomas	Technische Universität Berlin

17:06-17:09 WeETS10.3

*Cooperative Control for Knee Joint Flexion-Extension Movement Restoration (I)*, pp. 5175-5180.

Alouane, Mohamed Amine	Université Paris Est Créteil, France
Rifai, Hala	University of Paris Est Créteil
Amirat, Yacine	University of Paris Est Créteil (UPEC)
Mohammed, Samer	University of Paris Est Créteil - (UPEC)

17:09-17:12 WeETS10.4

*New Approach of Cycling Phases Detection to Improve FES-*

*Pedaling in SCI Individuals (I)*, pp. 5181-5186.

de Souza Baptista, Roberto	University of Brasilia
Sijobert, Benoit	INRIA
Azevedo Coste, Christine	INRIA

17:12-17:15 WeETS10.5

*Adaptive FES Assistance Using a Novel Gait Phase Detection Approach (I)*, pp. 5187-5193.

Huo, Weiguang	University of Paris-Est Créteil - UPEC
Arnez-Paniagua, Victor	Université Paris-Est Créteil
Ghedira, Mouna	Laboratoire Analyse Et Restauration Du Mouvement - GHU Henri Mon
Amirat, Yacine	University of Paris Est Créteil (UPEC)
Gracies, Jean-Michel	APHP - CHU Henri Mondor
Mohammed, Samer	University of Paris Est Créteil - (UPEC)

**WeFTS1** Room 1.L5

**Aerial Systems III** (Regular session)

Chair: Matthies, Larry Jet Propulsion Laboratory

18:00-18:03 WeFTS1.1

*Online Self-Supervised Long-Range Scene Segmentation for MAVs*, pp. 5194-5199.

Daftry, Shreyansh	NASA Jet Propulsion Laboratory
Agrawal, Yashasvi	Carnegie Mellon University
Matthies, Larry	Jet Propulsion Laboratory

18:03-18:06 WeFTS1.2

*PAMPC: Perception-Aware Model Predictive Control for Quadrotors*, pp. 5200-5207.

Falanga, Davide	University of Zurich
Foehn, Philipp	University of Zurich
Lu, Peng	The Hong Kong Polytechnic University
Scaramuzza, Davide	University of Zurich

18:06-18:09 WeFTS1.3

*History-Aware Autonomous Exploration in Confined Environments Using MAVs*, pp. 5208-5215.

Witting, Christian Aamand	Technical University of Denmark
Fehr, Marius	ETH Zürich
Bähnemann, Rik	ETH Zürich
Oleynikova, Helen	ETH Zürich
Sieglwart, Roland	ETH Zurich

18:09-18:12 WeFTS1.4

*Learning to Fly by MySelf: A Self-Supervised CNN-Based Approach for Autonomous Navigation*, pp. 5216-5223.

Kouris, Alexandros	Imperial College London
Bouganis, Christos-Savvas	Imperial College London

18:12-18:15 WeFTS1.5

*Hands and Faces, Fast: Mono-Camera User Detection Robust Enough to Directly Control a UAV in Flight*, pp. 5224-5231.

MohaimenianPour, SeyedMehdi (Sepehr)	Simon Fraser University
Vaughan, Richard	Simon Fraser University

18:15-18:18 WeFTS1.6

*Vision Based Forward Sensitive Reactive Control for a Quadrotor VTOL*, pp. 5232-5238.

Stevens, Jean-Luc	Australian National University
Mahony, Robert	Australian National University

18:18-18:21 WeFTS1.7

*Angle-Encoded Swarm Optimization for UAV Formation Path Planning (I)*, pp. 5239-5244.

Hoang, Van Truong	University of Technology Sydney
Phung, Manh Duong	Vietnam National University
Dinh, Tran Hiep	University of Technology Sydney
Ha, Q P	University of Technology Sydney

18:21-18:24 WeFTS1.8

*An Integrated Localization-Navigation Scheme for Distance-Based Docking of UAVs*, pp. 5245-5250.

Nguyen, Thien-Minh	Nanyang Technological University
Qiu, Zhirong	Nanyang Technological University
Cao, Muqing	Nanyang Technological University
Nguyen, Thien Hoang	Nanyang Technological University
Xie, Lihua	Nanyang Technological University

**WeFTS2** Room 2.L5 KUKA  
**Sensorial Perception III** (Regular session)

Chair: Cianchetti, Matteo Scuola Superiore Sant'Anna

18:00-18:03 WeFTS2.1

*3DmFV: 3D Point Cloud Classification in Real-Time Using Convolutional Neural Networks*, N/A.

Ben-Shabat, Yizhak	Technion Isreal Institute of Technology, Faculty of Mechanical
Lindenbaum, Michael	Technion
Fischer, Anath	Technion Isreal Institute of Technology, Faculty of Mechanical

18:03-18:06 WeFTS2.2

*Surfel-Based Next Best View Planning*, N/A.

Monica, Riccardo	University of Parma
Aleotti, Jacopo	University of Parma

18:06-18:09 WeFTS2.3

*Image-Based Lateral Position, Steering Behavior Estimation and Road Curvature Prediction for Motorcycles*, N/A.

Damon, Pierre-Marie	University Paris-Saclay - MIT
Hadj-Abdelkader, Hicham	IBISC
Arioui, Hichem	Evry Val d'Essonne University
Youcef-Toumi, Kamal	Massachusetts Institute of Technology

18:09-18:12 WeFTS2.4

*Layouts from Panoramic Images with Geometry and Deep Learning*, N/A.

Fernandez-Labrador, Clara	University of Zaragoza
Perez-Yus, Alejandro	Universidad De Zaragoza
Lopez-Nicolas, Gonzalo	Universidad De Zaragoza
Guerrero, Josechu	Universidad De Zaragoza

18:12-18:15 WeFTS2.5

*Tri-Axial Slicing for 3D Face Recognition from Adapted Rotational Invariants Spatial Moments and Minimal Keypoints Dependence*, N/A.

da SILVA SIQUEIRA, Robson	Instituto Federal Do Ceará
Ribeiro Alexandre, Gilderlane	Universidade Federal Do Ceará
Marques Soares, José	Universidade Federal Do Ceará
Pereira Thê, George André	Federal University of Ceará

18:15-18:18 WeFTS2.6

*Delay Compensation for a Telepresence System with 3D 360 Degree Vision Based on Deep Head Motion Prediction and Dynamic FoV Adaptation*, N/A.

Aykut, Tamay	Technical University of Munich
Karimi, Mojtaba	Technical University of Munich
Burgmair, Christoph	Technical University of Munich
Finkenzeller, Andreas	Technical University of Munich
Bachhuber, Christoph	Technical University of Munich
Steinbach, Eckehard	Munich University of Technology

18:18-18:21 WeFTS2.7

*Visual Navigation for Biped Humanoid Robots Using Deep Reinforcement Learning*, N/A.

Lobos-Tsunekawa, Kenzo	Universidad De Chile
Leiva, Francisco	Universidad De Chile
Ruiz-del-Solar, Javier	Universidad De Chile

18:21-18:24 WeFTS2.8

*Classification of Hanging Garments Using Learned Features Extracted from 3D Point Clouds*, pp. 5307-5312.

Stria, Jan	Czech Technical University in Prague
Hlavac, Vaclav	Czech Technical University in Prague

**WeFTS3** Room 1.L2  
**Swarm and Multi-Robots IV** (Regular session)

Chair: Kim, Ayoung	Korea Advanced Institute of Science Technology
Co-Chair: Krajník, Tomáš	Czech Technical University

18:00-18:03 WeFTS3.1

*Coverage Control for Multi-Robot Teams with Heterogeneous Sensing Capabilities Using Limited Communications*, pp. 5313-5319.

Santos, María	Georgia Institute of Technology
Egerstedt, Magnus	Georgia Institute of Technology

18:03-18:06 WeFTS3.2

*An Adaptive Robot for Building In-Plane Programmable Structures*, pp. 5320-5327.

Pieber, Michael	Universität Innsbruck
Neurauter, Rene	Universität Innsbruck
Gerstmayr, Johannes	University Innsbruck, Institute of Mechatronics

18:06-18:09 WeFTS3.3

*Communication Model-Task Pairing in Artificial Swarm Design*, N/A.

Haque, Musad	Johns Hopkins University Applied Physics Laboratory
McGowan, Connor	Vanderbilt University
Guo, Yifan	Vanderbilt University
Kirkpatrick, Dougals	Michigan State University
Adams, Julie	Oregon State University

18:09-18:12 WeFTS3.4

*CVI-SLAM - Collaborative Visual-Inertial SLAM*, N/A.

Schmuck, Patrik	ETH Zurich
Karrer, Marco	ETH Zurich
Chli, Margarita	ETH Zurich

18:12-18:15 WeFTS3.5

*Circle Formation with Computation-Free Robots Shows Emergent Behavioral Structure*, pp. 5344-5349.

St-Onge, David	Ecole Polytechnique De Montreal
Pinciroli, Carlo	Worcester Polytechnic Institute

Beltrame, Giovanni	Ecole Polytechnique De Montreal
18:15-18:18	WeFTS3.6
<i>Efficient Parallel Self-Assembly under Uniform Control Inputs, N/A.</i>	
Schmidt, Arne	TU Braunschweig
Manzoor, Sheryl	University of Houston
Huang, Li	University of Houston
Becker, Aaron	University of Houston
Fekete, Sándor	Technische Universität Braunschweig
18:18-18:21	WeFTS3.7
<i>Sampling of Pareto-Optimal Trajectories Using Progressive Objective Evaluation in Multi-Objective Motion Planning, pp. 5358-5365.</i>	
Lee, Jeongseok	University of Washington
Yi, Daqing	University of Washington
Srinivasa, Siddhartha	University of Washington
18:21-18:24	WeFTS3.8
<i>Should We Compete or Should We Cooperate? Applying Game Theory to Task Allocation in Drone Swarms, pp. 5366-5371.</i>	
Roldán, Juan Jesús	Centre for Automation and Robotics
del Cerro, Jaime	Universidad Politécnica De Madrid
Barrientos, Antonio	UPM
<b>WeFTS4</b>	Room 2.L2
<b>Micro and Nano Robot II (Regular session)</b>	
Chair: Gauthier, Michael	FEMTO-ST Institute
Co-Chair: Cappelleri, David	Purdue University
18:00-18:03	WeFTS4.1
<i>A Magnetic Manipulator Cooled with Liquid Nitrogen, N/A.</i>	
Julien, Leclerc	University of Houston
Isichei, Benedict	University of Houston
Becker, Aaron	University of Houston
18:03-18:06	WeFTS4.2
<i>Magnetic Navigation of a Rotating Colloidal Swarm Using Ultrasound Images, pp. 5380-5385.</i>	
Wang, Qianqian	The Chinese University of Hong Kong
Yang, Lidong	The Chinese University of Hong Kong
Yu, Jiangfan	The Chinese University of Hong Kong
Vong, Chi-lan	The Chinese University of Hong Kong
Chiu, WAI, YAN Philip	Chinese University of Hong Kong
Zhang, Li	The Chinese University of Hong Kong
18:06-18:09	WeFTS4.3
<i>A Multi-Rate State Observer for Visual Tracking of Magnetic Micro-Agents Using 2D Slow Medical Imaging Modalities, pp. 5386-5393.</i>	
Kaya, Mert	University of Twente
Denasi, Alper	University of Twente
Scheggi, Stefano	University of Twente
Agbahca, Erdem	Konya Selcuk University
Yoon, ChangKyu	Department of Materials Science and Engineering, Johns Hopkins U

Gracias, David H.	The Johns Hopkins University, Baltimore
Misra, Sarthak	University of Twente
18:09-18:12	WeFTS4.4
<i>Real-Time Force-Feedback Micromanipulation Using Mobile Microrobots with Colored Fiducials, N/A.</i>	
Guix Noguera, Maria	Purdue University
Wang, Jianxiong	Purdue University
An, Ze	Purdue University
Adam, Georges	Purdue University
Cappelleri, David	Purdue University
18:12-18:15	WeFTS4.5
<i>Path Planning and Micromanipulation Using a Learned Model, N/A.</i>	
Venkatesan, Vinoth	Purdue University
Cappelleri, David	Purdue University
18:15-18:18	WeFTS4.6
<i>Thermocapillary Convective Flows Generated by Laser Points or Patterns: Comparison for the Non-Contact Micromanipulation of Particles at the Interface, N/A.</i>	
Terrazas Mallea, Ronald	Universite Libre De Bruxelles
Piron, Dimitri	Universite Libre De Bruxelles
Bolopion, Aude	Femto-St Institute
Lambert, Pierre	Université Libre De Bruxelles
Gauthier, Michael	FEMTO-ST Institute
18:18-18:21	WeFTS4.7
<i>Towards Controlled Flight of the Ionocraft: A Flying Microrobot Using Electrohydrodynamic Thrust with Onboard Sensing and No Moving Parts, N/A.</i>	
Drew, Daniel S.	UC Berkeley
Lambert, Nathan	University of California, Berkeley
Schindler, Craig	University of California, Berkeley
Pister, Kristofer S. J.	University of California, Berkeley
18:21-18:24	WeFTS4.8
<i>Nanorobotic System for Precise In-Situ 3D Manufacture of Helical Microstructures, N/A.</i>	
Lu, Haojian	City University of Hong Kong
Wang, Panbing	City University of Hong Kong
Tan, Rong	City University of Hongkong
Yang, Xiong	City University of Hongkong
Shen, Yajing	City University of Hong Kong
<b>WeFTS5</b>	Room 2.R3
<b>Assistive Robotics (Regular session)</b>	
Chair: Paez Granados, Diego	University of Tsukuba
Felipe	
Co-Chair: Hagita, Norihiro	ATR
18:00-18:03	WeFTS5.1
<i>Human Motion Classification Based on Multi-Modal Sensor Data for Lower Limb Exoskeletons, pp. 5431-5436.</i>	
Beil, Jonas	Karlsruhe Institute of Technology (KIT)
Ehrenberger, Isabel	Karlsruhe Institute of Technology (KIT)
Scherer, Clara	Karlsruhe Institute of Technology (KIT)
Mandery, Christian	Karlsruhe Institute of Technology (KIT)
Asfour, Tamim	Karlsruhe Institute of Technology (KIT)
18:03-18:06	WeFTS5.2



*A Novel Joint Torque Estimation Method and Sensory System for Assistive Lower Limb Exoskeletons*, pp. 5437-5444.

Saccares, Lorenzo	Fondazione Istituto Italiano Di Tecnologia
Sarakoglou, Ioannis	Fondazione Istituto Italiano Di Tecnologia
Tsagarakis, Nikos	Istituto Italiano Di Tecnologia

18:06-18:09 WeFTS5.3

*Robotic Hand-Free-Stick for Walking Balance Assistance*, pp. 5445-5450.

Tanaka, Yoshiyuki	Nagasaki University
Oyama, Naoki	Nagasaki University
Takenaka, Takazumi	Nagasaki University

18:09-18:12 WeFTS5.4

*Soft Fabric Actuator for Robotic Applications*, pp. 5451-5456.

Yang, Sang Yul	Sungkyunkwan University
Cho, Kyeong Ho	SungKyunKwan University
Kim, Youngeun	Sungkyunkwan University
Kim, Kihyeon	Sungkyunkwan University
Park, Jae Hyeong	Sungkwunkwan University
Jung, Hosang	Sungkyunkwan University
Ko, Jeong U	Sungkyunkwan University
Moon, Hyungpil	Sungkyunkwan University
Koo, Ja Choon	Sungkyunkwan University
Rodrigue, Hugo	Sungkyunkwan University
Suk, Ji Won	Sungkyunkwan University
Nam, Jaedo	Sungkyunkwan University
Choi, Hyouk Ryeol	Sungkyunkwan University

18:12-18:15 WeFTS5.5

*Child-Sized Passive Exoskeleton for Supporting Voluntary Sitting and Standing Motions*, pp. 5457-5462.

Sasaki, Kai	University of Tsukuba
Paez Granados, Diego Felipe	University of Tsukuba
Sugimoto, Minatsu	University of Tsukuba
Sugiyama, Taisei	University of Tsukuba
Suzuki, Kenji	University of Tsukuba

18:15-18:18 WeFTS5.6

*Hands-Free Assistive Manipulator Using Augmented Reality and Tongue Drive System*, pp. 5463-5468.

Chu, Fu-Jen	University of Michigan
Xu, Ruinian	Georgia Institute of Technology
Zhang, Zhenxuan	Georgia Institute of Technology
Vela, Patricio	Georgia Institute of Technology
Maysam, Ghovanloo	Georgia Institute of Technology

18:18-18:21 WeFTS5.7

*Machine Learning Based Skill-Level Classification for Personal Mobility Devices Using Only Operational Characteristics*, pp. 5469-5476.

Huang, Yifan	Waseda University
Kamezaki, Mitsuhiro	Waseda University
Mori, Taiga	Waseda University
Manawadu, Udara Eshan	Waseda University, Tokyo
Ishihara, Tatsuya	NTT
Nakano, Masanao	NTT Corporation
Koshiji, Kohjun	NTT
Higo, Naoki	Nippon Telegraph and Telephone Corp
Tsubaki, Toshimitsu	NTT
Sugano, Shigeki	Waseda University

18:21-18:24 WeFTS5.8

*Pneumatic Microneedle-Based High-Density Semg Sleeve for Stable and Comfortable Skin Contact During Dynamic Motion*, pp. 5477-5482.

Kim, Minjae	POSTECH
Gu, Gangyong	POSTECH
Chung, Wan Kyun	POSTECH

WeFTS6 Room 1.L3

**Telerobotics II** (Regular session)

Chair: Ishiguro, Hiroshi	Osaka University
Co-Chair: Park, Young Soo	Argonne National Laboratory

18:00-18:03 WeFTS6.1

*Supervised Autonomous Locomotion and Manipulation for Disaster Response with a Centaur-Like Robot*, pp. 5483-5490.

Klamt, Tobias	University of Bonn
Rodriguez, Diego	University of Bonn
Schwarz, Max	University Bonn
Lenz, Christian	University of Bonn
Pavlichenko, Dmytro	University of Bonn
Droeschel, David	University of Bonn
Behnke, Sven	University of Bonn

18:03-18:06 WeFTS6.2

*Design of a Lightweight, Ergonomic Manipulator for Enabling Expressive Gesturing in Telepresence Robots*, pp. 5491-5496.

Slack, James	Saint Louis University
DeProw, Kyle	Saint Louis University
Anderson, Zach	Southern Illinois University Edwardsville
Albacete Di Bartolomeo, Ricardo Manuel	Saint Louis University
Weinberg, Jerry	Southern Illinois University Edwardsville
Gorlewicz, Jenna	Saint Louis University

18:06-18:09 WeFTS6.3

*Implementation of Augmented Teleoperation System Based on Robot Operating System (ROS)*, pp. 5497-5502.

Lee, Donghyeon	Pohang University of Science and Technology(POSTECH)
Park, Young Soo	Argonne National Laboratory

18:09-18:12 WeFTS6.4

*Tracking-Based Depth Estimation of Metallic Pieces for Robotic Guidance*, pp. 5503-5508.

Di Castro, Mario	CERN, European Organization for Nuclear Research
Veiga Almagro, Carlos	CERN
Lunghi, Giacomo	CERN
Marin, Raul	Jaume I University
Ferre, Manuel	Universidad Politecnica De Madrid
Masi, Alessandro	CERN (European Organization for Nuclear Research)

18:12-18:15 WeFTS6.5

*Managing Off-Nominal Events in Shared Teleoperation with Learned Task Compliance*, pp. 5509-5516.

Owan, Parker	University of Washington
Garbini, Joseph	U. of Washington
Devasia, Santosh	University of Washington

18:15-18:18 WeFTS6.6

*Inferring Semantic State Transitions During Telerobotic Manipulation*, pp. 5517-5524.

Bauer, Adrian Simon	German Aerospace Center (DLR)
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Schmaus, Peter	German Aerospace Center (DLR)
Albu-Schäffer, Alin	DLR - German Aerospace Center
Leidner, Daniel	German Aerospace Center (DLR)
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18:18-18:21	WeFTS6.7
<i>Smoother Position-Drift Compensation for Time Domain Passivity Approach Based Teleoperation</i> , pp. 5525-5532.	
Coelho, Andre	Institute of Robotics and Mechatronics - German Aerospace Center
Singh, Harsimran	DLR German Aerospace Center
Muskardin, Tin	German Aerospace Center (DLR)
Balachandran, Ribin	DLR
Kondak, Konstantin	German Aerospace Center
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18:21-18:24	WeFTS6.8
<i>An Ungrounded Master Device for Tele-Microassembly</i> , pp. 5533-5538.	
Sakr, Sophia	Sorbonnes Université
Daunizeau, Thomas Pierre	Sorbonne Université
Reversat, David	Université Pierre Et Marie Curie
Régnier, Stéphane	University Pierre Et Marie Curie
Haliyo, Dogan Sinan	Sorbonne Université

**WeFTS7** Room 2.L3  
**Video Session II** (Regular session)

Chair: Kanoulas, Dimitrios	Istituto Italiano Di Tecnologia
Co-Chair: Kayacan, Erdal	Aarhus University
<hr/>	
18:00-18:03	WeFTS7.1
<i>Hammer: Robot Programming Interface for Common People</i> , pp. 5539-5539.	
Brunete, Alberto	Universidad Politecnica De Madrid
Hernando, Miguel	UPM
Gambao, Ernesto	Universidad Politecnica De Madrid
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18:03-18:06	WeFTS7.2
<i>The Art of Manipulation: Learning to Manipulate Blindly</i> , pp. 5540-5540.	
Haddadin, Sami	Technical University of Munich
Johannsmeier, Lars	Technical University Munich
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18:06-18:09	WeFTS7.3
<i>Toward the Next Generation of Robotic Waiters</i> , pp. 5541-5541.	
Moriello, Lorenzo	University of Bologna
Chiaravalli, Davide	Alma Mater Studiorum, University of Bologna
Biagiotti, Luigi	University of Modena and Reggio Emilia
Melchiorri, Claudio	University of Bologna
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18:09-18:12	WeFTS7.4
<i>Real Time Robot Path Planning for Dynamic Human-Robot-Cooperation Applications</i> , pp. 5542-5542.	
Bdiwi, Mohamad	Fraunhofer Institute for Machine Tools and Forming Technology IW
Hou, Shuxiao	Fraunhofer IWU
Delang, Kathleen	Fraunhofer Institute for Machine Tools and Forming Technology
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18:12-18:15	WeFTS7.5
<i>High Power Hand with Retention Mechanism</i> , pp. 5543-5543.	

Mouri, Tetsuya	Gifu University
Kawasaki, Haruhisa	Gifu University
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18:15-18:18	WeFTS7.6
<i>On-Chip Virtual Vortex Gear and Its Application</i> , pp. 5544-5544.	
Takayama, Toshio	Tokyo Institute of Technology
Tsai, Chia-Hung Dylan	National Chiao Tung University
Kaneko, Makoto	Osaka University
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18:18-18:21	WeFTS7.7
<i>Deformation Capture Via Self-Sensing Capacitive Arrays</i> , pp. 5545-5545.	
Glauser, Oliver	ETH Zurich
Panozzo, Daniele	New York University
Hilliges, Otmar	ETH Zurich
Sorkine-Hornung, Olga	ETH Zurich
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18:21-18:24	WeFTS7.8
<i>Excuse Me, May I Say Something? a Robot Facilitating Q&amp;A for Lectures</i> , pp. 5546-5546.	
Palinko, Oskar	Osaka University
Shimaya, Jiro	Osaka University
Hoeck, Kristian	University of Manchester
Ogawa, Kohei	Osaka University
Jinnai, Nobuhiro	Osaka University
Yoshikawa, Yuichiro	Osaka University
Ishiguro, Hiroshi	Osaka University

**WeFTS8** Room 2.R1  
**Calibration and Identification** (Regular session)

Chair: Behnke, Sven	University of Bonn
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18:00-18:03	WeFTS8.1
<i>Towards Autonomous Auto Calibration of Unregistered RGB-D Setups for Robotic Systems</i> , pp. 5547-5554.	
Halmetschlager-Funek, Georg	TU Wien
Prankl, Johann	University of Technology Vienna
Vincze, Markus	Vienna University of Technology
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18:03-18:06	WeFTS8.2
<i>Adaptive Sensor Bias Estimation in Nine Degree of Freedom Inertial Measurement Units: Theory and Preliminary Evaluation</i> , pp. 5555-5561.	
Spielvogel, Andrew Robert	Johns Hopkins University
Whitcomb, Louis	The Johns Hopkins University
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18:06-18:09	WeFTS8.3
<i>Automatic Extrinsic Calibration of a Camera and a 3D LiDAR Using Line and Plane Correspondences</i> , pp. 5562-5569.	
Zhou, Lipu	Carnegie Mellon University
Li, Zimo	Carnegie Mellon University
Kaess, Michael	Carnegie Mellon University
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18:09-18:12	WeFTS8.4
<i>SCALAR - Simultaneous Calibration of 2D Laser and Robot's Kinematic Parameters Using Three Planar Constraints</i> , pp. 5570-5575.	
Lembono, Teguh Santoso	Idiap Research Institute
Suárez-Ruiz, Francisco	Nanyang Technological University
Pham, Quang-Cuong	NTU Singapore
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18:12-18:15	WeFTS8.5
<i>Keyframe-Based Photometric Online Calibration and Color Correction</i> , pp. 5576-5583.	
Quenzel, Jan	University of Bonn
Horn, Jannis	University of Bonn

Houben, Sebastian	University of Bochum
Behnke, Sven	University of Bonn
18:15-18:18	WeFTS8.6
<i>Automatic Calibration of Multiple Cameras and Depth Sensors with a Spherical Target</i> , pp. 5584-5591.	
Kümmerle, Julius	FZI Forschungszentrum Informatik
Kühner, Tilman	FZI Forschungszentrum Informatik
Lauer, Martin	Karlsruhe Institute of Technology
18:18-18:21	WeFTS8.7
<i>Automated Tool Coordinate Calibration System of an Industrial Robot</i> , pp. 5592-5597.	
Luo, Ren	National Taiwan University
Wang, Hao	National Taiwan University
<b>WeFTS9</b>	Room 4.L1
<b>Kinematics and Dynamics II (Regular session)</b>	
Chair: Sanz, Pedro J	Jaume I
Co-Chair: Vlachos, Evgenios	University of Southern Denmark
18:00-18:03	WeFTS9.1
<i>Robust Optimization-Based Calculation of Invariant Trajectory Representations for Point and Rigid-Body Motion</i> , pp. 5598-5605.	
Vochten, Maxim	KU Leuven
De Laet, Tinne	University of Leuven
De Schutter, Joris	KU Leuven
18:03-18:06	WeFTS9.2
<i>Kinematic Analysis of Magnetic Continuum Robots Using Continuation Method and Bifurcation Analysis</i> , N/A.	
Peyron, Quentin	FEMTO-ST
Boehler, Quentin	ETH Zurich
Rabenorosa, Kanty	Univ. Bourgogne Franche-Comté, CNRS
Nelson, Bradley J.	ETH Zurich
Renaud, Pierre	ICube AVR
Andreff, Nicolas	Université De Franche Comté
18:06-18:09	WeFTS9.3
<i>Reducing the Computational Complexity of Mass-Matrix Calculation for High DOF Robots</i> , pp. 5614-5619.	
Safeea, Mohammad	University of Coimbra
Bearee, Richard	Arts Et Metiers ParisTech
Neto, Pedro	University of Coimbra
18:09-18:12	WeFTS9.4
<i>Position-Based Optimizable Time-Integrator for Frictional Articulated Bodies Dynamics</i> , pp. 5620-5627.	
Pan, Zherong	The University of North Carolina at Chapel Hill
Manocha, Dinesh	University of North Carolina at Chapel Hill
18:12-18:15	WeFTS9.5
<i>Hydrodynamics Parameter Identification of Submerged Bodies: Numerical Methods Comparison and Friction Model Analysis</i> , pp. 5628-5633.	
Gartner, Nicolas	Université De Toulon
Richier, Mathieu	University of Toulon
Hugel, Vincent	University of Toulon
18:15-18:18	WeFTS9.6
<i>Actuator and Friction Dynamics Formulation in Control of PKMs: From Design to Real-Time Experiments</i> , pp. 5634-5639.	
Saied, Hussein	University of Montpellier, LIRMM
Chemori, Ahmed	Cnrs / Lirmm

El Rafei, Maher	Lebanese University, Faculty of Engineering, CRSI
Francis, Clovis	Lebanese University
Pierrot, François	Cnrs - Lirmm
18:18-18:21	WeFTS9.7
<i>A Robust Time-Stepping Scheme for Quasistatic Rigid Multibody Systems</i> , pp. 5640-5647.	
Pang, Tao	Massachusetts Institute of Technology
Tedrake, Russ	Massachusetts Institute of Technology
18:21-18:24	WeFTS9.8
<i>Design and Development of a Slender Dual-Structure Continuum Robot for In-Situ Aeroengine Repair</i> , pp. 5648-5653.	
Wang, Mingfeng	University of Nottingham
Palmer, David	University of Nottingham
Dong, Xin	University of Nottingham
Alatorre, David	University of Nottingham
Axinte, Dragos	University of Nottingham
Norton, Andy	Rolls-Royce Plc
<b>WeFTS10</b>	Room 4.R1
<b>Special Session: Ontological and Knowledge-Based Approaches for Robots and Autonomous Systems Engineering (Regular session)</b>	
Chair: Gonçalves, Paulo	Instituto Politecnico De Castelo Branco
Co-Chair: Sanz, Ricardo	Universidad Politecnica De Madrid
18:00-18:03	WeFTS10.1
<i>Reasoning Systems for Semantic Navigation in Mobile Robots (I)</i> , pp. 5654-5659.	
Crespo, Jonathan	Universidad Carlos III De Madrid
Barber, Ramon	Universidad Carlos III of Madrid
Mozos, Oscar	Technical University of Cartagena
Beßler, Daniel	Universität Bremen
Beetz, Michael	University of Bremen
18:03-18:06	WeFTS10.2
<i>Hybrid Approach for Human Activity Recognition by Ubiquitous Robots (I)</i> , pp. 5660-5665.	
Mojarad, Roghayeh	UPEC
Attal, Ferhat	University Paris-Est Créteil (UPEC)
Chibani, Abdelghani	Lissi Lab Paris EST University
Rama Fiorini, Sandro	Université Paris-Est Creteil
Amirat, Yacine	University of Paris Est Créteil (UPEC)
18:06-18:09	WeFTS10.3
<i>Approaches for Action Sequence Representation in Robotics: A Review (I)</i> , pp. 5666-5671.	
Nakawala, Hirenkumar	Politecnico Di Milano
Chandrakant	
Gonçalves, Paulo	Instituto Politecnico De Castelo Branco
Fiorini, Paolo	University of Verona
Ferrigno, Giancarlo	Politecnico Di Milano
De Momi, Elena	Politecnico Di Milano
18:09-18:12	WeFTS10.4
<i>Ontology-Based Knowledge Representation for Increased Skill Reusability in Industrial Robots (I)</i> , pp. 5672-5678.	
Topp, Elin Anna	Lund University - LTH

Stenmark, Maj	Lund University
Ganslandt, Alexander	Lund University
Svensson, Andreas	Lund University
Haage, Mathias	Lund University
Malec, Jacek	Lund University

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18:12-18:15 WeFTS10.5

*Skill-Oriented Designer of Conceptual Robotic Structures (I)*, pp. 5679-5684.

Ramos, Francisco	University of Castilla-La Mancha
Scrob, Cristian	Indra Sistemas, S.A
Vazquez, Andres	Universidad De Castilla La Mancha
Fernandez, Raul	Universidad De Castilla La Mancha
Olivares, Alberto	Universidad De Castilla-La Mancha

## Technical Program for Thursday October 4, 2018

<b>ThATS1</b>		Room 1.L5
<b>Aerial Systems IV (Regular session)</b>		
Chair: Faigl, Jan	Czech Technical University in Prague	
Co-Chair: de Croon, Guido	TU Delft / ESA	
09:00-09:03		ThATS1.1
<i>Integration of a Canine Agent in a Wireless Sensor Network for Information Gathering in Search and Rescue Missions</i> , pp. 5685-5690.		
Fernandez Lozano, Jesus	Universidad De Malaga	
Mandow, Anthony	University of Malaga	
Martín-Guzmán, Miguel	Universidad De Málaga (UMA)	
Martín-Ávila, Juan	Universidad De Málaga (UMA)	
Serón, Javier	University of Malaga	
Martinez, Jorge L.	University of Malaga	
Gomez-Ruiz, Jose Antonio	University of Malaga	
Socarras Bertiz, Carlos	Universidad De La Guajira	
Miranda-Páez, Jesús	Universidad De Málaga (UMA)	
García-Cerezo, Alfonso	University of Malaga	
09:03-09:06		ThATS1.2
<i>Any-Time Trajectory Planning for Safe Emergency Landing</i> , pp. 5691-5696.		
Váňa, Petr	Czech Technical University in Prague	
Sláma, Jakub	Czech Technical University in Prague	
Faigl, Jan	Czech Technical University in Prague	
Paces, Pavel	Czech Technical University in Prague	
09:06-09:09		ThATS1.3
<i>PiDrone: An Autonomous Educational Drone Using Raspberry Pi and Python</i> , pp. 5697-5703.		
Brand, Isaiah	Brown University	
Roy, Josh	Brown University	
Ray, Aaron	Brown University	
Oberlin, John	Brown University	
Tellex, Stefanie	Brown	
09:09-09:12		ThATS1.4
<i>State Estimate Recovery for Autonomous Quadcopters</i> , pp. 5704-5710.		
Beffa, Luciano	ETH Zürich	
Ledergerber, Anton Josef	ETH Zurich	
D'Andrea, Raffaello	ETHZ	
09:12-09:15		ThATS1.5
<i>A Revisited Approach to Lateral Acceleration Modeling for Quadrotor UAVs State Estimation</i> , pp. 5711-5718.		
Sartori, Daniele	Shanghai Jiao Tong University	
Zou, Danping	Shanghai Jiao Ton University	
Pei, Ling	Shanghai Jiao Tong University	
Yu, Wenxian	Shanghai Jiao Tong University	
09:15-09:18		ThATS1.6
<i>Assisted Control for Semi-Autonomous Power Infrastructure Inspection Using Aerial Vehicles</i> , pp. 5719-5726.		
McFadyen, Aaron	Queensland University of Technology	
Dayoub, Feras	Queensland University of Technology	
Martin, Steven Colin	Queensland University of Technology	

Ford, Jason	Queensland University of Technology	
Corke, Peter	Queensland University of Technology	
09:18-09:21		ThATS1.7
<i>Bidirectional Thrust for Multirotor MAVs with Fixed-Pitch Propellers</i> , pp. 5727-5734.		
Maier, Moritz	German Aerospace Center (DLR)	
09:21-09:24		ThATS1.8
<i>DREGON: Dataset and Methods for UAV-Embedded Sound Source Localization</i> , pp. 5735-5742.		
Strauss, Martin	Friedrich-Alexander University	
Mordel, Pol	CNRS/IRISA Rennes	
Miguet, Victor	ENS Rennes	
Deleforge, Antoine	Inria Rennes - Bretagne Atlantique	
<b>ThATS2</b>		
<b>Sensorial Perception IV (Regular session)</b>		Room 2.L5 KUKA
Chair: Zhang, Jianwei	University of Hamburg	
Co-Chair: Lilienthal, Achim J.	Örebro University	
09:00-09:03		ThATS2.1
<i>Incremental Semi-Supervised Learning from Streams for Object Classification</i> , pp. 5743-5749.		
Chiotellis, Ioannis	Technical University Munich	
Zimmermann, Franziska	Carl Zeiss Microscopy GmbH	
Cremers, Daniel	Technical University of Munich	
Triebel, Rudolph	German Aerospace Center (DLR)	
09:03-09:06		ThATS2.2
<i>Joint 3D Proposal Generation and Object Detection from View Aggregation</i> , pp. 5750-5757.		
Ku, Jason	University of Waterloo	
Mozifian, Melissa	University of Waterloo	
Lee, Jungwook	University of Waterloo	
Harakeh, Ali	University of Waterloo	
Waslander, Steven Lake	University of Waterloo	
09:06-09:09		ThATS2.3
<i>TSSD: Temporal Single-Shot Detector Based on Attention and LSTM</i> , pp. 5758-5763.		
Chen, Xingyu	Institute of Automation, Chinese Academy of Science	
Wu, Zhengxing	Chinese Academy of Sciences	
Yu, Junzhi	Chinese Academy of Sciences	
09:09-09:12		ThATS2.4
<i>Real-Time Clustering and Multi-Target Tracking Using Event-Based Sensors</i> , pp. 5764-5769.		
Barranco, Francisco	University of Granada	
Fermuller, Cornelia	University of Maryland	
Ros, Eduardo	University of Granada	
09:12-09:15		ThATS2.5
<i>Speeding-Up Object Detection Training for Robotics with FALKON</i> , pp. 5770-5776.		
Maiettini, Elisa	ICub Facility, Istituto Italiano Di Tecnologia and DIBRIS, Unive	
Pasquale, Giulia	Istituto Italiano Di Tecnologia	
Rosasco, Lorenzo	Istituto Italiano Di Tecnologia & Massachusetts Institute Of Techn	
Natale, Lorenzo	Istituto Italiano Di Tecnologia	
09:15-09:18		ThATS2.6

*Disparity Sliding Window: Object Proposals from Disparity Images*, pp. 5777-5784.

Müller, Julian University of Ulm  
Fregin, Andreas Daimler AG  
Dietmayer, Klaus University of Ulm

09:18-09:21 ThATS2.7

*Semantic Segmentation from Sparse Labeling Using Multi-Level Superpixels*, pp. 5785-5792.

Alonso, Iñigo University of Zaragoza  
Murillo, Ana Cristina University of Zaragoza

09:21-09:24 ThATS2.8

*Real-Time Segmentation with Appearance, Motion and Geometry*, pp. 5793-5800.

Siam, Mennatullah University of Alberta  
Elkerdawy, Sara University of Alberta  
Gamal, Mostafa Cairo University  
Abdelrazek, Moemen Cairo University  
Jagersand, Martin University of Alberta  
Zhang, Hong University of Alberta

**ThATS3** Room 1.L2

**Vision-Based Navigation I** (Regular session)

Chair: Ude, Ales Jozef Stefan Institute

09:00-09:03 ThATS3.1

*VarNet: Exploring Variations for Unsupervised Video Prediction*, pp. 5801-5806.

Jin, Beibei Institute of Computing Technology, Chinese Academy of Sciences

Hu, Yu Institute of Computing Technology Chinese Academy of Sciences

Zeng, Yiming Institute of Computing Technology, Chinese Academy of Sciences,

Tang, Qiankun The Institute of Computing Technology of the Chinese Academy Of

Liu, Shice Institute of Computing Technology Chinese Academy of Sciences

Ye, Jing Institute of Computing Technology, Chinese Academy of Sciences

09:03-09:06 ThATS3.2

*Obstacle Detection for USVs by Joint Stereo-View Semantic Segmentation*, pp. 5807-5812.

Bovcon, Borja Faculty of Computer and Information Science, University of Ljubl

Kristan, Matej University of Ljubljana

09:06-09:09 ThATS3.3

*Efficient Absolute Orientation Revisited*, pp. 5813-5818.

Lourakis, Manolis Foundation for Research and Technology -- Hellas

Terzakis, George University of Portsmouth

09:09-09:12 ThATS3.4

*Active Structure-From-Motion for 3D Straight Lines*, pp. 5819-5825.

Mateus, André Institute for Systems and Robotics, LARSyS, Instituto Superior T

Tahri, Omar INSA Centre Val-De-Loire

Miraldo, Pedro

Instituto Superior Técnico,  
University of Lisbon

09:12-09:15 ThATS3.5

*Stereo Camera Localization in 3D LiDAR Maps*, pp. 5826-5833.

Kim, Youngji Korea Advanced Institute of Science and Technology

Jeong, Jinyong KAIST

Kim, Ayoung Korea Advanced Institute of Science Technology

09:15-09:18 ThATS3.6

*Vision-Based Terrain Classification and Solar Irradiance Mapping for Solar-Powered Robotics*, pp. 5834-5840.

Kingry, Nathaniel Iowa State University

Jung, Myungjin The Ohio State University

Derse, Evan Iowa State University

Dai, Ran The Ohio State University

09:18-09:21 ThATS3.7

*Structured Skip List: A Compact Data Structure for 3D Reconstruction*, pp. 5841-5847.

Li, Shi-Jie Nankai University

Cheng, Ming-Ming Nankai University, Tianjin

Liu, Yun Nankai University

Lu, Shao-Ping Nankai University

Prisacariu, Victor University of Oxford

Wang, Yahui Nankai University

09:21-09:24 ThATS3.8

*Towards Real-Time Unsupervised Monocular Depth Estimation on CPU*, pp. 5848-5854.

Poggi, Matteo University of Bologna

Aleotti, Filippo University of Bologna

Tosi, Fabio University of Bologna

Mattocchia, Stefano University of Bologna

**ThATS4** Room 2.L2

**Control I** (Regular session)

Chair: Kyriakopoulos, Kostas National Technical Univ. of Athens

Co-Chair: Li, Haoxiang Aibee

09:00-09:03 ThATS4.1

*A Plug-In Feed-Forward Control for Slashing Suppression in Robotic Teleoperation Tasks*, pp. 5855-5860.

Biagiotti, Luigi University of Modena and Reggio Emilia

Moriello, Lorenzo University of Bologna

Chiaravalli, Davide Alma Mater Studiorum, University of Bologna

Melchiorri, Claudio University of Bologna

09:03-09:06 ThATS4.2

*Elastic Structure Preserving Impedance (ESPI) Control for Compliantly Actuated Robots*, pp. 5861-5868.

Keppeler, Manuel German Aerospace Center (DLR)

Lakatos, Dominic German Aerospace Center (DLR)

Ott, Christian German Aerospace Center (DLR)

Albu-Schäffer, Alin DLR - German Aerospace Center

09:06-09:09 ThATS4.3

*An Efficient and Time-Optimal Trajectory Generation Approach for Waypoints under Kinematic Constraints and Error Bounds*, pp. 5869-5876.

Lin, Jianjie	Fortiss, An-Institut Technische Universität München
Somani, Nikhil	Technische Universität München
Hu, Biao	Beijing University of Chemical Technology
Rickert, Markus	Fortiss, An-Institut Technische Universität München
Knoll, Alois	Tech. Univ. Muenchen TUM

09:09-09:12 ThATS4.4

*Leveraging Precomputation with Problem Encoding for Warm-Starting Trajectory Optimization in Complex Environments*, pp. 5877-5884.

Merkt, Wolfgang Xaver	The University of Edinburgh
Ivan, Vladimir	University of Edinburgh
Vijayakumar, Sethu	University of Edinburgh

09:12-09:15 ThATS4.5

*A Self-Tuning Impedance Controller for Autonomous Robotic Manipulation*, pp. 5885-5891.

Balatti, Pietro	Istituto Italiano Di Tecnologia
Kanoulas, Dimitrios	Istituto Italiano Di Tecnologia
Rigano, Giuseppe Francesco	Istituto Italiano Di Tecnologia
Muratore, Luca	Istituto Italiano Di Tecnologia
Tsagarakis, Nikos	Istituto Italiano Di Tecnologia
Ajoudani, Arash	Istituto Italiano Di Tecnologia

09:15-09:18 ThATS4.6

*Robust Fixed-Wing UAV Guidance with Circulating Artificial Vector Fields*, pp. 5892-5899.

Rezende, Adriano	Universidade Federal De Minas Gerais
Gonçalves, Vinicius Mariano	UFMG
Raffo, Guilherme V.	Universidade Federal De Minas Gerais
Pimenta, Luciano	Universidade Federal De Minas Gerais

09:18-09:21 ThATS4.7

*Development of MR Clutch for a Prospective 5 DOF Robot*, pp. 5900-5905.

Pisetskiy, Sergey	Western University
Kermani, Mehrdad R.	University of Western Ontario

09:21-09:24 ThATS4.8

*Real-Time Quad-Rotor Path Planning for Mobile Obstacle Avoidance Using Convex Optimization*, pp. 5906-5911.

Szmuk, Michael	University of Washington
Pascucci, Carlo Alberto	University of Washington
Acikmese, Behcet	University of Washington

**ThATS5** Room 2.R3

**Soft Robotics I** (Regular session)

Chair: Catalano, Manuel	Istituto Italiano Di Tecnologia
Giuseppe	
Co-Chair: Hauser, Helmut	University of Bristol

09:00-09:03 ThATS5.1

*Embedded and Controllable Shape Morphing with Twisted-And-Coiled Actuators*, pp. 5912-5917.

Sun, Jiefeng	Colorado State University
Pawłowski, Benjamin	Colorado State University
Zhao, Jianguo	Colorado State University

09:03-09:06 ThATS5.2

*Soft Robotic Burrowing Device with Tip-Extension and Granular Fluidization*, pp. 5918-5923.

Naclerio, Nicholas	University of California, Santa
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Hubicki, Christian	Georgia Institute of Technology
Ozkan Aydin, Yasemin	Georgia Institute of Technology
Goldman, Daniel	Georgia Institute of Technology
Hawkes, Elliot Wright	University of California, Santa Barbara

09:06-09:09 ThATS5.3

*Liquid Metal-Microelectronics Integration for a Sensorized Soft Robot Skin*, pp. 5924-5929.

Hellebrekers, Tess	Carnegie Mellon University
Ozudemiz, Kadri Bugra	Carnegie Mellon University
Yin, Jessica	Carnegie Mellon University
Majidi, Carmel	Carnegie Mellon University

09:09-09:12 ThATS5.4

*Development of a Hybrid Gripper with Soft Material and Rigid Structures*, pp. 5930-5935.

Park, Wookeun	UNIST
Seo, Seongmin	UNIST
Bae, Joonbum	UNIST

09:12-09:15 ThATS5.5

*Design for Control of a Soft Bidirectional Bending Actuator*, pp. 5936-5943.

Bilodeau, Raymond Adam	Purdue University
Yuen, Michelle Ching-Sum	Purdue University
Case, Jennifer	Purdue University
Buckner, Trevor	Yale University
Kramer-Bottiglio, Rebecca	Yale University

09:15-09:18 ThATS5.6

*Sliding-Layer Laminates: A Robotic Material Enabling Robust and Adaptable Undulatory Locomotion*, pp. 5944-5951.

Jiang, Mingsong	Ucsd
Gravish, Nicholas	Harvard University

09:18-09:21 ThATS5.7

*Development of a Pneumatically Driven Flexible Finger with Feedback Control of a Polyurethane Bend Sensor*, pp. 5952-5957.

Mori, Yoshiki	Ritsumeikan University
Zhu, Mingzhu	Ritsumeikan Global Innovation Research Organization, Ritsumeikan

Kim, Hyejong	Robotis
Wada, Akira	RITSUMEIKAN UNIVERSITY
Mitsuzuka, Masahiko	Mitsui Chemichals, INC
Yoshiro Tajitsu, Y Tajitsu	Kansai University
Kawamura, Sadao	Ritsumeikan University

09:21-09:24 ThATS5.8

*Modelling an Actuated Large Deformation Soft Continuum Robot Surface Undergoing External Forces Using a Lumped-Mass Approach*, pp. 5958-5963.

Habibi, Hossein	Teesside University
Yang, Chenghao	Tianjin University
Kang, Rongjie	Tianjin University
Walker, Ian	Clemson University
Godage, Isuru S.	Depaul University
Dong, Xin	University of Nottingham
Branson, David	University of Nottingham

**ThATS6** Room 1.L3

**Motion Control** (Regular session)

Chair: Morales Saiki, Luis	ATR / Nagoya University
Yoichi	
Co-Chair: Fraisse, Philippe	LIRMM

09:00-09:03	ThATS6.1
<i>Motion Generators Combined with Behavior Trees: A Novel Approach to Skill Modelling</i> , pp. 5964-5971.	
Rovida, Francesco	Aalborg University Copenhagen
Wuthier, David	Aalborg University Copenhagen
Grossmann, Bjarne	Aalborg University Copenhagen
Fumagalli, Matteo	Aalborg University
Krueger, Volker	Aalborg University Copenhagen
09:03-09:06	ThATS6.2
<i>Enhanced Explosive Motion for Torque Controlled Actuators through Field Weakening Control</i> , pp. 5972-5979.	
Roosting, Wesley	Istituto Italiano Di Tecnologia
Kashiri, Navvab	Istituto Italiano Di Tecnologia
Tsagarakis, Nikos	Istituto Italiano Di Tecnologia
09:06-09:09	ThATS6.3
<i>Ground Disturbance Rejection Approach for Mobile Robotic Manipulators with Hydraulic Actuators</i> , pp. 5980-5986.	
Rigotti-Thompson, Mattia	Pontificia Universidad Catolica De Chile
Torres-Torriti, Miguel	Pontificia Universidad Catolica De Chile
Auat Cheein, Fernando	Universidad Tecnica Federico Santa Maria
Troni, Giancarlo	Pontificia Universidad Católica De Chile
09:09-09:12	ThATS6.4
<i>Computationally-Robust and Efficient Prioritized Whole-Body Controller with Contact Constraints</i> , pp. 5987-5994.	
Kim, Donghyun	University of Texas at Austin
Lee, Jaemin	University of Texas at Austin
Ahn, Junhyeok	University of Texas at Austin
Campbell IV, Orion	University of Texas at Austin
Hwang, Hochul	Hanyang University
Sentis, Luis	The University of Texas at Austin
09:12-09:15	ThATS6.5
<i>Continuously Shaping Projections and Operational Space Tasks</i> , pp. 5995-6002.	
Dehio, Niels	Technical University Braunschweig
Kubus, Daniel	Technische Universitaet Braunschweig
Steil, Jochen J.	Technische Universität Braunschweig
09:15-09:18	ThATS6.6
<i>Dual-Arm Relative Tasks Performance Using Sparse Kinematic Control</i> , pp. 6003-6009.	
Tarbouriech, Sonny	Tecnalia
Navarro, Benjamin	University of Orléans
Fraisse, Philippe	LIRMM
Crosnier, André	LIRMM
Cherubini, Andrea	LIRMM - Universite De Montpellier CNRS
Salle, Damien	Tecnalia Research and Innovation
09:18-09:21	ThATS6.7
<i>Jet-HR1: Stepping Posture Optimization for Bipedal Robot Over Large Ditch Based on a Ducted-Fan Propulsion System</i> , pp. 6010-6015.	
Liu, Biao	Guangdong University of Technology, School of Automation
Huang, Zhifeng	Guangdong University of Technology

Wei, Jiapeng	Guangdong University of Technology
Shi, Chaoyang	University of Toronto
Ota, Jun	The University of Tokyo
Zhang, Yun	Guangdong University of Technology
09:21-09:24	ThATS6.8
<i>User-Adaptive Human-Robot Formation Control for an Intelligent Robotic Walker Using Augmented Human State Estimation and Pathological Gait Characterization</i> , pp. 6016-6022.	
Chalvatzaki, Georgia	National Technical University of Athens
Papageorgiou, Xanthi S.	National Technical University of Athens
Maragos, Petros	National Technical University of Athens
Tzafestas, Costas S.	ICCS - Inst of Communication and Computer Systems

**ThATS7** Room 2.L3  
**Learning from Demonstration I** (Regular session)

Chair: Lefeber, Dirk	Vrije Universiteit Brussel
Co-Chair: Aloimonos, Yiannis	University of Maryland

09:00-09:03	ThATS7.1
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*Passivity Based Iterative Learning of Admittance-Coupled Dynamic Movement Primitives for Interaction with Changing Environments*, pp. 6023-6028.

Kramberger, Aljaz	Maersk Mc-Kinney Møller Institute, University of Southern Denmark
Shahriari, Erfan	Technical University of Munich
Gams, Andrej	Jozef Stefan Institute
Nemec, Bojan	Jozef Stefan Institute
Ude, Ales	Jozef Stefan Institute
Haddadin, Sami	Technical University of Munich

09:03-09:06	ThATS7.2
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*Robust Robot Learning from Demonstration and Skill Repair Using Conceptual Constraints*, pp. 6029-6036.

Mueller, Carl Louis	University of Colorado Boulder
Venick, Jeff	University of Colorado Boulder
Hayes, Bradley	University of Colorado Boulder

09:06-09:09	ThATS7.3
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*Kernel-Based Human-Dynamics Inversion for Precision Robot Motion-Primitives*, pp. 6037-6042.

Warrier, Rahul Balakrishna	University of Washington, Seattle
Devasia, Santosh	University of Washington

09:09-09:12	ThATS7.4
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*Associative Skill Memory Models*, pp. 6043-6048.

Girgin, Hakan	Boğaziçi University
Ugur, Emre	Bogazici University

09:12-09:15	ThATS7.5
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*Towards Intelligent Arbitration of Diverse Active Learning Queries*, pp. 6049-6056.

Bullard, Kalesha	Georgia Institute of Technology
Thomaz, Andrea Lockerd	University of Texas at Austin
Chernova, Sonia	Georgia Institute of Technology

09:15-09:18	ThATS7.6
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*Segmenting and Sequencing of Compliant Motions*, pp. 6057-6064.

Hagos, Tesfamichael Marikos	Aalto University
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Suomalainen, Markku Heikki Kyrki, Ville	Aalto University Aalto University
09:18-09:21	ThATS7.7
<i>An Uncertainty-Aware Minimal Intervention Control Strategy Learned from Demonstrations</i> , pp. 6065-6071.	
Silvério, João	Istituto Italiano Di Tecnologia
Huang, Yanlong	Istituto Italiano Di Tecnologia
Rozo, Leonel	Istituto Italiano Di Tecnologia
Caldwell, Darwin G.	Istituto Italiano Di Tecnologia
09:21-09:24	ThATS7.8
<i>Generative Low-Shot Network Expansion</i> , pp. 6072-6077.	
עדי חייט	Intel
Kliger, Mark, Mark	Amazon
Fleishman, Shachar, Shachar	Amazon
Cohen-Or, Daniel, Daniel	Tel-Aviv University
<b>ThATS8</b>	Room 2.R1
<b>Industrial Robots</b> (Regular session)	
Co-Chair: Abi-Farraj, Firas	CNRS-Irisa
09:00-09:03	ThATS8.1
<i>Sensor Selection and Stage &amp; Result Classifications for Automated Miniature Screwdriving</i> , pp. 6078-6085.	
Cheng, Xianyi	Carnegie Mellon University
Jia, Zhenzhong	Carnegie Mellon University
Bhatia, Ankit	Carnegie Mellon University
Aronson, Reuben	Carnegie Mellon University
Mason, Matthew T.	Carnegie Mellon University
09:03-09:06	ThATS8.2
<i>Evaluating Methods for End-User Creation of Robot Task Plans</i> , pp. 6086-6092.	
Paxton, Chris	Johns Hopkins University
Jonathan, Felix	Johns Hopkins University
Hundt, Andrew	Johns Hopkins University
Mutlu, Bilge	University of Wisconsin–Madison
Hager, Gregory	Johns Hopkins University
09:06-09:09	ThATS8.3
<i>A Gripper System for Robustly Picking Various Objects Placed Densely by Suction and Pinching</i> , pp. 6093-6098.	
Nakamoto, Hideichi	Toshiba Corporation
Ohtake, Masashi	Toshiba Infrastructure Systems & Solutions Corporation
Komoda, Kazuma	Toshiba Corporation
Sugahara, Atsushi	Toshiba Corporation
Ogawa, Akihito	TOSHIBA CORPORATION
09:09-09:12	ThATS8.4
<i>Mass Manufacturing of Self-Actuating Robots: Integrating Sensors and Actuators Using Flexible Electronics</i> , pp. 6099-6104.	
Dementyev, Artem	MIT
Jie, Qi	MIT Media Lab
Ou, Jifei	MIT Media Lab
Paradiso, Joseph	MIT Media Lab
09:12-09:15	ThATS8.5
<i>Achieving Flexible Assembly Using Autonomous Robotic Systems</i> , pp. 6105-6110.	
Gilday, Kieran	University of Cambridge
Hughes, Josie	University of Cambridge
Iida, Fumiya	University of Cambridge
09:15-09:18	ThATS8.6

*Experimental Verification of a Magnetic Levitation Transport System for the OLED Display Evaporation Process under Vacuum*, N/A.

Ha, Chang-Wan	Korea Institute of Machinery & Material (KIMM), KOREA
Kim, Chang-Hyun	Korea Institute of Machinery and Materials (KIMM)
Lim, Jaewon	Korea Institute of Machinery & Materials (kimm)

09:18-09:21 ThATS8.7

*Human Pose Estimation in Presence of Occlusion Using Depth Camera Sensors, in Human-Robot Coexistence Scenarios*, pp. 6117-6123.

Casalino, Andrea	Politecnico Di Milano
Guzman, Sebastian	Politecnico Di Milano
Zanchettin, Andrea Maria	Politecnico Di Milano
Rocco, Paolo	Politecnico Di Milano

09:21-09:24 ThATS8.8

*Feasibility of the UR5 Industrial Robot for Robotic Rehabilitation of the Upper Limbs after Stroke*, pp. 6124-6129.

Kyrkjebø, Erik	Western Norway University of Applied Sciences
Laastad, Mads Johan	Norwegian University of Science and Technology
Stavdahl, Øyvind	Norwegian University of Science and Technology (NTNU)

**ThATS9** Room 4.L1

**Robot Safety** (Regular session)

Chair: Sgorbissa, Antonio	University of Genova
Co-Chair: Zalama, Eduardo	Instituto De Las Tecnologias de la Producción (ITAP). University of Valladolid

09:00-09:03 ThATS9.1

*Safety-Related Tasks within the Set-Based Task-Priority Inverse Kinematics Framework*, pp. 6130-6135.

Di Lillo, Paolo Augusto	University of Cassino and Southern Lazio
Arrichiello, Filippo	Università Di Cassino E Del Lazio Meridionale
Antonelli, Gianluca	Univ. of Cassino and Southern Lazio
Chiaverini, Stefano	Università Di Cassino E Del Lazio Meridionale

09:03-09:06 ThATS9.2

*Model-Based Engineering, Safety Analysis and Risk Assessment for Personal Care Robots*, pp. 6136-6141.

Yakymets, Nataliya	CEA
Sango, Marc	AI4Tec
Dhouib, Saadia	CEA LIST
Gelin, Rodolphe	Aldebaran Robotics

09:06-09:09 ThATS9.3

*Computation of Safe Path Velocity for Collaborative Robots*, pp. 6142-6148.

Sloth, Christoffer	University of Southern Denmark
Petersen, Henrik Gordon	University of Southern Denmark

09:09-09:12 ThATS9.4

*Adversarial Learning-Based On-Line Anomaly Monitoring for Assured Autonomy*, pp. 6149-6154.

Patel, Naman	New York University Tandon School of Engineering
Saridena, Apoorva Nandini	New York University Tandon School of Engineering

Choromanska, Anna	New York University Tandon School of Engineering
Krishnamurthy, Prashanth	New York University Tandon School of Engineering
Khorrani, Farshad	New York University Tandon School of Engineering

09:12-09:15 ThATS9.5

*Inspection System for Automatic Measurement of Level Differences in Belt Conveyors Using Inertial Measurement Unit*, pp. 6155-6161.

Yasutomi, André Yuji	Hitachi Ltd
Enoki, Hideo	Hitachi Ltd
Yamaguchi, Shigeki	Hitachi High-Technologies Corporation
Tamura, Kazuma	Hitachi High-Technologies Corporation

09:15-09:18 ThATS9.6

*Safe Reinforcement Learning on Autonomous Vehicles*, pp. 6162-6167.

Isele, David	University of Pennsylvania
Nakhaei, Alireza	MPB Communications Inc
Fujimura, Kikuo	Honda Research Institute

09:18-09:21 ThATS9.7

*Distributed Direction of Arrival Estimation-Aided Cyberattack Detection in Networked Multi-Robot Systems*, pp. 6168-6173.

Lee, Sangjun	Purdue University
Min, Byung-Cheol	Purdue University

09:21-09:24 ThATS9.8

*Evaluating Robotic Devices of Non-Wearable Transferring Aids Using Whole-Body Robotic Simulator of the Elderly*, pp. 6174-6179.

Matsumoto, Yoshio	AIST
Ogata, Kunihiro	National Institute of Advanced Industrial Science and Technology
Kajitani, Isamu	National Inst. of AIST
Homma, Keiko	National Institute of Advanced Industrial Science and Technology
Wakita, Yujin	National Institute of Advanced Industrial Science and Technology

**ThATS10** Room 4.R1  
**Special Session: Mobile Microrobotics** (Regular session)

Co-Chair: Pané, Salvador ETH Zurich

09:00-09:03 ThATS10.1

*Automated Control of Multifunctional Magnetic Spores Using Fluorescence Imaging for Microrobotic Cargo Delivery (I)*, pp. 6180-6185.

Yang, Lidong	The Chinese University of Hong Kong
Zhang, Yabin	The Chinese University of Hong Kong
Vong, Chi-lan	The Chinese University of Hong Kong
Zhang, Li	The Chinese University of Hong Kong

09:03-09:06 ThATS10.2

*Collectives of Spinning Mobile Microrobots for Navigation and Object Manipulation at the Air-Water Interface (I)*, pp. 6186-6192.

Wang, Wendong	Max Planck Institute for Intelligent Systems
Kishore, Vimal	Max Planck Institute for

Koens, Lyndon	Intelligent Systems DAMTP, University of Cambridge
Lauga, Eric	University of Cambridge
Sitti, Metin	Max-Planck Institute for Intelligent Systems

09:06-09:09 ThATS10.3

*Fabrication and Locomotion of Flexible Nanoswimmers (I)*, pp. 6193-6198.

Jang, Bumjin	ETHZ
Aho, Amanda	ETHZ
Nelson, Bradley J.	ETH Zurich
Pane, Salvador	ETH Zurich

09:09-09:12 ThATS10.4

*Gait Learning for Soft Microrobots Controlled by Light Fields (I)*, pp. 6199-6206.

von Rohr, Alexander	University of Lübeck
Trimpe, Sebastian	Max Planck Institute for Intelligent Systems
Marco, Alonso	Max Planck Institute for Intelligent Systems
Fischer, Peer	Max-Planck-Institute for Intelligent Systems
Palagi, Stefano	Istituto Italiano Di Tecnologia

**ThBTS1** Room 1.L5

**Aerial Systems V** (Regular session)

Chair: Valls Miro, Jaime University of Technology Sydney  
Co-Chair: Taylor, Zachary ETH Zürich  
Jeremy

11:30-11:33 ThBTS1.1

*A Novel Monocular-Based Navigation Approach for UAV Autonomous Transmission-Line Inspection*, pp. 6207-6213.

Bian, Jiang	Institute of Automation, Chinese Academy of Sciences; Universit
Hui, Xiaolong	Institute of Automation, Chinese Academy of Sciences
Zhao, Xiaoguang	Institute of Automation, Chinese Academy of Sciences
Tan, Min	Institute of Automation, Chinese Academy of Sciences

11:33-11:36 ThBTS1.2

*Ceiling Effects for Surface Locomotion of Small Rotorcraft*, pp. 6214-6219.

Hsiao, Yi Hsuan	City University of Hong Kong
Chirarattananon, Pakpong	City University of Hong Kong

11:36-11:39 ThBTS1.3

*Autonomous Grasping Robotic Aerial System for Perching (AGRASP)*, pp. 6220-6225.

Popek, Katie	Johns Hopkins University Applied Physics Lab
Johannes, Matthew	The Johns Hopkins University Applied Physics Laboratory
Wolfe, Kevin	Johns Hopkins University Applied Physics Laboratory
Hegeman, Rachel	Johns Hopkins University
Hatch, Jessica	The Johns Hopkins University Applied Physics Laboratory
Moore, Joseph	Johns Hopkins University Applied Physics Lab
Katyal, Kapil	Johns Hopkins University Applied Physics Lab
Yeh, Bryanna	The Johns Hopkins University

Bamberger, Robert	Applied Physics Laboratory Johns Hopkins University Applied Physics Lab
11:39-11:42	ThBTS1.4
<i>Energy-Efficient Trajectory Generation for a Hexarotor with Dual-Tilting Propellers</i> , pp. 6226-6232.	
Morbidi, Fabio	Université De Picardie Jules Verne
Bicego, Davide	LAAS-CNRS
Ryll, Markus	MIT
Franchi, Antonio	LAAS-CNRS
11:42-11:45	ThBTS1.5
<i>Towards Autonomous Stratospheric Flight: A Generic Global System Identification Framework for Fixed-Wing Platforms</i> , pp. 6233-6240.	
Lee, Jongseok	German Aerospace Center
Muskardin, Tin	German Aerospace Center (DLR)
RuizPaez, Cristina	German Aerospace Center
Oetersshagen, Philipp	ETH Zurich
Stastny, Thomas	Swiss Federal Institute of Technology (ETH Zurich)
Sa, Inkyu	ETH Zurich
Sieglwart, Roland	ETH Zurich
Kondak, Konstantin	German Aerospace Center
11:45-11:48	ThBTS1.6
<i>Design and Implementation of Cloud-Like Soft Drone S-CLOUD</i> , pp. 6241-6246.	
Song, Seung Hwan	Sungkyunkwan University
Shon, Hyun Wook	Sungkyunkwan University
Yeon, Gyu Yang	SUNGKYUNKWAN UNIVERSITY
Choi, Hyouk Ryeol	Sungkyunkwan University
11:48-11:51	ThBTS1.7
<i>Recovery Control for Quadrotor UAV Colliding with a Pole</i> , pp. 6247-6254.	
Dicker, Gareth	McGill University
Sharf, Inna	McGill University
Rustagi, Pulkit	Indian Institute of Technology Kharagpur
11:51-11:54	ThBTS1.8
<i>ArduSoar: An Open-Source Thermalling Controller for Resource-Constrained Autopilots</i> , pp. 6255-6262.	
Tabor, Samuel	N/A
Guilliard, Iain	CSIRO
Kolobov, Andrey	Microsoft Research
<b>ThBTS2</b>	Room 2.L5 KUKA
<b>Sensorial Perception V</b> (Regular session)	
Chair: Chatila, Raja	ISIR
Co-Chair: Yaguchi, Hiroaki	The University of Tokyo
11:30-11:33	ThBTS2.1
<i>Incremental Learning-Based Adaptive Object Recognition for Mobile Robots</i> , pp. 6263-6268.	
Turkoglu, Mehmet Ozgur	University of Twente, TNO Intelligent Imaging
ter Haar, Frank	TNO Intelligent Imaging
van der Stap, Nanda	University of Twente
11:33-11:36	ThBTS2.2
<i>Object Detection and Pose Estimation Based on Convolutional Neural Networks Trained with Synthetic Data</i> , pp. 6269-6276.	

Josifovski, Josip	Universität Hamburg
Kerzel, Matthias	Uni Hamburg
Pregizer, Christoph	Viewlicity GmbH
Posniak, Lukas	Viewlicity GmbH
Wermter, Stefan	University of Hamburg
11:36-11:39	ThBTS2.3
<i>Towards Event-Driven Object Detection with Off-The-Shelf Deep Learning</i> , pp. 6277-6283.	
Iacono, Massimiliano	Istituto Italiano Di Tecnologia
Weber, Stefan	Istituto Italiano Di Tecnologia
Glover, Arren	Istituto Italiano Di Tecnologia
Bartolozzi, Chiara	Istituto Italiano Di Tecnologia
11:39-11:42	ThBTS2.4
<i>Material Recognition Using a Capacitive Proximity Sensor with Flexible Spatial Resolution</i> , pp. 6284-6290.	
Alagi, Hosam	Karlsruhe Institut of Technology
Heilig, Alexander	Karlsruhe Institute of Technology
Escaida Navarro, Stefan	Inria
Kroeger, Torsten	Karlsruher Institut Für Technologie (KIT)
Hein, Björn	Karlsruhe Institute of Technology (KIT)
11:42-11:45	ThBTS2.5
<i>Interactive Training of Object Detection without ImageNet</i> , pp. 6291-6296.	
Martinson, Eric	Soar Technology
11:45-11:48	ThBTS2.6
<i>Action Selection for Interactive Object Segmentation in Clutter</i> , pp. 6297-6304.	
Patten, Timothy	Technical University of Vienna
Zillich, Michael	Vienna University of Technology
Vincze, Markus	Vienna University of Technology
11:48-11:51	ThBTS2.7
<i>Towards a Real-Time Environment Reconstruction for VR-Based Teleoperation through Model Segmentation</i> , pp. 6305-6310.	
Kohn, Sebastian	Framatome GmbH, Instrumentation & Control - Autonomous Systems (
Blank, Andreas	Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Institut
Puljiz, David	Karlsruhe Institute of Technology
Zenkel, Lothar	Framatome GmbH, Instrumentation & Control - Autonomous Systems (
Bieber, Oswald	Framatome GmbH, Instrumentation & Control - Autonomous Systems (
Hein, Björn	Karlsruhe Institute of Technology (KIT)
Franke, Jörg	University of Erlangen-Nuremberg
11:51-11:54	ThBTS2.8
<i>DROAN - Disparity-Space Representation for Obstacle Avoidance: Enabling Wire Mapping &amp; Avoidance</i> , pp. 6311-6318.	
Dubey, Geetesh	Carnegie Mellon University
Madaan, Ratnesh	Carnegie Mellon University
Scherer, Sebastian	Carnegie Mellon University
<b>ThBTS3</b>	Room 1.L2
<b>Vision-Based Navigation II</b> (Regular session)	
Chair: Casals, Alicia	Universitat Politècnica De Catalunya, Barcelona Tech

Co-Chair: Yang, Lidong	The Chinese University of Hong Kong
11:30-11:33	ThBTS3.1
<i>Robocentric Visual-Inertial Odometry</i> , pp. 6319-6326.	
Huai, Zheng	University of Delaware
Huang, Guoquan	University of Delaware
11:33-11:36	ThBTS3.2
<i>Appearance-Based Along-Route Localization for Planetary Missions</i> , pp. 6327-6334.	
Grixa, Iris Lynne	German Aerospace Center (DLR)
Schulz, Philipp Tobias	Deutsches Zentrum Für Luft Und Raumfahrt
Stuerzl, Wolfgang	DLR, Institute of Robotics and Mechantronics
Triebel, Rudolph	German Aerospace Center (DLR)
11:36-11:39	ThBTS3.3
<i>A Monocular Indoor Localiser Based on an Extended Kalman Filter and Edge Images from a Convolutional Neural Network</i> , pp. 6335-6340.	
Unicomb, James	University of Technology, Sydney
Ranasinghe, Ravindra	University of Technology Sydney
Dantanarayana, Lakshitha	University of Technology, Sydney
Dissanayake, Gamini	University of Technology Sydney
11:39-11:42	ThBTS3.4
<i>Automated Map Reading: Image Based Localisation in 2-D Maps Using Binary Semantic Descriptors</i> , pp. 6341-6348.	
Panphattarasap, Pilailuck	University of Bristol
Calway, Andrew	University of Bristol
11:42-11:45	ThBTS3.5
<i>Interval-Based Cooperative UAVs Pose Domain Characterization from Images and Ranges</i> , pp. 6349-6356.	
Kenmogne, Ide-Flore	INRIA
Drevelle, Vincent	Université De Rennes 1, IRISA, INRIA Rennes
Marchand, Eric	Université De Rennes 1, IRISA, INRIA Rennes
11:45-11:48	ThBTS3.6
<i>Joint Point Cloud and Image Based Localization for Efficient Inspection in Mixed Reality</i> , pp. 6357-6363.	
Das, Manash Pratim	Indian Institute of Technology Kharagpur
Dong, Zhen	Wuhan University
Scherer, Sebastian	Carnegie Mellon University
11:48-11:51	ThBTS3.7
<i>Probabilistic Dense Reconstruction from a Moving Camera</i> , pp. 6364-6371.	
Ling, Yonggen	Tencent AI Lab
Wang, Kaixuan	Hong Kong University of Science and Technology
Shen, Shaojie	Hong Kong University of Science and Technology
11:51-11:54	ThBTS3.8
<i>Summarizing Large Scale 3D Mesh</i> , pp. 6372-6377.	
Ben Salah, Imeen	Université De Rouen
Kramm, Sébastien	Université De Rouen
Demonceaux, Cédric	Université Bourgogne Franche-Comté
Vasseur, Pascal	Université De Rouen

<b>ThBTS4</b>	Room 2.L2
<b>Control II (Regular session)</b>	
Chair: Albu-Schäffer, Alin	DLR - German Aerospace Center
11:30-11:33	ThBTS4.1
<i>A Robust Control Method for the Elbow of the Humanoid Robot TEO Based on a Fractional Order Controller</i> , pp. 6378-6383.	
Muñoz, Jorge	University Carlos III of Madrid
Monje, Concepción A.	University Carlos III of Madrid
Martin, Fernando	Carlos III UNIVERSITY
Balaguer, Carlos	Universidad Carlos III De Madrid
11:33-11:36	ThBTS4.2
<i>FPGA-Based Velocity Estimation for Control of Robots with Low-Resolution Encoders</i> , pp. 6384-6389.	
Wu, Jie Ying	Johns Hopkins University
Chen, Zihan	Auris Health, Inc
Deguet, Anton	Johns Hopkins University
Kazanzides, Peter	Johns Hopkins University
11:36-11:39	ThBTS4.3
<i>Active Disturbance Rejection Control of a Flying-Wing Tailsitter in Hover Flight</i> , pp. 6390-6396.	
Yang, Yunjie	Tsinghua University
Zhu, Jihong	Tsinghua University
Zhang, Xiaojun	Tsinghua University
Wang, Xiangyang	Tsinghua University
11:39-11:42	ThBTS4.4
<i>Underwater Modeling, Experiments and Control Strategies of FroBot</i> , pp. 6397-6403.	
Yang, Yi	Beijing Institute of Technology
Fan, Zhenhui	Beijing Institute of Technology
Zhu, Zhongjing	Beijing Institute of Technology
Zhang, Jianqing	Beijing Institute of Technology
11:42-11:45	ThBTS4.5
<i>Feedback Linearizing Controller for a Single Link Flexible Arm with a Passive Gravity Compensation Mechanism</i> , pp. 6404-6410.	
Cambera, Juan C.	Escuela Técnica Superior De IngenierosIndustriales/Universid ad D
Feliu, Vicente	Escuela Técnica Superior De IngenierosIndustriales/Universid ad D
11:45-11:48	ThBTS4.6
<i>A Practical Method to Speed-Up the Experimental Procedure of Iterative Learning Controllers</i> , pp. 6411-6416.	
Kocan, Oktay	ONERA - the French Aerospace Lab
Manecy, Augustin	ONERA, the French Aerospace Lab
Poussot-Vassal, Charles	Onera
11:48-11:51	ThBTS4.7
<i>System Identification and Closed-Loop Control of a Hydraulically Amplified Self-Healing Electrostatic (HASEL) Actuator</i> , pp. 6417-6423.	
Schunk, Cosima	University of Colorado
Pearson, Levi	University of Colorado at Boulder
Acome, Eric	University of Colorado Boulder
Morrissey, Timothy	University of Colorado Boulder
Correll, Nikolaus	University of Colorado at Boulder
Keplinger, Christoph	University of Colorado
Rentschler, Mark	University of Colorado at Boulder
Humbert, James Sean	University of Maryland

11:51-11:54 ThBTS4.8

*Motion Control of Piezo-Driven Stage Via a Chattering-Free Sliding Mode Controller with Hysteresis Compensation*, pp. 6424-6430.

Fan, Yunfeng Singapore University of Technology and Design

He, Yichang SUTD

Zhang, Dingguo Shanghai Jiao Tong University

Tan, U-Xuan Singapore University of Technology and Design

**ThBTS5** Room 2.R3

**Soft Robotics II** (Regular session)

Chair: Vanderborght, Bram Vrije Universiteit Brussel

Co-Chair: Kamezaki, Mitsuhiko Waseda University

11:30-11:33 ThBTS5.1

*A Universal Gripper Using Optical Sensing to Acquire Tactile Information and Membrane Deformation*, pp. 6431-6436.

Sakuma, Tatsuya Nara Institute of Science and Technology

von Drigalski, Felix Wolf Hans Erich Nara Institute of Science and Technology

Ding, Ming Nara Institute of Science and Technology

Takamatsu, Jun Nara Institute of Science and Technology

Ogasawara, Tsukasa Nara Institute of Science and Technology

11:33-11:36 ThBTS5.2

*Towards a Soft Fingertip with Integrated Sensing and Actuation*, pp. 6437-6444.

McInroe, Benjamin University of California, Berkeley

Chen, Carolyn University of California, Berkeley

Goldberg, Ken UC Berkeley

Bajcsy, Ruzena Univ of California, Berkeley

Fearing, Ronald University of California at Berkeley

11:36-11:39 ThBTS5.3

*Learning Oscillator-Based Gait Controller for String-Form Soft Robots Using Parameter-Exploring Policy Gradients*, pp. 6445-6452.

Ishige, Matthew The University of Tokyo

Umedachi, Takuya The University of Tokyo

Taniguchi, Tadahiyo Ritsumeikan University

Kawahara, Yoshihiro The University of Tokyo

11:39-11:42 ThBTS5.4

*Soft Inflatable Sensing Modules for Safe and Interactive Robots*, N/A.

Kim, Taekyoung Seoul National University

Yoon, Sohee John Seoul National University

Park, Yong-Lae Seoul National University

11:42-11:45 ThBTS5.5

*A Partially Filled Jamming Gripper for Underwater Recovery of Objects Resting on Soft Surfaces*, pp. 6461-6468.

Licht, Stephen University of Rhode Island

Rizzo, Domenico University of Rhode Island

Badlissi, George University of Rhode Island

Collins, Everett University of Rhode Island

11:45-11:48 ThBTS5.6

*CLASH Compliant Low Cost Antagonistic Servo Hand*, pp. 6469-6476.

Friedl, Werner German AerospaceCenter (DLR)

Hoepfner, Hannes DLR - German Aerospace Center

Schmidt, Florian German Aerospace Center

Roa, Maximo A. DLR - German Aerospace Center

Grebenstein, Markus German Aerospace Center (DLR)

11:48-11:51 ThBTS5.7

*FBG-Based Control of a Continuum Manipulator Interacting with Obstacles*, pp. 6477-6483.

Sefati, Shahriar Johns Hopkins University

Murphy, Ryan Joseph Johns Hopkins University Applied Physics Laboratory

Alambeigi, Farshid Johns Hopkins University

Pozin, Michael Johns Hopkins University

lordachita, Ioan Iulian Johns Hopkins University

Taylor, Russell H. The Johns Hopkins University

Armand, Mehran Johns Hopkins University Applied Physics Laboratory

11:51-11:54 ThBTS5.8

*Modeling and Trajectory Tracking Control of a New Parallel Flexible Link Robot*, pp. 6484-6489.

Morlock, Merlin Hamburg University of Technology

Meyer, Niklas Hamburg University of Technology

Pick, Marc-André Hamburg University of Technology

Seifried, Robert Hamburg University of Technology

**ThBTS6** Room 1.L3

**Sampling-Based Motion Planning** (Regular session)

Co-Chair: Brunete, Alberto Universidad Politecnica De Madrid

11:30-11:33 ThBTS6.1

*Deep Sequential Models for Sampling-Based Planning*, pp. 6490-6497.

Kuo, Yen-Ling MIT

Barbu, Andrei MIT

Katz, Boris MIT

11:33-11:36 ThBTS6.2

*A Topology-Based Path Similarity Metric and Its Application to Sampling-Based Motion Planning*, pp. 6498-6505.

Denny, Jory University of Richmond

Chen, Kaiwen University of Richmond

Zhou, Hanglin University of Richmond

11:36-11:39 ThBTS6.3

*RG-Trees: Trajectory-Free Feedback Motion Planning Using Sparse Random Reference Governor Trees*, pp. 6506-6511.

Golbol, Ferhat Middle East Technical University

Ankarali, Mustafa Mert Middle East Technical University

Saranli, Afsar Middle East Technical University

11:39-11:42 ThBTS6.4

*Real-Time Motion Planning in Changing Environments Using Topology-Based Encoding of past Knowledge*, pp. 6512-6517.

Fisher, Richard University of the Witwatersrand

Rosman, Benjamin CSIR

Ivan, Vladimir University of Edinburgh

11:42-11:45 ThBTS6.5

*Distributionally Robust Sampling-Based Motion Planning under Uncertainty*, pp. 6518-6523.

Summers, Tyler University of Texas at Dallas

11:45-11:48 ThBTS6.6

*Hierarchical Path Planner Using Workspace Decomposition and Parallel Task-Space RRTs*, pp. 6524-6531.

Mesanan, George German Aerospace Center (DLR)

Roa, Maximo A. DLR - German Aerospace Center

Icer, Esra Technische Universität München

Althoff, Matthias Technische Universität München

11:48-11:51 ThBTS6.7

*Kinodynamic Comfort Trajectory Planning for Car-Like Robots*, pp. 6532-6539.

Shin, Heechan KAIST

Kim, Donghyuk KAIST

Yoon, Sung-eui KAIST

11:51-11:54 ThBTS6.8

*Expert-Guided Kinodynamic RRT Path Planner for Non-Holonomic Robots*, pp. 6540-6545.

Sanz, Jose Maria GMV

Hernando, Miguel UPM

Zaragoza, Guillermo Universidad Politécnica De Madrid

Brunete, Alberto Universidad Politecnica De Madrid

**ThBTS7** Room 2.L3

**Learning from Demonstration II** (Regular session)

Chair: Calinon, Sylvain Idiap Research Institute

Co-Chair: Victores, Juan G. Universidad Carlos III De Madrid

11:30-11:33 ThBTS7.1

*Robot Imitation through Vision, Kinesthetic and Force Features with Online Adaptation to Changing Environments*, pp. 6546-6551.

Fernandez-Fernandez, Raul Universidad Carlos III De Madrid

Victores, Juan G. Universidad Carlos III De Madrid

Estevez, David Universidad Carlos III De Madrid

Balaguer, Carlos Universidad Carlos III De Madrid

11:33-11:36 ThBTS7.2

*Probabilistic Learning of Torque Controllers from Kinematic and Force Constraints*, pp. 6552-6559.

Silvério, João Istituto Italiano Di Tecnologia

Huang, Yanlong Istituto Italiano Di Tecnologia

Rozo, Leonel Istituto Italiano Di Tecnologia

Calinon, Sylvain Idiap Research Institute

Caldwell, Darwin G. Istituto Italiano Di Tecnologia

11:36-11:39 ThBTS7.3

*Learning Coordinated Vehicle Maneuver Motion Primitives from Human Demonstration*, pp. 6560-6565.

Mbanisi, Kenechukwu Worcester Polytechnic Institute (WPI)

Kimpara, Hideyuki Toyota Motor North America

Meier, Tess B. Worcester Polytechnic Institute

Gennert, Michael Worcester Polytechnic Institute

Li, Zhi WPI

11:39-11:42 ThBTS7.4

*Simultaneous End-User Programming of Goals and Actions for Robotic Shelf Organization*, pp. 6566-6573.

Liang, Ying Siu Université Grenoble Alpes

Pellier, Damien Laboratoire d'Informatique De

Grenoble - CNRS

Fiorino, Humbert University Grenoble Alpes - Laboratoire d'Informatique De Grenob

Pesty, Sylvie University of Grenoble-Alps

Cakmak, Maya University of Washington

11:42-11:45 ThBTS7.5

*Incremental Skill Learning of Stable Dynamical Systems*, pp. 6574-6581.

Saveriano, Matteo German Aerospace Center (DLR)

Lee, Dongheui Technical University of Munich

11:45-11:48 ThBTS7.6

*Deeply Informed Neural Sampling for Robot Motion Planning*, pp. 6582-6588.

Qureshi, Ahmed University of California, San Diego

Yip, Michael C. University of California, San Diego

11:48-11:51 ThBTS7.7

*Inverse Learning of Robot Behavior for Collaborative Planning*, pp. 6589-6594.

Trivedi, Maulesh University of Georgia

Doshi, Prashant University of Georgia

11:51-11:54 ThBTS7.8

*Multi-Cable Rolling Locomotion with Spherical Tensegrities Using Model Predictive Control and Deep Learning*, pp. 6595-6600.

Cera, Angelo Brian UC Berkeley

Agogino, Alice University of California Berkeley

**ThBTS8** Room 2.R1

**Manipulation** (Regular session)

Chair: Contreras-Toledo, Luis Angel University of Bristol

Co-Chair: Howard, Matthew King's College London

11:30-11:33 ThBTS8.1

*Integrating Path Planning and Pivoting*, pp. 6601-6608.

Cruciani, Silvia KTH Royal Institute of Technology

Smith, Claes Christian KTH Royal Institute of Technology

11:33-11:36 ThBTS8.2

*Rubik's Cube Handling Using a High-Speed Multi-Fingered Hand and a High-Speed Vision System*, pp. 6609-6614.

Higo, Ryosuke The University of Tokyo

Yamakawa, Yuji The University of Tokyo

Senoo, Taku University of Tokyo

Ishikawa, Masatoshi University of Tokyo

11:36-11:39 ThBTS8.3

*Contingent Contact-Based Motion Planning*, pp. 6615-6621.

Pall, Elod Technical University of Cluj Napoca

Sieverling, Arne Technische Universität Berlin

Brock, Oliver Technische Universität Berlin

11:39-11:42 ThBTS8.4

*A Lightweight Redundant Manipulator with High Stable Wireless Communication and Compliance Control*, pp. 6622-6627.

Han, Liang Harbin Institute of Technology Shenzhen Graduate School

Yan, Lei Harbin Institute of Technology Shenzhen Graduate School

Xu, Wenfu	Harbin Institute of Technology
11:42-11:45	ThBTS8.5
<i>A Cable-Driven Redundant Spatial Manipulator with Improved Stiffness and Load Capacity</i> , pp. 6628-6633.	
Liu, Tianliang	Harbin Institute of Technology
Mu, Zonggao	Harbin Institute of Technology
Wang, Haomiao	Harbin Institute of Technology Shenzhen Graduate School
Xu, Wenfu	Harbin Institute of Technology
Li, Yangmin	The Hong Kong Polytechnic University
11:45-11:48	ThBTS8.6
<i>Nonprehensile Pushing Manipulation Strategies for a Multi-Limb Robot</i> , pp. 6634-6639.	
Zhang, Guoteng	Ritsumeikan University
Ma, Shugen	Ritsumeikan University
Li, Yibin	Shandong University
11:48-11:51	ThBTS8.7
<i>Assisted Telemanipulation: A Stack-Of-Tasks Approach to Remote Manipulator Control</i> , pp. 6640-6645.	
Stoyanov, Todor	Örebro University
Krug, Robert	KTH Royal Institute of Technology
Kiselev, Andrey	Örebro University
Sun, Da	University of Wollongong
Loutfi, Amy	Örebro University
11:51-11:54	ThBTS8.8
<i>Adaptive Admittance Control in Task-Priority Framework for Contact Force Control in Autonomous Underwater Floating Manipulation</i> , pp. 6646-6651.	
Cieslak, Patryk	Universitat De Girona
Ridao, Pere	University of Girona

**ThBTS9** Room 4.L1  
**Perception for Grasping and Manipulation I** (Regular session)

Chair: Dogramadzi, Sanja	University of the West of England
Co-Chair: Duriez, Christian	INRIA

11:30-11:33 ThBTS9.1

*Optimizing Sensor Placement: A Mixture Model Framework Using Stable Poses and Sparsely Precomputed Pose Uncertainty Predictions*, pp. 6652-6659.

Iversen, Thorbjørn Mosekjær	The Maersk Mc-Kinney Moller Institute, University of Southern Denmark
Kraft, Dirk	University of Southern Denmark

11:33-11:36 ThBTS9.2

*Robust 6D Object Pose Estimation in Cluttered Scenes Using Semantic Segmentation and Pose Regression Networks*, pp. 6660-6666.

Periyasamy, Arul Selvam	University of Bonn
Schwarz, Max	University Bonn
Behnke, Sven	University of Bonn

11:36-11:39 ThBTS9.3

*Transferring Visuomotor Learning from Simulation to the Real World for Robotics Manipulation Tasks*, pp. 6667-6674.

Nguyen, Dong Hai Phuong	Istituto Italiano Di Tecnologia
Fischer, Tobias	Imperial College London
Chang, Hyung Jin	University of Birmingham
Pattacini, Ugo	Istituto Italiano Di Tecnologia
Metta, Giorgio	Istituto Italiano Di Tecnologia (IIT)

Demiris, Yiannis Imperial College London

11:39-11:42 ThBTS9.4

*Proprioception-Based Grasping for Unknown Objects Using a Series-Elastic-Actuated Gripper*, pp. 6675-6681.

Chen, Tianjian	Columbia University
Ciocarlie, Matei	Columbia University

11:42-11:45 ThBTS9.5

*Efficient State Estimation with Constrained Rao-Blackwellized Particle Filter*, pp. 6682-6689.

Li, Shuai	RPI
Lyu, Siwei	SUNY Albany
Trinkle, Jeff	Rensselaer Polytechnic Institute

11:45-11:48 ThBTS9.6

*A Gripper for Object Search and Grasp through Proximity Sensing*, pp. 6690-6697.

Yamaguchi, Naoya	The University of Tokyo
Hasegawa, Shun	The University of Tokyo
Okada, Kei	The University of Tokyo
Inaba, Masayuki	The University of Tokyo

11:48-11:51 ThBTS9.7

*A Robust Data-Driven Approach for Online Learning and Manipulation of Unmodeled 3-D Heterogeneous Compliant Objects*, N/A.

Alambeigi, Farshid	Johns Hopkins University
Wang, Zerui	The Chinese University of Hong Kong

Hegeman, Rachel	Johns Hopkins University
Liu, Yunhui	Chinese University of Hong Kong

Armand, Mehran	Johns Hopkins University Applied Physics Laboratory
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**ThBTS10** Room 4.R1

**Special Session: Neurorobotics: Application From/to Brain Models To/from Robots** (Regular session)

Chair: Ijspeert, Auke	EPFL
Co-Chair: Nakamura, Yoshihiko	University of Tokyo

11:30-11:33 ThBTS10.1

*Exploring Vestibulo-Ocular Adaptation in a Closed-Loop Neuro-Robotic Experiment Using STDP: a Simulation Study (I)*, pp. 6706-6711.

Naveros, Francisco	University of Granada
Garrido, Jesús	University of Granada
Arleo, Angelo	University Pierre & Marie Curie Paris VI - CNRS
Ros, Eduardo	University of Granada
Luque, Niceto R.	University of Granada

11:33-11:36 ThBTS10.2

*Interspecies Retargeting of Homologous Body Posture Based on Skeletal Morphing (I)*, pp. 6712-6719.

Ayusawa, Ko	AIST
Ikegami, Yosuke	University of Tokyo
Murai, Akihiko	The National Institute of Advanced Industrial Science and Techno
Yoshiyasu, Yusuke	CNRS-AIST JRL
Yoshida, Eiichi	National Inst. of AIST
Oota, Satoshi	RIKEN
Nakamura, Yoshihiko	University of Tokyo

11:36-11:39 ThBTS10.3

*Neurobotic Approach to Study Huntington Disease Based on a Mouse Neuromusculoskeletal Model (I)*, pp. 6720-6727.

Oota, Satoshi	RIKEN
Okamura-Oho, Yuko	Jissen Women's University
Ayusawa, Ko	AIST
Ikegami, Yosuke	University of Tokyo
Murai, Akihiko	The National Institute of Advanced Industrial Science and Techno
Yoshida, Eiichi	National Inst. of AIST
Nakamura, Yoshihiko	University of Tokyo

**ThCTS1** Room 1.L5  
**Aerial Systems VI (Regular session)**

Chair: Detweiler, Carrick	University of Nebraska-Lincoln
Co-Chair: Bicego, Davide	LAAS-CNRS

12:30-12:33 ThCTS1.1

*Temporally Smooth Privacy-Protected Airborne Videos*, pp. 6728-6733.

Sarwar, Omair	Alpen-Adria-Universität Klagenfurt
Cavallaro, Andrea	Queen Mary University of London
Rinner, Bernhard	Klagenfurt University

12:33-12:36 ThCTS1.2

*Impedance Based Force Control for Aerial Robot Peg-In-Hole Insertion Tasks*, pp. 6734-6739.

Car, Marko	Faculty of Electrical Engineering and Computing
Ivanovic, Antun	University of Zagreb, Faculty of Electrical Engineering and Comp
Orsag, Matko	University of Zagreb
Bogdan, Stjepan	University of Zagreb

12:36-12:39 ThCTS1.3

*Flatness-Based Model Predictive Control for Quadrotor Trajectory Tracking*, pp. 6740-6745.

Greeff, Melissa	University of Toronto
Schoellig, Angela P.	University of Toronto

12:39-12:42 ThCTS1.4

*Lightweight and Compliant Long Reach Aerial Manipulator for Inspection Operations*, pp. 6746-6752.

Suarez, Alejandro	University of Seville
Sanchez-Cuevas, Pedro J	University of Seville
Manuel J, Fernandez	University of Seville
Pérez García, Manuel	University of Seville
Heredia, Guillermo	University of Seville
Ollero, Anibal	University of Seville

12:42-12:45 ThCTS1.5

*Model Predictive Trajectory Tracking and Collision Avoidance for Reliable Outdoor Deployment of Unmanned Aerial Vehicles*, pp. 6753-6760.

Baca, Tomas	Czech Technical Unverzity in Prague
Hert, Daniel	Czech Technical University in Prague
Loianno, Giuseppe	New York University
Kumar, Vijay	University of Pennsylvania
Saska, Martin	Czech Technical University in Prague

12:45-12:48 ThCTS1.6

*MGRAPH: A Multi-Graph Homography Method to Generate Incremental Mosaics in Real Time from UAV Swarms*, N/A

Ruiz, Juan Jesus	University Pablo De Olavide
Caballero, Fernando	Universidad Pablo De Olavide
Merino, Luis	Universidad Pablo De Olavide

12:48-12:51 ThCTS1.7

*Distributed Pressure Sensing for Enabling Self-Aware Autonomous Aerial Vehicles*, pp. 6769-6775.

Cellucci, Daniel	Cornell University
Cramer, Nicholas	Stinger Ghaffarian Technologies, Inc
Swei, Sean	NASA Ames Research Center

12:51-12:54 ThCTS1.8

*Light-Weight Object Detection and Decision Making Via Approximate Computing in Resource-Constrained Mobile Robots*, pp. 6776-6781.

Pandey, Parul	Rutgers University
He, Qifan	Boston University
Pompili, Dario	Rutgers University
Tron, Roberto	Boston University

**ThCTS2** Room 2.L5 KUKA  
**Sensorial Perception VI (Regular session)**

Chair: Meng, Max Q.-H.	The Chinese University of Hong Kong
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Co-Chair: Zanchettin, Andrea	Politecnico Di Milano
Maria	

12:30-12:33 ThCTS2.1

*SOS: Stereo Matching in  $O(1)$  with Slanted Support Windows*, pp. 6782-6789.

Tankovich, Vladimir	Google
Schoenberg, Michael	Google
Fanello, Sean Ryan	Google
Kowdle, Adarsh	Google
Rhemann, Christoph	Microsoft
Schmidt, Mirko	Google
Dzitsiuk, Max	Google
Valentin, Julien	Perceptive IO
Izadi, Shahram	Microsoft

12:33-12:36 ThCTS2.2

*The RobotiX: An Extremely Photorealistic and Very-Large-Scale Indoor Dataset of Sequences with Robot Trajectories and Interactions*, pp. 6790-6797.

Garcia-Garcia, Alberto	3D Perception Lab, University of Alicante
Martinez-Gonzalez, Pablo	3D Perception Lab, University of Alicante
Oprea, Sergiu	3D Perception Lab, University of Alicante
Castro-Vargas, John	3D Perception Lab, University of Alicante
Orts-Escolano, Sergio	University of Alicante
Garcia Rodriguez, Jose	Universidad De Alicante
Jover Álvarez, Álvaro	University of Alicante

12:36-12:39 ThCTS2.3

*Real-Time Object Pose Estimation with Pose Interpreter Networks*, pp. 6798-6805.

Wu, Jimmy	Massachusetts Institute of Technology
Zhou, Bolei	MIT
Russell, Rebecca	Draper
Kee, Vincent	Massachusetts Institute of Technology



Wagner, Syler	Dexai Robotics
Hebert, Mitchell	University of Massachusetts Amherst
Torralba, Antonio	MIT
Johnson, David M.S.	Draper

12:39-12:42 ThCTS2.4

*Coping with Context Change in Open-Ended Object Recognition without Explicit Context Information*, pp. 6806-6812.

Mohades Kasaei, Seyed Hamidreza	Universidade De Aveiro
Seabra Lopes, Luís	Universidade De Aveiro
Tomé, Ana Maria	Universidade De Aveiro

12:42-12:45 ThCTS2.5

*Fast Cylinder and Plane Extraction from Depth Cameras for Visual Odometry*, pp. 6813-6820.

Proença, Pedro F.	University of Surrey
Gao, Yang	University of Surrey

12:45-12:48 ThCTS2.6

*Attention-Aware Cross-Modal Cross-Level Fusion Network for RGB-D Salient Object Detection*, pp. 6821-6826.

Chen, Hao	City University of Hong Kong
Li, You-Fu	City University of Hong Kong
Su, Dan	City University of Hong Kong

12:48-12:51 ThCTS2.7

*Exploiting Points and Lines in Regression Forests for RGB-D Camera Relocalization*, pp. 6827-6834.

Meng, Lili	University of British Columbia
Tung, Frederick	University of British Columbia
Little, James J.	UBC
Valentin, Julien	Perceptive IO
de Silva, Clarence	The University of British Columbia

12:51-12:54 ThCTS2.8

*Incremental Object Database: Building 3D Models from Multiple Partial Observations*, pp. 6835-6842.

Furrer, Fadri	ETH Zurich
Novkovic, Tonci	Autonomous Systems Lab, ETH Zurich
Fehr, Marius	ETH Zürich
Gawel, Abel Roman	Autonomous Systems Lab, ETH Zurich
Grinvald, Margarita	ETH Zurich
Sattler, Torsten	ETH Zurich
Siegwart, Roland	ETH Zurich
Nieto, Juan	ETH Zürich

**ThCTS3** Room 1.L2

**Vision-Based Navigation III** (Regular session)

Chair: Dayoub, Feras	Queensland University of Technology
Co-Chair: Huang, Guoquan	University of Delaware

12:30-12:33 ThCTS3.1

*Hybrid Bayesian Eigenobjects: Combining Linear Subspace and Deep Network Methods for 3D Robot Vision*, pp. 6843-6850.

Burchfiel, Benjamin	Duke University
Konidaris, George	Brown University

12:33-12:36 ThCTS3.2

*Submap-Based Pose-Graph Visual SLAM: A Robust Visual Exploration and Localization System*, pp. 6851-6856.

Chen, Weinan	Guangdong University of Technology
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Zhu, Lei	Guangdong University of Technology
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Guan, Yisheng	Guangdong University of Technology
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Kube, Ronald	University of Alberta
Zhang, Hong	University of Alberta

12:36-12:39 ThCTS3.3

*Active Object Perceiver: Recognition-Guided Policy Learning for Object Searching on Mobile Robots*, pp. 6857-6863.

Ye, Xin	Arizona State University
Lin, Zhe	Adobe Systems, Inc
Li, Haoxiang	Aibee
Zheng, Shibin	Arizona State University
Yang, Yezhou	Arizona State University

12:39-12:42 ThCTS3.4

*Learning Monocular Visual Odometry with Dense 3D Mapping from Dense 3D Flow*, pp. 6864-6871.

Zhao, Cheng	University of Birmingham
Sun, Li	University of Birmingham
Purkait, Pulak	Toshiba Research Europe Ltd
Duckett, Tom	University of Lincoln
Stolkin, Rustam	University of Birmingham

12:42-12:45 ThCTS3.5

*Key-Frame Strategy During Fast Image-Scale Changes and Zero Motion in VIO without Persistent Features*, pp. 6872-6879.

Allak, Eren	Alpen-Adria-Universität Klagenfurt
Hardt-Stremayr, Alexander	Alpen-Adria-Universität Klagenfurt
Weiss, Stephan	Alpen-Adria-Universität Klagenfurt

12:45-12:48 ThCTS3.6

*Unit Quaternion-Based Parameterization for Point Features in Visual Navigation*, pp. 6880-6886.

Maley, James	U.S. Army Research Lab
Huang, Guoquan	University of Delaware

12:48-12:51 ThCTS3.7

*Edge-Based Robust RGB-D Visual Odometry Using 2-D Edge Divergence Minimization*, pp. 6887-6894.

Kim, Changhyeon	Seoul National University
Kim, Pyojin	Seoul National University
Lee, Sangil	Seoul National Univ
Kim, H. Jin	Seoul National University

12:51-12:54 ThCTS3.8

*Event-Based Moving Object Detection and Tracking*, pp. 6895-6902.

Mitrokhin, Anton	University of Maryland, College Park
Fermuller, Cornelia	University of Maryland
Parameshwara, Chethan	University of Maryland, College Park
Aloimonos, Yiannis	University of Maryland

**ThCTS4** Room 2.L2

**Control III** (Regular session)

Chair: Surdilovic, Dragoljub	Fraunhofer IPK
Co-Chair: Huang, Yanlong	Istituto Italiano Di Tecnologia

12:30-12:33 ThCTS4.1

*A Family of Iterative Gauss-Newton Shooting Methods for Nonlinear Optimal Control*, pp. 6903-6910.

Gifftaler, Markus	Swiss Federal Institute of
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	Technology (ETH) Zurich, Switzerland
Neunert, Michael	Google
Stäubli, Markus	ETH Zürich
Buchli, Jonas	
Diehl, Moritz	Univ. of Heidelberg
12:33-12:36	ThCTS4.2
<i>Controller Synthesis for Discrete-Time Polynomial Systems Via Occupation Measures</i> , pp. 6911-6918.	
Han, Weiqiao	Massachusetts Institute of Technology
Tedrake, Russ	Massachusetts Institute of Technology
12:36-12:39	ThCTS4.3
<i>Minimax Iterative Dynamic Game: Application to Nonlinear Robot Control Tasks</i> , pp. 6919-6925.	
Ogunmolu, Olalekan	University of Texas at Dallas
Gans, Nicholas (Nick)	University Texas at Dallas
Summers, Tyler	University of Texas at Dallas
12:39-12:42	ThCTS4.4
<i>Weighted Hybrid Admittance-Impedance Control with Human Intention Based Stiffness Estimation for Human-Robot Interaction</i> , pp. 6926-6931.	
Kim, Hyomin	KwangWoon Univ
Kwon, Jaesung	Kwangwoon University
Oh, Yonghwan	Korea Institute of Science & Technology (KIST)
You, Bum Jae	KIST
Yang, Woosung	Kwangwoon University
12:42-12:45	ThCTS4.5
<i>Multimodal Environment Dynamics for Interactive Robots: Towards Fault Detection and Task Monitoring</i> , pp. 6932-6937.	
Haninger, Kevin	UC Berkeley
Surdilovic, Dragoljub	Fraunhofer IPK
12:45-12:48	ThCTS4.6
<i>Estimating an Articulated Tool's Kinematics Via Visuo-Tactile Based Robotic Interactive Manipulation</i> , pp. 6938-6944.	
Li, Qiang	Bielefeld University
Ückermann, Andre	Bielefeld University
Haschke, Robert	Bielefeld University
Ritter, Helge Joachim	Bielefeld University
12:48-12:51	ThCTS4.7
<i>Algorithmization of Constrained Motion for Car-Like Robots Using the VFO Control Strategy with Parallelized Planning of Admissible Funnels</i> , pp. 6945-6951.	
Gawron, Tomasz	Poznan University of Technology, Institute of Automation and Rob
Michalek, Maciej, Marcin	Poznan University of Technology (PUT)
12:51-12:54	ThCTS4.8
<i>ASPiC: An Acting System Based on Skill Petri Net Composition</i> , pp. 6952-6958.	
Lesire, Charles	ONERA
Pommereau, Franck	IBISC, University of Évry / Paris- Saclay

<b>ThCTS5</b>	Room 2.R3
<b>Soft Robotics III (Regular session)</b>	
Chair: Monje, Concepción A.	University Carlos III of Madrid
Co-Chair: Cacucciolo, Vito	École Polytechnique Fédérale De Lausanne

12:30-12:33	ThCTS5.1
<i>Static Kinematics for an Antagonistically Actuated Robot Based on a Beam-Mechanics-Based Model</i> , pp. 6959-6964.	
Stilli, Agostino	University College London
Kolokotronis, Efsthathios	University College London
Fras, Jan	Queen Mary University of London
Ataka, Ahmad	King's College London
Althoefer, Kaspar	Queen Mary University of London
Wurdemann, Helge Arne	University College London
12:33-12:36	ThCTS5.2
<i>A Novel Soft Elbow Exosuit to Supplement Bicep Lifting Capacity</i> , pp. 6965-6971.	
Thalman, Carly	Arizona State University
Lam, Quoc	Arizona State University
Pham, Huy Nguyen	Arizona State University
Sridar, Saivimal	Arizona State University
Polygerinos, Panagiotis	Arizona State University
12:36-12:39	ThCTS5.3
<i>Robotic Handling of Compliant Food Objects by Robust Learning from Demonstration</i> , pp. 6972-6979.	
Misimi, Ekrem	SINTEF Ocean
Olofsson, Alexander	SINTEF Fisheries and Aquaculture
Eilertsen, Aleksander	SINTEF Ocean
Øye, Elling Ruud	SINTEF Fisheries and Aquaculture
Mathiassen, John Reidar	SINTEF Ocean AS
12:39-12:42	ThCTS5.4
<i>Closed-Loop Temperature Control of Nylon Artificial Muscles</i> , pp. 6980-6985.	
Haines, Carter	The University of Texas at Dallas
Niemeyer, Günter	Disney Research
12:42-12:45	ThCTS5.5
<i>Acoustic Sensing for Soft Pneumatic Actuators</i> , pp. 6986-6991.	
Zöllner, Gabriel Donald	TU Berlin
Wall, Vincent	TU Berlin
Brock, Oliver	Technische Universität Berlin
12:45-12:48	ThCTS5.6
<i>Flexible Fabric Actuator Realizing 3D Movements Like Human Body Surface for Wearable Devices</i> , pp. 6992-6997.	
Funabara, Yuki	Nagoya University
12:48-12:51	ThCTS5.7
<i>Soft Biomimetic Prosthetic Hand: Design, Manufacturing and Preliminary Examination</i> , pp. 6998-7003.	
Fras, Jan	Queen Mary University of London
Althoefer, Kaspar	Queen Mary University of London
12:51-12:54	ThCTS5.8
<i>A Novel All-In-One Manufacturing Process for a Soft Sensor System and Its Application to a Soft Sensing Glove</i> , pp. 7004-7009.	
Kim, Suin	Ulsan National Institute of Science and Technology
Jeong, Dahee	UNIST
Oh, Jinhyeok	UNIST
Park, Wookeun	UNIST
Bae, Joonbum	UNIST

ThCTS6	Room 1.L3
<b>Motion and Path Planning I (Regular session)</b>	
Chair: Koganti, Nishanth	Nara Institute of Science and Technology
Co-Chair: Rocco, Paolo	Politecnico Di Milano
12:30-12:33	ThCTS6.1
<i>On-Line Robot-Object Synchronization with Geometric Constraints and Limits on Velocity, Acceleration and Jerk, N/A.</i>	
Kaserer, Dominik	Johannes Kepler University Linz (JKU)
Gattringer, Hubert	Johannes Kepler University Linz
Mueller, Andreas	Johannes Kepler University Linz
12:33-12:36	ThCTS6.2
<i>Integrating Temporal Reasoning and Sampling-Based Motion Planning for Multi-Goal Problems with Dynamics and Time Windows, N/A.</i>	
Edelkamp, Stefan	University of Bremen
Lahijanian, Morteza	University of Oxford
Magazzeni, Daniele	King's College London
Plaku, Erion	Catholic University of America
12:36-12:39	ThCTS6.3
<i>DCOP: Dubins Correlated Orienteering Problem Optimising Sensing Missions of a Non-Holonomic Vehicle under Budget Constraints, N/A.</i>	
Tsiogkas, Nikolaos	Heriot Watt University
Lane, David	Heriot-Watt University
12:39-12:42	ThCTS6.4
<i>On the Orientation Planning with Constrained Angular Velocity and Acceleration at Endpoints, pp. 7033-7038.</i>	
Shahbazi Aghbelagh, Mohammad	Istituto Italiano Di Tecnologia (IIT)
Kashiri, Navvab	Istituto Italiano Di Tecnologia
Caldwell, Darwin G.	Istituto Italiano Di Tecnologia
Tsagarakis, Nikos	Istituto Italiano Di Tecnologia
12:42-12:45	ThCTS6.5
<i>Approximate Inference-Based Motion Planning by Learning and Exploiting Low-Dimensional Latent Variable Models, N/A.</i>	
Ha, Jung-Su	KAIST
Chae, Hyeok-Joo	KAIST
Choi, Han-Lim	KAIST
12:45-12:48	ThCTS6.6
<i>Coverage Path Planning with Adaptive Viewpoint Sampling to Construct 3D Models of Complex Structures for the Purpose of Inspection, pp. 7047-7054.</i>	
Almadhoun, Randa	Khalifa University
Taha, Tarek	Khalifa University for Science, Technology and Research
Gan, Dongming	Khalifa University of Science AndTechnology
Dias, Jorge	University of Coimbra
Zweiri, Yahya	Kingston University
Seneviratne, Lakmal	L. D. Seneviratne Is with Kings College London, UK, and Robotics
12:48-12:51	ThCTS6.7
<i>Vision-Based Reactive Planning for Aggressive Target Tracking While Avoiding Collisions and Occlusions, N/A.</i>	
Penin, Bryan	Inria
Robuffo Giordano, Paolo	Centre National De La Recherche Scientifique (CNRS)
Chaumette, Francois	Inria Rennes-Bretagne Atlantique

12:51-12:54	ThCTS6.8
<i>Solving Markov Decision Processes with Reachability Characterization from Mean First Passage Times, pp. 7063-7070.</i>	
Debnath, Shoubhik	NVIDIA
Liu, Lantao	Indiana University
Sukhatme, Gaurav	University of Southern California
ThCTS7	Room 2.L3
<b>Bioinspired Robotics I (Regular session)</b>	
Chair: Choi, Hyouk Ryeol	Sungkyunkwan University
Co-Chair: Mashimo, Tomoaki	Toyohashi University of Technology
12:30-12:33	ThCTS7.1
<i>Hybrid Bio-Inspired Architecture for Walking Robots through Central Pattern Generators Using Open Source FPGAs, pp. 7071-7076.</i>	
Caro Linares, Julián	Universidad Politécnica De Madrid
Barrientos, Antonio	UPM
Mayas Márquez, Enric	Everis
12:33-12:36	ThCTS7.2
<i>Towards an Autonomous Robotic Dragonfly: At-Scale Lift Experiments Modeling Dragonfly Forewings, pp. 7077-7082.</i>	
Szabo, Peter Andras Kovacs	University of Toronto
D'Eleuterio, Gabriele M.T.	University of Toronto
12:36-12:39	ThCTS7.3
<i>Ultrasonic and Electrostatic Self-Cleaning Microstructured Adhesives for Robotic Grippers, pp. 7083-7088.</i>	
Alizadehyazdi, Vahid	Illinois Institute of Technology
McQueney, Elizabeth	Illinois Institute of Technology
Tanaka, Koki	Illinois Institute of Technology
Spenko, Matthew	Illinois Institute of Technology
12:39-12:42	ThCTS7.4
<i>Evolving a Sensory-Motor Interconnection for Dynamic Quadruped Robot Locomotion Behavior, pp. 7089-7095.</i>	
Saputra, Azhar Aulia	Tokyo Metropolitan University
Chin, Wei Hong	Tokyo Metropolitan University
Botzheim, Janos	Tokyo Metropolitan University
Kubota, Naoyuki	Tokyo Metropolitan University
12:42-12:45	ThCTS7.5
<i>Learning-Based Path Tracking Control of a Flapping-Wing Micro Air Vehicle, pp. 7096-7102.</i>	
Lee, Jonggu	Seoul National University
Ryu, Seungwan	Seoul National University
Kim, Taewan	Seoul National University
Kim, Wonchul	Seoul National University
Kim, H. Jin	Seoul National University
12:45-12:48	ThCTS7.6
<i>Improving the Parallel Execution of Behavior Trees, pp. 7103-7110.</i>	
Colledanchise, Michele	IIT - Italian Institute of Technology
Natale, Lorenzo	Istituto Italiano Di Tecnologia
12:48-12:51	ThCTS7.7
<i>Guess What I Attend: Interface-Free Object Selection Using Brain Signals, pp. 7111-7116.</i>	
Kolkhorst, Henrich	University of Freiburg
Tangermann, Michael	University of Freiburg
Burgard, Wolfram	University of Freiburg
12:51-12:54	ThCTS7.8

*Mobile Continuum Robot with Unlimited Extensible Sections*, pp. 7117-7122.

Kanada, Ayato Toyohashi University of Technology  
Mashimo, Tomoaki Toyohashi University of Technology

**ThCTS8** Room 2.R1  
**Dual Arm and Mobile Manipulation** (Regular session)

Chair: del Pobil, Angel P. Jaume-I University  
Co-Chair: Doulgeri, Zoe Aristotle University of Thessaloniki

12:30-12:33 ThCTS8.1

*Multi-Stage Learning of Selective Dual-Arm Grasping Based on Obtaining and Pruning Grasping Points through the Robot Experience in the Real World*, pp. 7123-7130.

Kitagawa, Shingo University of Tokyo  
Wada, Kentaro The University of Tokyo  
Hasegawa, Shun The University of Tokyo  
Okada, Kei The University of Tokyo  
Inaba, Masayuki The University of Tokyo

12:33-12:36 ThCTS8.2

*Bimanual Assembly of Two Parts with Relative Motion Generation and Task Related Optimization*, pp. 7131-7136.

Stavridis, Sotiris Aristotle University of Thessaloniki  
Doulgeri, Zoe Aristotle University of Thessaloniki

12:36-12:39 ThCTS8.3

*Dual-Arm Coordinated Motion Planning and Compliance Control for Capturing Moving Objects with Large Momentum*, pp. 7137-7144.

Yan, Lei Harbin Institute of Technology Shenzhen Graduate School  
Yang, Yiming University of Edinburgh  
Xu, Wenfu Harbin Institute of Technology  
Vijayakumar, Sethu University of Edinburgh

12:39-12:42 ThCTS8.4

*A Model Predictive Control Approach for Vision-Based Object Grasping Via Mobile Manipulator*, pp. 7145-7150.

Logothetis, Michalis National Technical University of Athens, School of Mechanical En  
Karras, George National Technical University of Athens  
Heshmati-alamdari, Shahab NTUA  
Vlantis, Panagiotis National Technical University of Athens  
Kyriakopoulos, Kostas National Technical Univ. of Athens

12:42-12:45 ThCTS8.5

*A Bayesian Framework for Simultaneous Robot Localization and Target Detection and Engagement*, pp. 7151-7157.

Furukawa, Tomonari Virginia Polytechnic Institute and State University  
Dissanayake, Gamini University of Technology Sydney  
Attia, Tamer Virginia Tech  
Hodges, Jonathan Virginia Tech

12:45-12:48 ThCTS8.6

*Coupling Mobile Base and End-Effector Motion in Task Space*, pp. 7158-7163.

Welschehold, Tim Albert-Ludwigs-Universität Freiburg  
Dornhege, Christian University of Freiburg

Paus, Fabian Karlsruhe Institute of Technology (KIT)

Asfour, Tamim Karlsruhe Institute of Technology (KIT)

Burgard, Wolfram University of Freiburg

12:48-12:51 ThCTS8.7

*Motion Planning for an Underwater Mobile Manipulator by Exploiting Loose Coupling*, pp. 7164-7171.

Youakim, Dina University of Girona  
Dornbush, Andrew Carnegie Mellon University  
Likhachev, Maxim Carnegie Mellon University  
Ridao, Pere Universitat De Girona

12:51-12:54 ThCTS8.8

*Dynamic Model Learning and Manipulation Planning for Objects in Hospitals Using a Patient Assistant Mobile (PAM) Robot*, pp. 7172-7178.

Sabbagh Novin, Roya University of Utah  
Yazdani, Amir University of Utah  
Hermans, Tucker University of Utah  
Merryweather, Andrew University of Utah

**ThCTS9** Room 4.L1  
**Perception for Grasping and Manipulation II** (Regular session)

Co-Chair: From, Pål Johan Norwegian University of Life Sciences

12:30-12:33 ThCTS9.1

*Capacitive Proximity Sensor Skin for Contactless Material Detection*, pp. 7179-7184.

Ding, Yitao Chemnitz University of Technology  
Zhang, Hongyin Chemnitz University of Technology  
Thomas, Ulrike Technical University of Chemnitz

12:33-12:36 ThCTS9.2

*Teaching a Robot to Grasp Real Fish by Imitation Learning from a Human Supervisor in Virtual Reality*, pp. 7185-7192.

Dyrstad, Jonatan Sjølund SINTEF  
Øye, Elling Ruud SINTEF Fisheries and Aquaculture  
Stahl, Annette Norwegian University of Science and Technology (NTNU)  
Mathiassen, John Reidar SINTEF Ocean AS

12:36-12:39 ThCTS9.3

*Seeing behind the Scene: Using Symmetry to Reason about Objects in Cluttered Environments*, pp. 7193-7200.

Ecins, Aleksandrs University of Maryland College Park  
Fermuller, Cornelia University of Maryland  
Aloimonos, Yiannis University of Maryland

12:39-12:42 ThCTS9.4

*Efficient Pose Estimation from Single RGB-D Image Via Hough Forest with Auto-Context*, pp. 7201-7206.

Dong, Huixu Nanyang Technological University  
Prasad, Dilip Nanyang Technological University  
Yuan, Qilong Foshan University  
Zhou, Jiadong Nanyang Technological University  
Asadi, Ehsan Nanyang Technological University  
Chen, I-Ming Nanyang Technological University

12:42-12:45	ThCTS9.5
<i>Plenoptic Monte Carlo Object Localization for Robot Grasping under Layered Translucency</i> , pp. 7207-7214.	
Zhou, Zheming	University of Michigan
Sui, Zhiqiang	University of Michigan
Jenkins, Odest Chadwicke	University of Michigan

12:45-12:48	ThCTS9.6
<i>Pose Estimation for Objects with Rotational Symmetry</i> , pp. 7215-7222.	
Corona, Enric	University of Toronto
Kundu, Kaustav	University of Toronto
Fidler, Sanja	University of Toronto

12:48-12:51	ThCTS9.7
<i>Fully Convolutional Grasp Detection Network with Oriented Anchor Box</i> , pp. 7223-7230.	
Zhou, Xinwen	Xi'an Jiaotong University
Lan, Xuguang	Xi'an Jiaotong University
Zhang, Hanbo	Xi'an Jiaotong University
Tian, Zhiqiang	Xi'an Jiaotong University
Zhang, Yang	Xi'an Jiaotong University
Zheng, Nanning	Xi'an Jiaotong University

<b>ThCTS10</b>	Room 4.R1
<b>Special Session: Research Reproducibility and Benchmarking of Intelligent Robots</b> (Regular session)	
Chair: Matteucci, Matteo	Politecnico Di Milano
Co-Chair: Lima, Pedro U.	Instituto Superior Técnico - Institute for Systems and Robotics

12:30-12:33	ThCTS10.1
<i>A Probabilistic Approach to Benchmarking and Performance Evaluation of Robot Systems (I)</i> , pp. 7231-7236.	
Lima, Pedro U.	Instituto Superior Técnico - Institute for Systems and Robotics

12:33-12:36	ThCTS10.2
<i>Improving Repeatability of Experiments by Automatic Evaluation of SLAM Algorithms (I)</i> , pp. 7237-7243.	
Amigoni, Francesco	Politecnico Di Milano
Castelli, Valerio	Politecnico Di Milano
Luperto, Matteo	Università Degli Studi Di Milano

12:36-12:39	ThCTS10.3
<i>A Tutorial on Quantitative Trajectory Evaluation for Visual(-Inertial) Odometry (I)</i> , pp. 7244-7251.	
Zhang, Zichao	Robotics and Perception Group, University of Zurich
Scaramuzza, Davide	University of Zurich

<b>ThDTS1</b>	Room 1.L5
<b>Aerial Systems VII</b> (Regular session)	
Chair: Chli, Margarita	ETH Zurich
Co-Chair: de la Puente, Paloma	Universidad Politécnica De Madrid

15:30-15:33	ThDTS1.1
<i>Long-Duration Autonomy for Small Rotorcraft UAS Including Recharging</i> , pp. 7252-7258.	
Brommer, Christian	Alpen Adria University
Malyuta, Danylo	University of Washington
Hentzen, Daniel Robert	Nasa Jet Propulsion Laboratory
Brockers, Roland	California Institute of Technology

15:33-15:36	ThDTS1.2
<i>PaintCopter: An Autonomous UAV for Spray Painting on 3D Surfaces</i> , N/A.	

Vempati, Anurag Sai	ETH Zurich, Disney Research Zurich
Kamel, Mina	Autonomous Systems Lab, ETH Zurich
Stilinovic, Nikola	Disney Research Zurich
Zhang, Qixuan	ETH Zurich
Reusser, Dorothea	Disney Research Zurich
Sa, Inkyu	ETH Zurich
Nieto, Juan	ETH Zürich
Sieglwart, Roland	ETH Zurich
Beardsley, Paul	Disney Research Zurich

15:36-15:39	ThDTS1.3
<i>Energy-Aware Spiral Coverage Path Planning for UAV Photogrammetric Applications</i> , N/A.	
Milech Cabreira, Tauã	Federal University of Pelotas
Di Franco, Carmelo	Scuola Superiore S. Anna
Ferreira Junior, Paulo Roberto	Federal University of Pelotas
Buttazzo, Giorgio C.	Scuola Superiore Sant'Anna

15:39-15:42	ThDTS1.4
<i>Computing the Forward Reachable Set for a Multirotor under First-Order Aerodynamic Effects</i> , N/A.	
Kim, Suseong	University of Zurich
Falanga, Davide	University of Zurich
Scaramuzza, Davide	University of Zurich

15:42-15:45	ThDTS1.5
<i>GapFlyt: Active Vision Based Minimalist Structure-Less Gap Detection for Quadrotor Flight</i> , N/A.	
J Sanket, Nitin	University of Maryland, College Park
Singh, Chahat	University of Maryland, College Park
Ganguly, Kanishka	University of Maryland, College Park
Fermuller, Cornelia	University of Maryland
Aloimonos, Yiannis	University of Maryland

15:45-15:48	ThDTS1.6
<i>VI-RPE: Visual-Inertial Relative Pose Estimation for Aerial Vehicles</i> , N/A.	
Teixeira, Lucas	ETH Zurich
Maffra, Fabiola	ETH Zurich
Moos, Marco	ETH Zurich
Chli, Margarita	ETH Zurich

15:48-15:51	ThDTS1.7
<i>Fast Autonomous Flight in Warehouses for Inventory Applications</i> , N/A.	
Beul, Marius	University of Bonn
Droeschel, David	University of Bonn
Nieuwenhuisen, Matthias	University of Bonn
Quenzel, Jan	University of Bonn
Houben, Sebastian	University of Bochum
Behnke, Sven	University of Bonn

15:51-15:54	ThDTS1.8
<i>Spatio-Temporally Smooth Local Mapping and State Estimation Inside Generalized Cylinders with Micro Aerial Vehicles</i> , N/A.	
Ozaslan, Tolga	University of Pennsylvania
Loianno, Giuseppe	University of Pennsylvania
Keller, James	Univ. of Pennsylvania

Taylor, Camillo Jose                      University of Pennsylvania  
Kumar, Vijay                                      University of Pennsylvania

Ballesteros, Joaquin                              University of Malaga  
Peula Palacios, Jose Manuel                      University of Málaga  
Antonio B., Martinez                              Technical University of Cataluña  
Urdiales, Cristina                                      Universidad De Málaga

**ThDTS2**    Room 2.L5 KUKA  
**Sensorial Perception VII** (Regular session)

Chair: Watanabe, Keisuke                      Japan Aerospace Exploration Agency  
Co-Chair: Brunete, Alberto                      Universidad Politecnica De Madrid

15:30-15:33                                      ThDTS2.1

*Real-Time Feature Depth Estimation for Image-Based Visual Servoing*, pp. 7314-7320.

Li, Xiangfei                                      Huazhong University of Science and Technology  
Zhao, Huan                                      Huazhong University of Science and Technology  
Ding, Han                                      Huazhong University of Science and Technology

15:33-15:36                                      ThDTS2.2

*Coordinated Nodding of a 2D Lidar for Dense 3D Range Measurements*, N/A.

Harchowdhury, Anindya                      Indian Institute of Technology Bombay  
Kleeman, Lindsay                              Monash University  
Vachhani, Leena                              Indian Institute of Technology Bombay

15:36-15:39                                      ThDTS2.3

*Fast Convergence for Object Detection by Learning How to Combine Error Functions*, pp. 7329-7335.

Schnieders, Benjamin                      University of Liverpool  
Tuyls, Karl                                      University of Liverpool

15:39-15:42                                      ThDTS2.4

*Towards Real-Time Physical Human-Robot Interaction Using Skeleton Information and Hand Gestures*, pp. 7336-7341.

Mazhar, Osama                              LIRMM - Universite De Montpellier CNRS  
Ramdani, Sofiane                              University Montpellier - UFR STAPS  
Navarro, Benjamin                              University of Orléans  
Passama, Robin                              LIRMM (CNRS, Université Montpellier 2)  
Cherubini, Andrea                              LIRMM - Universite De Montpellier CNRS

15:42-15:45                                      ThDTS2.5

*LiDAR and Camera Calibration Using Motions Estimated by Sensor Fusion Odometry*, pp. 7342-7349.

Ishikawa, Ryoichi                              The University of Tokyo  
Oishi, Takeshi                                      The University of Tokyo  
Ikeuchi, Katsushi                              Microsoft

15:45-15:48                                      ThDTS2.6

*Edge and Corner Detection for Unorganized 3D Point Clouds with Application to Robotic Welding*, pp. 7350-7355.

Ahmed, Syeda Mariam                      National University of Singapore  
Tan, Yan Zhi                                      National University of Singapore  
Chew, Chee Meng                              National University of Singapore  
Mamun, Abdullah Al                              National University of Singapore  
Wong, Fook Seng                              Keppel Offshore & Marine Technology Center

15:48-15:51                                      ThDTS2.7

*Automatic Fall Risk Assessment for Challenged Users Obtained from a Rollator Equipped with Force Sensors and a RGB-D Camera*, pp. 7356-7361.

15:51-15:54                                      ThDTS2.8

*ARIADNE with Ambiguity Resolution: Visual Marker Based Rapid Initialization of PPP-AR*, pp. 7362-7368.

Watanabe, Keisuke                              Japan Aerospace Exploration Agency

**ThDTS3**    Room 1.L2  
**Navigation Planning** (Regular session)

Chair: Myung, Hyun                              KAIST (Korea Adv. Inst. Sci. & Tech.)  
Co-Chair: Kim, Ayoung                              Korea Advanced Institute of Science Technology

15:30-15:33                                      ThDTS3.1

*Fast Trajectory Planning for Automated Vehicles Using Gradient-Based Nonlinear Model Predictive Control*, pp. 7369-7374.

Gritschneider, Franz                              Ulm University  
Graichen, Knut                                      Ulm University  
Dietmayer, Klaus                              University of Ulm

15:33-15:36                                      ThDTS3.2

*Humanoid Navigation Planning in Large Unstructured Environments Using Traversability-Based Segmentation*, pp. 7375-7382.

Lin, Yu-Chi                                      University of Michigan  
Berenson, Dmitry                              University of Michigan

15:36-15:39                                      ThDTS3.3

*Guaranteed Coverage with a Blind Unreliable Robot*, pp. 7383-7390.

Lewis, Jeremy                                      University of South Carolina  
Feshbach, Daniel A.                              Haverford College  
O'Kane, Jason                                      University of South Carolina

15:39-15:42                                      ThDTS3.4

*Single Leg Dynamic Motion Planning with Mixed-Integer Convex Optimization*, pp. 7391-7396.

Ding, Yanran                                      University of Illinois at Urbana-Champaign  
Li, Chuangzheng                              University of Illinois, Urbana-Champaign  
Park, Hae-Won                              University of Illinois at Urbana-Champaign

15:42-15:45                                      ThDTS3.5

*Multi-Layer Coverage Path Planner for Autonomous Structural Inspection of High-Rise Structures*, pp. 7397-7402.

Jung, Sungwook                              KAIST(Korea Advanced Institute of Science and Technology)  
Song, Seungwon                              KAIST  
Youn, Pil Lip                                      KAIST  
Myung, Hyun                                      KAIST (Korea Adv. Inst. Sci. & Tech.)

15:45-15:48                                      ThDTS3.6

*Down the CLIFF: Flow-Aware Trajectory Planning under Motion Pattern Uncertainty*, pp. 7403-7409.

Swaminathan, Chittaranjan                      Örebro University  
Srinivas                                      Örebro University  
Kucner, Tomasz Piotr                              Örebro Universitet  
Magnusson, Martin                              Örebro University  
Palmieri, Luigi                                      Robert Bosch GmbH  
Lilienthal, Achim J.                              Örebro University

15:48-15:51	ThDTS3.7
<i>Efficient and Asymptotically Optimal Kinodynamic Motion Planning Via Dominance-Informed Regions</i> , pp. 7410-7415.	
Littlefield, Zakary	Rutgers University
Bekris, Kostas E.	Rutgers, the State University of New Jersey

15:51-15:54	ThDTS3.8
<i>PORCA: Modeling and Planning for Autonomous Driving among Many Pedestrians</i> , N/A.	
Luo, Yuanfu	School of Computing, National University of Singapore
Cai, Panpan	Nanyang Technological University
Bera, Aniket	University of North Carolina at Chapel Hill
Hsu, David	National University of Singapore
Lee, Wee Sun	National University of Singapore
Manocha, Dinesh	University of North Carolina at Chapel Hill

<b>ThDTS4</b>	Room 2.L2
<b>Control IV (Regular session)</b>	
Chair: Martinet, Philippe	INRIA
Co-Chair: Hernández García, Daniel	University of Plymouth

15:30-15:33	ThDTS4.1
<i>High-Speed and Intelligent Pre-Grasp Motion by a Robotic Hand Equipped with Hierarchical Proximity Sensors</i> , pp. 7424-7431.	
Hirai, Yuji	Kanazawa University
Suzuki, Yosuke	Kanazawa University
Tsuji, Tokuo	Kanazawa University
Watanabe, Tetsuyou	Kanazawa University

15:33-15:36	ThDTS4.2
<i>Singularity Resolution in Equality and Inequality Constrained Hierarchical Task-Space Control by Adaptive Non-Linear Least-Squares</i> , N/A.	
Pfeiffer, Kai	CNRS-AIST JRL (Joint Robotic Laboratory) UMI3218/RL, Tsukuba, Ja
Escande, Adrien	Cnrs-Aist Jrl Umi3218/rl
Kheddar, Abderrahmane	CNRS-AIST JRL (Joint Robotics Laboratory), UMI3218/CRT

15:36-15:39	ThDTS4.3
<i>Dynamic Locomotion in the MIT Cheetah 3 through Convex Model-Predictive Control</i> , pp. 7440-7447.	
Di Carlo, Jared	Massachusetts Institute of Technology
Wensing, Patrick M.	University of Notre Dame
Katz, Benjamin	Massachusetts Institute of Technology
Bledt, Gerardo	Massachusetts Institute of Technology (MIT)
Kim, Sangbae	Massachusetts Institute of Technology

15:39-15:42	ThDTS4.4
<i>Towards an Adaptive-Compliance Aerial Manipulator for Contact-Based Interaction</i> , pp. 7448-7453.	
Hamaza, Salua	Bristol Robotics Laboratory; University of Bristol; University O
Georgilas, Ioannis	University of Bath
Richardson, Thomas	University of Bristol

15:42-15:45	ThDTS4.5
<i>Optimal Input Waveform for an Indirectly Controlled Limit Cycle</i>	

<i>Walker</i> , pp. 7454-7459.	
Li, Longchuan	Japan Advanced Institute of Science and Technology
Tokuda, Isao	Ritsumeikan University
Asano, Fumihiko	Japan Advanced Institute of Science and Technology

15:45-15:48	ThDTS4.6
<i>A Comparative Study on Sigma Point Kalman Filters for Trajectory Estimation of Hybrid Aerial-Aquatic Vehicles</i> , pp. 7460-7465.	
da Rosa, Rômulo Thiago Silva	Federal University of Rio Grande
Evald, Paulo Jefferson Dias de Oliveira	Federal University of Rio Grande
Drews-Jr, Paulo	Federal University of Rio Grande (FURG)
Alves Neto, Armando	Universidade Federal De Minas Gerais
Horn, Alexandre de Campos	Federal University of Rio Grande
Azzolin, Rodrigo Zelig	Federal University of Rio Grande
Botelho, Silvia	University Federal of Rio Grande (FURG)

15:48-15:51	ThDTS4.7
<i>Constrained Motion Cueing for Driving Simulators Using a Real-Time Nonlinear MPC Scheme</i> , pp. 7466-7471.	
Lamprecht, Alexander	Ulm University
Haecker, Jens	Daimler AG
Graichen, Knut	Ulm University

15:51-15:54	ThDTS4.8
<i>Robust Humanoid Control Using a QP Solver with Integral Gains</i> , pp. 7472-7479.	
Cisneros Limon, Rafael	National Institute of Advanced Industrial Science and Technology
Benallegue, Mehdi	AIST Japan
Benallegue, Abdelaziz	University of Versailles St Quentin En Yvelines
Morisawa, Mitsuharu	National Inst. of AIST
Audren, Hervé	CNRS-AIST-JRL
Gergondet, Pierre	CNRS
Escande, Adrien	Cnrs-Aist Jrl Umi3218/rl
Kheddar, Abderrahmane	CNRS-AIST JRL (Joint Robotics Laboratory), UMI3218/CRT
Kanehiro, Fumio	National Inst. of AIST

<b>ThDTS5</b>	Room 2.R3
<b>Soft Robotics IV (Regular session)</b>	
Chair: Khatib, Oussama	Stanford University
Co-Chair: Park, Yong-Lae	Seoul National University

15:30-15:33	ThDTS5.1
<i>Contact Localization and Force Estimation of Soft Tactile Sensors Using Artificial Intelligence</i> , pp. 7480-7485.	
Kim, DongWook	Seoul National University
Park, Yong-Lae	Seoul National University

15:33-15:36	ThDTS5.2
<i>A Biomimetic Soft Robot for Inspecting Pipeline with Significant Diameter Variation</i> , pp. 7486-7491.	
Zhang, Xue	CUHK
Pan, Tianle Flippy	The Chinese University of Hong Kong
Heung, Ho Lam	The Chinese University of Hong Kong
Chiu, WAI, YAN Philip	Chinese University of Hong Kong

Li, Zheng	The Chinese University of Hong Kong
15:36-15:39	ThDTS5.3
<i>Continuum Manipulator with Redundant Backbones and Constrained Bending Curvature for Continuously Variable Stiffness</i> , pp. 7492-7499.	
Zhao, Bin	Shanghai Jiao Tong University
Zhang, Weihao	Shanghai Jiao Tong University
Zhang, Zhaoyu	Shanghai Jiao Tong University
Zhu, Xiangyang	Shanghai Jiao Tong University
Xu, Kai	Shanghai Jiao Tong University
15:39-15:42	ThDTS5.4
<i>A Multi-Segment Electro-Active Polymer Based Milli-Continuum Soft Robots</i> , pp. 7500-7506.	
Benouhiba, Amine	FEMTO-ST Institute, Université Bourgogne Franche-Comté, CNRS
Rabenorosa, Kanty	Univ. Bourgogne Franche-Comté, CNRS
Rougeot, Patrick	Univ. of Bourgogne Franche-Comté, CNRS
Ouisse, Morvan	FEMTO-ST Institute
Andreff, Nicolas	Université De Franche Comté
15:42-15:45	ThDTS5.5
<i>A Compact Wheeled Robot That Can Jump While Rolling</i> , pp. 7507-7512.	
Misu, Kenji	University of Tsukuba
Yoshii, Akira	University of Tsukuba
Mochiyama, Hiromi	University of Tsukuba
15:45-15:48	ThDTS5.6
<i>Soft LEGO: Bottom-Up Design Platform for Soft Robotics</i> , pp. 7513-7520.	
Lee, Jun-Young	Seoul National University
Eom, Jaemin	Seoul National University Biorobotics Lab
Choi, Woo-Young	Seoul National University
Cho, Kyu-Jin	Seoul National University, Biorobotics Laboratory
15:48-15:51	ThDTS5.7
<i>Soft Snake Robots: Investigating the Effects of Gait Parameters on Locomotion in Complex Terrains</i> , pp. 7521-7526.	
Branyan, Callie	Oregon State University
Menguc, Yigit	Oregon State University
<b>ThDTS6</b>	Room 1.L3
<b>Motion and Path Planning II (Regular session)</b>	
Chair: Kurniawati, Hanna	University of Queensland
Co-Chair: Gambao, Ernesto	Universidad Politecnica De Madrid
15:30-15:33	ThDTS6.1
<i>Inverse Error Function Trajectories for Image Reconstruction</i> , pp. 7527-7532.	
Katoch, Rohan	Georgia Institute of Technology
Fusaro, Beatriz	Georgia Institute of Technology
Ueda, Jun	Georgia Institute of Technology
15:33-15:36	ThDTS6.2
<i>Faster Collision Checks for Car-Like Robot Motion Planning</i> , pp. 7533-7538.	
Heinrich, Benjamin C.	University of the Bundeswehr Munich
Fassbender, Dennis	University of the Bundeswehr Munich

Wuensche, Hans J	UniBw Munich
15:36-15:39	ThDTS6.3
<i>Platform-Independent Benchmarks for Task and Motion Planning</i> , N/A.	
Lagriffoul, Fabien	Örebro University
Dantam, Neil	Colorado School of Mines
Srivastava, Siddharth	University of California Berkeley
Akbari, Aliakbar	Universitat Politcnica De Catalunya (UPC)
Garrett, Caelan	Massachusetts Institute of Technology
15:39-15:42	ThDTS6.4
<i>C-MPDM: Continuously-Parameterized Risk-Aware MPDM by Quickly Discovering Contextual Policies</i> , pp. 7547-7554.	
Mehta, Dhanvin	University of Michigan
Ferrer, Gonzalo	Skolkovo Institute of Science and Technology
Olson, Edwin	University of Michigan
15:42-15:45	ThDTS6.5
<i>Skating with a Force Controlled Quadrupedal Robot</i> , pp. 7555-7561.	
Bjelonic, Marko	ETH Zurich
Bellicoso, C. Dario	ETH Zurich
Hutter, Marco	ETH Zurich
Tiryaki, Mehmet Efe	ETH Zurich
15:45-15:48	ThDTS6.6
<i>A Comparative Analysis of Contact Models in Trajectory Optimization for Manipulation</i> , pp. 7562-7567.	
Onol, Aykut Ozgun	Northeastern University
Long, Philip	Northeastern University
Padir, Taskin	Northeastern University
15:48-15:51	ThDTS6.7
<i>Combining Method of Alternating Projections and Augmented Lagrangian for Task Constrained Trajectory Optimization</i> , pp. 7568-7575.	
Singh, Arun Kumar	Tampere University of Technology, Finland
Ghabcheloo, Reza	Tampere University of Technology
Mueller, Andreas	Johannes Kepler University
Pandya, Harit	IIIT Hyderabad
15:51-15:54	ThDTS6.8
<i>A Software Framework for Planning under Partial Observability</i> , pp. 7576-7582.	
Hoerger, Marcus	University of Queensland
Kurniawati, Hanna	University of Queensland
Elfes, Alberto	CSIRO
<b>ThDTS7</b>	Room 2.L3
<b>Bioinspired Robotics II (Regular session)</b>	
Co-Chair: Yalikul, Yaxiaer	Graduate School of Engineering, Osaka University
15:30-15:33	ThDTS7.1
<i>Adaptive Path Following for Snake Robot on Ground with Unknown and Varied Friction Coefficients</i> , pp. 7583-7588.	
Wang, Gang	University of Nevada
Yang, Weixin	University of Nevada, Reno
Shen, Yantao	University of Nevada, Reno
Shao, Haiyan	University of Jinan
15:33-15:36	ThDTS7.2
<i>Analytical Model of Thermal Soaring: Towards Energy Efficient</i>	



*Path Planning for Flying Robots*, pp. 7589-7594.  
 Khaghani, Javad University of Tehran  
 Nekoui, Mahdiar University of Tehran  
 Nasiri, Rezvan University of Tehran  
 Nili Ahmadabadi, Majid University of Tehran

15:36-15:39 ThDTS7.3

*Atmospheric-Operable 3D Printed Walking Bio-Robot Powered by Muscle-Tissue of Earthworm*, pp. 7595-7600.

Yalikun, Yaxiaer Graduate School of Engineering,  
Osaka University  
 Kamamichi, Norihiro Tokyo Denki University  
 Noguchi, Yuji Tokyo Denki University  
 Tanaka, Yo Riken

15:39-15:42 ThDTS7.4

*PIRat: An Autonomous Framework for Studying Social Behaviour in Rats and Robots*, pp. 7601-7608.

Heath, Scott University of Queensland  
 Ramirez-Brinez, Carlos The University of Queensland  
 Andres  
 Arnold, Joshua The University of Queensland  
 Olsson, Ola University of Queensland  
 Taufatofua, Jonathon The University of Queensland  
 Pounds, Pauline The University of Queensland  
 Wiles, Janet University of Queensland  
 Leonardis, Eric University of California, San  
Diego - Cognitive Science  
Departme  
 Gygi, Emmanuel University of California, San  
Diego - Cognitive Science  
Departme  
 Leija, Estelita University of California, San  
Diego - Cognitive Science  
Departme  
 Quinn, Laleh University of California, San  
Diego - Cognitive Science  
Departme  
 Chiba, Andrea University of California, San  
Diego

15:42-15:45 ThDTS7.5

*Tarzan: Design, Prototyping, and Testing of a Wire-Borne Brachiating Robot*, pp. 7609-7614.

Davies, Evan Georgia Institute of Technology  
 Garlow, Adam Georgia Institute of Technology  
 Farzan, Siavash Georgia Institute of Technology  
 Rogers, Jonathan Georgia Institute of Technology  
 Hu, Ai-Ping Georgia Tech Research Institute

15:45-15:48 ThDTS7.6

*Longitudinal Rollover Strategy As Effective Intervention to Reduce Wrist Injuries During Forward Fall*, N/A.

Abdolshah, Saeed Nagoya University  
 Rajaei, Nader Graduate School of Engineering,  
Nagoya University  
 Akiyama, Yasuhiro Nagoya-University  
 Yamada, Yoji Nagoya University  
 Okamoto, Shogo Nagoya University

15:48-15:51 ThDTS7.7

*Online Foot-Strike Detection Using Inertial Measurements for Multi-Legged Walking Robots*, pp. 7622-7627.

Cizek, Petr Czech Technical University in  
Prague, Faculty of Electrical  
Engi  
 Kubik, Jiri Czech Technical University in  
Prague, FEE

Faigl, Jan Czech Technical University in  
Prague

15:51-15:54 ThDTS7.8

*TacWhiskers: Biomimetic Optical Tactile Whiskered Robots*, pp. 7628-7634.

Lepora, Nathan University of Bristol  
 Pearson, Martin Bristol Robotics Laboratory  
 Cramphorn, Luke Bristol University

**ThDTS8** Room 2.R1

**Service Robots I (Regular session)**

Chair: Kosuge, Kazuhiro Tohoku University  
 Co-Chair: Bellotto, Nicola University of Lincoln

15:30-15:33 ThDTS8.1

*Multisensor Online Transfer Learning for 3D LiDAR-Based Human Detection with a Mobile Robot*, pp. 7635-7640.

Yan, Zhi University of Technology of  
Belfort-Montbéliard (UTBM)  
 Sun, Li University of Birmingham  
 Duckett, Tom University of Lincoln  
 Bellotto, Nicola University of Lincoln

15:33-15:36 ThDTS8.2

*An Everyday Robotic System That Maintains Local Rules Using Semantic Map Based on Long-Term Episodic Memory*, pp. 7641-7647.

Furuta, Yuki The University of Tokyo  
 Okada, Kei The University of Tokyo  
 Inaba, Masayuki The University of Tokyo  
 Kakiuchi, Yohei The University of Tokyo

15:36-15:39 ThDTS8.3

*Dynamic Dumbbell - Novel Muscle Training Robot with Programmable Exercise Load*, pp. 7648-7653.

Lee, Chan DGIST (Daegu Gyeongbuk  
Institute of Science and  
Technology)  
 Oh, Sehoon DGIST (Daegu Gyeongbuk  
Institute of Science and  
Technology)

15:39-15:42 ThDTS8.4

*Autonomous Navigation Using Multimodal Potential Field to Initiate Interaction with Multiple People*, pp. 7654-7659.

Kawasaki, Yosuke KEIO University  
 Yorozu, Ayanori Keio University  
 Takahashi, Masaki Keio University

15:42-15:45 ThDTS8.5

*Estimating Door Shape and Manipulation Model for Daily Assistive Robots Based on the Integration of Visual and Touch Information*, pp. 7660-7666.

Nagahama, Kotaro Shinshu University  
 Takeshita, Keisuke Toyota Motor Corporation  
 Yaguchi, Hiroaki The University of Tokyo  
 Yamazaki, Kimitoshi Shinshu University  
 Yamamoto, Takashi Toyota Motor Corporation  
 Inaba, Masayuki The University of Tokyo

15:45-15:48 ThDTS8.6

*Designing for Robust Movement in a Child-Friendly Robot*, pp. 7667-7674.

Taufatofua, Jonathon The University of Queensland  
 Heath, Scott University of Queensland  
 Ramirez-Brinez, Carlos The University of Queensland  
 Andres

Hensby, Kristyn	The University of Queensland
Durantin, Gautier	The University of Queensland
Kong, Wilson	The University of Queensland
Wiles, Janet	University of Queensland
Pounds, Pauline	The University of Queensland

15:48-15:51 ThDTS8.7

*Development of the Research Platform of a Domestic Mobile Manipulator Utilized for International Competition and Field Test*, pp. 7675-7682.

Yamamoto, Takashi	Toyota Motor Corporation
Terada, Koji	TOYOTA Motor Corporation
Ochiai, Akiyoshi	Toyota Research Institute
Saito, Fuminori	Toyota Motor Corporation
Asahara, Yoshiaki	Toyota Motor Corporation
Murase, Kazuto	The University of Tokyo

15:51-15:54 ThDTS8.8

*Robot Artist Performs Cartoon Style Facial Portrait Painting*, pp. 7683-7688.

Luo, Ren	National Taiwan University
Liu, Yu Jung	National Taiwan University

**ThDTS9** Room 4.L1

**Agriculture Robotics I (Regular session)**

Co-Chair: Sun, Li	University of Birmingham
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15:30-15:33 ThDTS9.1

*Robust Plant Phenotyping Via Model-Based Optimization*, pp. 7689-7696.

Sodhi, Paloma	Carnegie Mellon University
Sun, Hanqi	Carnegie Mellon University
Poczos, Barnabas	Carnegie Mellon University
Wettergreen, David	Carnegie Mellon University

15:33-15:36 ThDTS9.2

*Registering Reconstructions of the Two Sides of Fruit Tree Rows*, pp. 7697-7702.

Roy, Pravakar	University of Minnesota
Dong, Wenbo	University of Minnesota
Isler, Volkan	University of Minnesota

15:36-15:39 ThDTS9.3

*Fruit Quantity and Ripeness Estimation Using a Robotic Vision System*, N/A.

Halstead, Michael Allan	Queensland University of Technology
McCool, Christopher Steven	Queensland University of Technology
Denman, Simon	QUT
Perez, Tristan	Queensland University of Technology
Fookes, Clinton	Queensland University of Technology

15:39-15:42 ThDTS9.4

*Design of an Autonomous Precision Pollination Robot*, pp. 7711-7718.

Ohi, Nicholas	West Virginia University
Lassak, Kyle	West Virginia University
Watson, Ryan	West Virginia University
Strader, Jared	West Virginia University
Du, Yixin	West Virginia University
Yang, Chizhao	West Virginia University
Hedrick, Gabrielle	West Virginia University
Nguyen, Jennifer	West Virginia University
Harper, Scott	West Virginia University

Reynolds, Dylan	West Virginia University
Kilic, Cagri	West Virginia University
Hikes, Jacob	West Virginia University
Mills, Sarah	West Virginia University
Castle, Conner	West Virginia University
Buzzo, Benjamin	West Virginia University
Waterland, Nicole	West Virginia University, Division of Plant and Soil Sciences
Gross, Jason	West Virginia University
Park, Yong-Lak	West Virginia University
Li, Xin	West Virginia University
Gu, Yu	West Virginia University

15:42-15:45 ThDTS9.5

*Multi-Species Fruit Flower Detection Using a Refined Semantic Segmentation Network*, N/A.

Ambrozio, Dias, Philippe	Marquette University
Tabb, Amy	USDA-ARS-AFRS
Medeiros, Henry	Marquette University

15:45-15:48 ThDTS9.6

*Close Coordination of Mobile Robots Using Radio Beacons: A New Concept Aimed at Smart Spraying in Agriculture*, pp. 7727-7734.

Tourrette, Thibault	IRSTEA Clermont Ferrand
Deremetz, Mathieu	IRSTEA Clermont Ferrand
Naud, Olivier	Irstea
Lenain, Roland	Irstea
Laneurit, Jean	Irstea
De Rudnicki, Vincent	Irstea

15:48-15:51 ThDTS9.7

*Tree Detection with Low-Cost 3D Sensors for Autonomous Navigation in Orchards*, N/A.

Durand-Petiteville, Adrien	University of California, Davis
Le Flecher, Emile	Univ Toulouse III, LAAS-CNRS
Cadenat, Viviane	University of Toulouse
Sentenac, Thierry	LAAS-CNRS
Vougioukas, Stavros	UC Davis

15:51-15:54 ThDTS9.8

*Diversity in Pedestrian Safety for Industrial Environments Using 3D Lidar Sensors and Neural Networks*, pp. 7743-7749.

Bell, Jamie	The University of Auckland
MacDonald, Bruce	University of Auckland
Ahn, Ho Seok	The University of Auckland, Auckland

**ThDTS10** Room 4.R1

**Software and Middleware I (Regular session)**

Chair: Beltrame, Giovanni	Ecole Polytechnique De Montreal
Co-Chair: Faragasso, Angela	The University of Tokyo

15:30-15:33 ThDTS10.1

*Underworlds: Cascading Situation Assessment for Robots*, pp. 7750-7757.

Lemaignan, Séverin	University of the West of England
Sallami, Yoan	LAAS-CNRS
Wallbridge, Christopher	University of Plymouth
Clodic, Aurélie	Laas - Cnrs
Belpaeme, Tony	Plymouth University
Alami, Rachid	CNRS

15:33-15:36 ThDTS10.2

*OpenSeqSLAM2.0: An Open Source Toolbox for Visual Place Recognition under Changing Conditions*, pp. 7758-7765.

Talbot, Ben	Queensland University of Technology
Garg, Sourav	Queensland University of Technology
Milford, Michael J	Queensland University of Technology

15:36-15:39 ThDTS10.3

*HERO: Accelerating Autonomous Robotic Tasks with FPGA*, pp. 7766-7772.

Shi, Xuesong	Intel
Cao, Lu	Intel
Wang, Dawei	Intel Labs
Liu, Ling	Intel
You, Ganmei	Intel
Liu, Shuang	Intel
Wang, Chunjie	Intel

15:39-15:42 ThDTS10.4

*Procedurally Provisioned Access Control for Robotic Systems*, pp. 7773-7780.

White, Ruffin	University of California San Diego
Caiazza, Gianluca	Ca Foscari University of Venice
Cortesi, Agostino	Università Ca' Foscari Venezia
Christensen, Henrik Iskov	UC San Diego

15:42-15:45 ThDTS10.5

*XBotCloud: A Scalable Cloud Computing Infrastructure for XBot Powered Robots*, pp. 7781-7788.

Muratore, Luca	Istituto Italiano Di Tecnologia
Lennox, Barry	The University of Manchester
Tsagarakis, Nikos	Istituto Italiano Di Tecnologia

15:45-15:48 ThDTS10.6

*Learning to Touch Objects through Stage-Wise Deep Reinforcement Learning*, pp. 7789-7794.

de La Bourdonnaye, François	Université Clermont Auvergne
Teuliere, Celine	Blaise Pascal University
Triesch, Jochen	Frankfurt Institute for Advanced Studies
Chateau, Thierry	Clermont Auvergne University

15:48-15:51 ThDTS10.7

*Bayesian Information Recovery from CNN for Probabilistic Inference*, pp. 7795-7802.

Kopitkov, Dmitry	Technion - Israel Institute of Technology
Indelman, Vadim	Technion - Israel Institute of Technology

**ThETS1** Room 1.L5  
**Aerial Systems VIII** (Regular session)

Co-Chair: Schoellig, Angela P.	University of Toronto
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17:00-17:03 ThETS1.1

*Catenary Tether Shape Analysis for a UAV - USV Team*, pp. 7803-7809.

Talke, Kurt	Spawar Systems Center Pacific
de Oliveira, Mauricio	University of California, San Diego
Bewley, Thomas	Flow Control & Coordinated Robotics Labs

17:03-17:06 ThETS1.2

*Inertial Velocity and Attitude Estimation for Quadrotors*, pp. 7810-7816.

Svacha, James	University of Pennsylvania
Mohta, Kartik	University of Pennsylvania
Watterson, Michael	University of Pennsylvania
Loianno, Giuseppe	New York University
Kumar, Vijay	University of Pennsylvania

17:06-17:09 ThETS1.3

*Quadtree-Accelerated Real-Time Monocular Dense Mapping*, pp. 7817-7824.

Wang, Kaixuan	Hong Kong University of Science and Technology
Ding, Wenchao	Hong Kong University of Science and Technology
Shen, Shaojie	Hong Kong University of Science and Technology

17:09-17:12 ThETS1.4

*The Deformable Quad-Rotor Enabled and Wasp-Pedal-Carrying Inspired Aerial Gripper*, pp. 7825-7830.

Zhao, Na	University of Nevada, Reno
Luo, Yudong	University of Nevada, Reno
Deng, Hongbin	Beijing Institute of Technology
Shen, Yantao	University of Nevada, Reno
Xu, Hao	University of Nevada, Reno

17:12-17:15 ThETS1.5

*Adaptive Model Predictive Control for High-Accuracy Trajectory Tracking in Changing Conditions*, pp. 7831-7837.

Pereida Perez, Karime	University of Toronto
Schoellig, Angela P.	University of Toronto

17:15-17:18 ThETS1.6

*Methods for Autonomous Wristband Placement with a Search-And-Rescue Aerial Manipulator*, pp. 7838-7844.

Gomez de Gabriel, Jesus Manuel	Universidad De Malaga
Gandarias, Juan M.	University of Malaga
Perez Maldonado, Francisco Javier	University of Malaga
García Nuñez, Francisco Jose	Universidad De Málaga
Fernández, García, Emilio Jesús	University of Málaga
García-Cerezo, Alfonso	University of Malaga

17:18-17:21 ThETS1.7

*Nonlinear Adaptive Control of Quadrotor Multi-Flipping Maneuvers in the Presence of Time-Varying Torque Latency*, pp. 7845-7852.

Chen, Ying	University of Southern California
Perez-Arancibia, Nestor O	University of Southern California (USC)

17:21-17:24 ThETS1.8

*High-Speed Flight of Quadrotor Despite Loss of Single Rotor*, N/A.

Sun, Sihao	Student
Sijbers, Leon Marinus Christian	Delft University of Technology
Wang, Xuerui	Delft University of Technology
de Visser, Coen	TU Delft

**ThETS2** Room 2.L5 KUKA  
**Sensorial Perception VIII** (Regular session)

Chair: Piater, Justus	University of Innsbruck
Co-Chair: Copaci, Dorin	Universidad Carlos III De Madrid
Sabin	

17:00-17:03	ThETS2.1
<i>NDVI Point Cloud Generator Tool Using Low-Cost RGB-D Sensors</i> , pp. 7860-7865.	
Calero, Scanlan, David	CTTC
Fernández, Murcia, Enric	CTTC
Parés, Calaf, Maria Eulália	CTTC
Angelats, Company, Eduard	CTTC
17:03-17:06	ThETS2.2
<i>Unsupervised Object Proposal Using Depth Boundary Density and Density Uniformity</i> , pp. 7866-7871.	
Hosono, Takashi	NTT Media Intelligence Laboratories, NTT Corporation
Tarashima, Shuhei	NTT Media Intelligence Laboratories
Shimamura, Jun	NTT Media Intelligence Laboratories
Kinebuchi, Tetsuya	NTT Corporation
17:06-17:09	ThETS2.3
<i>LIMO: Lidar-Monocular Visual Odometry</i> , pp. 7872-7879.	
Gräter, Johannes	Karlsruher Institut Für Technologie (KIT)
Wilczynski, Alexander	Karlsruhe Institute of Technology
Lauer, Martin	Karlsruhe Institute of Technology
17:09-17:12	ThETS2.4
<i>Learning to Segment Generic Handheld Objects Using Class-Agnostic Deep Comparison and Segmentation Network</i> , N/A.	
Chaudhary, Krishneel Chand	The University of Tokyo
Wada, Kentaro	The University of Tokyo
Chen, Xiangyu	The University of Tokyo
Kimura, Kohei	The University of Tokyo
Okada, Kei	The University of Tokyo
Inaba, Masayuki	The University of Tokyo
17:12-17:15	ThETS2.5
<i>Exercising Affordances of Objects: A Part-Based Approach</i> , N/A.	
Rezapour Lakani, Safoura	University of Innsbruck
Rodriguez-Sanchez, Antonio	University of Innsbruck
Piater, Justus	University of Innsbruck
17:15-17:18	ThETS2.6
<i>Detect Globally, Label Locally: Learning Accurate 6-DOF Object Pose Estimation by Joint Segmentation and Coordinate Regression</i> , N/A.	
Nigam, Apurv	University College London
Peñate-Sánchez, Adrián	Institut De Robòtica I Informàtica Industrial, CSIC-UPC
Agapito, Lourdes	University College London
17:18-17:21	ThETS2.7
<i>DLWV2: A Deep Learning-Based Wearable Vision-System with Vibrotactile-Feedback for Visually Impaired People to Reach Objects</i> , pp. 7904-7911.	
Shih, Meng-Li	National Tsing Hua University
Chen, Yi-Chun	National Tsing Hua University
Tung, Chia-Yu	National Tsing Hua University
Sun, Cheng	National Tsing Hua University
Cheng, Ching-Ju	National Tsing Hua University
Chan, Liwei	National Chao Tung University
Varadarajan, Srenivas	Intel Corporation
Sun, Min	National Tsing Hua University
17:21-17:24	ThETS2.8
<i>PCAOT: A Manhattan Point Cloud Registration Method towards</i>	

<i>Large Rotation and Small Overlap</i> , pp. 7912-7917.	
Guo, Ping	Intel
Hu, Wei	Intel
Ren, Haibing	Intel Labs China
Zhang, Yimin	Intel Corporation

<b>ThETS3</b>	Room 1.L2
<b>Path Planning for Multiple Mobile Robots</b> (Regular session)	
Chair: Hasegawa, Yasuhisa	Nagoya University
17:00-17:03	ThETS3.1
<i>Minimal Construct: Efficient Shortest Path Finding for Mobile Robots in Polygonal Maps</i> , pp. 7918-7923.	
Missura, Marcell	University of Bonn
Lee, Daniel	Cornell Tech
Bennewitz, Maren	University of Bonn
17:03-17:06	ThETS3.2
<i>Trajectory Planning for Heterogeneous Robot Teams</i> , pp. 7924-7931.	
Debord, Mark	University of Southern California
Hoening, Wolfgang	University of Southern California
Ayanian, Nora	University of Southern California
17:06-17:09	ThETS3.3
<i>A Motion Planning Approach for Marsupial Robotic Systems</i> , pp. 7932-7938.	
Stankiewicz, Paul	Johns Hopkins University Applied Physics Laboratory
Jenkins, Stephen	Johns Hopkins University Applied Physics Laboratory
Mullins, Galen	University of Maryland
Wolfe, Kevin	Johns Hopkins University Applied Physics Laboratory
Johannes, Matthew	The Johns Hopkins University Applied Physics Laboratory
Moore, Joseph	Johns Hopkins University Applied Physics Lab
17:09-17:12	ThETS3.4
<i>Motion Planning and Goal Assignment for Robot Fleets Using Trajectory Optimization</i> , pp. 7939-7946.	
Salvado, João	Orebro University
Mansouri, Masoumeh	Örebro University
Pecora, Federico	Örebro University
Krug, Robert	KTH Royal Institute of Technology
17:12-17:15	ThETS3.5
<i>Re-Establishing Communication in Teams of Mobile Robots</i> , pp. 7947-7954.	
Vandermeulen, Isaac	University of Sheffield
Gross, Roderich	The University of Sheffield
Kolling, Andreas	iRobot Corporation
17:15-17:18	ThETS3.6
<i>Multi-Agent Planning for Coordinated Robotic Weed Killing</i> , pp. 7955-7960.	
McAllister, Wyatt	University of Illinois at Urbana-Champaign
Osipychiev, Denis	University of Illinois at Urbana-Champaign
Chowdhary, Girish	University of Illinois at Urbana-Champaign
Davis, Adam	USDA-ARS in Urbana, IL
17:18-17:21	ThETS3.7
<i>Intelligent Robotic IoT System (IRIS) Testbed</i> , pp. 7961-7966.	

Tran, Jason A	University of Southern California
Ghosh, Pradipta	University of Southern California
Gu, Yutong	University of Southern California
Kim, Richard	University of Southern California
Dsouza, Daniel	University of Southern California
Ayanian, Nora	University of Southern California
Krishnamachari, Bhaskar	USC Viterbi School of Engineering

17:21-17:24 ThETS3.8

*SEAR: A Polynomial-Time Multi-Robot Path Planning Algorithm with Expected Constant-Factor Optimality Guarantee*, pp. 7967-7974.

Han, Shuai D.	Rutgers University
Jaramillo Rodriguez, Edgar	University of California, Berkeley
Yu, Jingjin	Rutgers University

**ThETS4** Room 2.L2  
**Control V (Regular session)**

Co-Chair: Gimenez, Antonio University of Almeria

17:00-17:03 ThETS4.1

*Towards Peak Torque Minimization for Modular Self-Folding Robots*, pp. 7975-7982.

Yao, Meibao	Harbin Institute of Technology
Cui, Hutao	Harbin Institute of Technology
Xiao, Xueming	Changchun University of Science and Technology
Belke, Christoph H.	École Polytechnique Fédérale De Lausanne
Paik, Jamie	Ecole Polytechnique Federale De Lausanne

17:03-17:06 ThETS4.2

*Passive Nonlinear Impedance Control for Port-Hamiltonian Systems*, pp. 7983-7988.

Okura, Yuki	Kyoto University
Fujimoto, Kenji	Kyoto University

17:06-17:09 ThETS4.3

*Trajectory Optimization with Implicit Hard Contacts*, N/A.

Carius, Jan	ETH Zurich
Ranftl, Rene	Intel
Koltun, Vladlen	Intel Labs
Hutter, Marco	ETH Zurich

17:09-17:12 ThETS4.4

*Riding and Speed Governing for Parallel Two-Wheeled Scooter Based on Sequential Online Learning Control by Humanoid Robot*, pp. 7997-8004.

Kimura, Kohei	The University of Tokyo
Nozawa, Shunichi	The University of Tokyo
Mizohana, Hiroto	University of Tokyo
Okada, Kei	The University of Tokyo
Inaba, Masayuki	The University of Tokyo

17:12-17:15 ThETS4.5

*Soft-Actuator-Based Robotic Joint for Safe and Forceful Interaction with Controllable Impact Response*, N/A.

Chen, Xiaojiao	The University of Hong Kong
Yi, Juan	The University of Hong Kong
Li, Jing	The University of Hong Kong
Zhou, Jianshu	The University of Hong Kong
Wang, Zheng	The University of Hong Kong

17:15-17:18 ThETS4.6

*Dynamic Modelling and Motion Planning for the Nonprehensile Manipulation and Locomotion Tasks of the Quadruped Robot*, pp. 8013-8018.

Zhang, Guoteng	Ritsumeikan University
Ma, Shugen	Ritsumeikan University
Li, Yibin	Shandong University

17:18-17:21 ThETS4.7

*Fuzzy-Based Feedback Control of a Tip-Mounted Module for Robot-Assisted Endoscopy*, pp. 8019-8026.

Gafford, Joshua	Harvard University
Aihara, Hiroyuki	Brigham and Women's Hospital
Thompson, Christopher	Brigham and Women's Hospital
Walsh, Conor James	Harvard University
Wood, Robert	Harvard University

17:21-17:24 ThETS4.8

*A Real-Time Solver for Time-Optimal Control of Omnidirectional Robots with Bounded Acceleration*, pp. 8027-8032.

Balaban, David	University of Massachusetts Amherst
Fischer, Alexander	University of Massachusetts, Amherst
Biswas, Joydeep	University of Massachusetts Amherst

**ThETS5** Room 2.R3  
**Soft Robotics V (Regular session)**

Co-Chair: Mochiyama, Hiromi University of Tsukuba

17:00-17:03 ThETS5.1

*A Variable Degree-Of-Freedom and Self-Sensing Soft Bending Actuator Based on Conductive Liquid Metal and Thermoplastic Polymer Composites*, pp. 8033-8038.

Hao, Yufei	Beihang University
Liu, Zemin	Beihang University
Xie, ZheXin	Beijing University of Aeronautics and Astronautics

Fang, Xi	Beihang University
Wang, Tianmiao	Beijing University of Aeronautics and Astronautics

Wen, Li	Beihang University
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17:03-17:06 ThETS5.2

*A New Manufacturing Process for Soft Robots and Soft/Rigid Hybrid Robots*, pp. 8039-8046.

Yang, Hee Doo	Virginia Tech
Asbeck, Alan	Virginia Tech

17:06-17:09 ThETS5.3

*An Origami-Inspired Reconfigurable Suction Gripper for Picking Objects with Variable Shape and Size*, N/A.

Zhakypov, Zhenishbek	École Polytechnique Fédérale De Lausanne (EPFL)
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Heremans, Florian	Vrije Universiteit Brussel
Billard, Aude	EPFL

Paik, Jamie	Ecole Polytechnique Federale De Lausanne
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17:09-17:12 ThETS5.4

*Braiding Thin McKibben Muscles to Enhance Their Contracting Abilities*, N/A.

Koizumi, Shoichiro	Tokyo Institute of Technology
Kurumaya, Shunichi	Tokyo Institute of Technology
Nabae, Hiroyuki	Tokyo Institute of Technology
Endo, Gen	Tokyo Institute of Technology
Suzumori, Koichi	Tokyo Institute of Technology

17:12-17:15	ThETS5.5
<i>Magnetic-Field-Inspired Navigation for Soft Continuum Manipulator</i> , pp. 8061-8066.	
Ataka, Ahmad	King's College London
Shiva, Ali	King's College London
Lam, Hak-Keung	King's College London
Althoefer, Kaspar	Queen Mary University of London

17:15-17:18	ThETS5.6
<i>Real-Time Shape Estimation of an Elastic Rod Using a Robot Manipulator Equipped with a Sense of Force</i> , pp. 8067-8073.	
Nakagawa, Naohiro	University of Tsukuba
Mochiyama, Hiromi	University of Tsukuba

17:18-17:21	ThETS5.7
<i>Force Generation by Parallel Combinations of Fiber-Reinforced Fluid-Driven Actuators</i> , N/A.	
Bruder, Daniel	University of Michigan
Sedal, Audrey	University of Michigan
Vasudevan, Ram	University of Michigan
Remy, C. David	University of Michigan

<b>ThETS6</b>	Room 1.L3
<b>Motion and Path Planning III</b> (Regular session)	
Chair: Martinet, Philippe	INRIA
Co-Chair: Cañas, José M.	Universidad Rey Juan Carlos

17:00-17:03	ThETS6.1
<i>FOCS: Planning by Fusion of Optimal Control &amp; Search and Its Application to Navigation</i> , pp. 8082-8088.	
Micelli, Piero	University of Parma
Likhachev, Maxim	Carnegie Mellon University

17:03-17:06	ThETS6.2
<i>Quotient-Space Motion Planning</i> , pp. 8089-8096.	
Orthey, Andreas	AIST
Escande, Adrien	Cnrs-Aist Jrl Umi3218/rl
Yoshida, Eiichi	National Inst. of AIST

17:06-17:09	ThETS6.3
<i>Computing a Collision-Free Path Using the Monogenic Scale Space</i> , pp. 8097-8102.	
Holmquist, Karl	Linköping University
Senel, Deniz	Bogazici University
Felsberg, Michael	Linköping University

17:09-17:12	ThETS6.4
<i>Automatic Parameter Tuning of Motion Planning Algorithms</i> , pp. 8103-8109.	
Cano, José	The University of Edinburgh
Yang, Yiming	University of Edinburgh
Bodin, Bruno	The University of Edinburgh
Nagarajan, Vijay	University of Edinburgh
O'Boyle, Michael F P	The University of Edinburgh

17:12-17:15	ThETS6.5
<i>Perception-Driven Sparse Graphs for Optimal Motion Planning</i> , pp. 8110-8117.	
Sayre-McCord, Thomas	MIT
Karaman, Sertac	Massachusetts Institute of Technology

17:15-17:18	ThETS6.6
<i>Social Cohesion in Autonomous Driving</i> , pp. 8118-8125.	
Landolfi, Nicholas Charles	University of California, Berkeley
Dragan, Anca	University of California Berkeley

17:18-17:21	ThETS6.7
<i>Socially-Aware Navigation Using Non-Linear Multi-Objective Optimization</i> , pp. 8126-8133.	
Forer, Scott	University of Nevada, Reno
Banisetty, Santosh Balajee	University of Nevada, Reno
Yliniemi, Logan	University of Nevada, Reno
Nicolescu, Monica	University of Nevada, Reno
Feil-Seifer, David	University of Nevada, Reno

17:21-17:24	ThETS6.8
<i>Constrained Path Planning Using Quadratic Programming</i> , pp. 8134-8139.	
Fusco, Franco	LS2N Centrale Nantes
Kermorgant, Olivier	École Centrale Nantes
Martinet, Philippe	INRIA

<b>ThETS7</b>	Room 2.L3
<b>Bioinspired Robotics III</b> (Regular session)	
Chair: Chen, Zheng	University of Houston

17:00-17:03	ThETS7.1
<i>Ladder Climbing with a Snake Robot</i> , pp. 8140-8145.	
Takemori, Tatsuya	Kyoto University
Tanaka, Motoyasu	The Univ. of Electro-Communications
Matsuno, Fumitoshi	Kyoto University

17:03-17:06	ThETS7.2
<i>Modeling of Robotic Fish Propelled by a Servo/IPMC Hybrid Tail</i> , pp. 8146-8151.	
Chen, Zheng	University of Houston
Hou, Piqi	Wichita State University
Ye, Zhihang	Wichita State University

17:06-17:09	ThETS7.3
<i>Blade-Type Crawler Capable of Running on the Surface of Water As Bio-Inspired by a Basilisk Lizard</i> , pp. 8152-8157.	
Yamada, Yasuyuki	Chuo University
Nakamura, Taro	Chuo University

17:09-17:12	ThETS7.4
<i>Bio-Inspired Design of a Gliding-Walking Multi-Modal Robot</i> , pp. 8158-8164.	
Shin, Won Dong	University of Illinois at Urbana Champaign
Park, Jae-jun	University of Illinois at Urbana-Champaign
Park, Hae-Won	University of Illinois at Urbana Champaign

17:12-17:15	ThETS7.5
<i>Design of Lizard-Inspired Robot with Lateral Body Motion</i> , pp. 8165-8170.	
Kim, Jeongryul	Seoul National University
Kim, Hongmin	Seoul National University
Kim, Youngsoo	Seoul National University
Kim, Hwa Soo	Kyonggi University
Kim, Jongwon	Seoul National University

17:15-17:18	ThETS7.6
<i>Natural Dynamics Exploitation of Dynamic Soaring: Towards Bio-Inspired and Energy Efficient Flying Locomotion</i> , pp. 8171-8176.	
Nekoui, Mahdiar	University of Tehran
Khaghani, Javad	University of Tehran
Nasiri, Rezvan	University of Tehran
Nili Ahmadabadi, Majid	University of Tehran

17:18-17:21	ThETS7.7
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*Development of High-Speed Type Peristaltic Crawling Robot for Long-Distance and Complex-Line Sewer Pipe Inspection*, pp. 8177-8183.

Mano, Yuki	Chuo-University
Ishikawa, Ryutaro	Chuo-University
Yamada, Yasuyuki	Chuo University
Nakamura, Taro	Chuo University

<b>ThETS8</b>	Room 2.R1
<b>Service Robots II (Regular session)</b>	

Chair: Vincze, Markus	Vienna University of Technology
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17:00-17:03	ThETS8.1
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*Learning and Generation of Actions from Teleoperation for Domestic Service Robots*, pp. 8184-8191.

Iwata, Kensuke	The University of Electro-Communications
Aoki, Tatsuya	The University of Electro-Communications
Horii, Takato	The University of Electro-Communications
Nakamura, Tomoaki	The University of Electro-Communications
Nagai, Takayuki	University of Electro-Communications

17:03-17:06	ThETS8.2
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*Proxemics and Approach Evaluation by Service Robot Based on User Behavior in Domestic Environment*, pp. 8192-8199.

Samarakoon, Bhagya	University of Moratuwa
Hewa Pelendage, Chapa Sirthunge	University of Moratuwa
Muthugala Arachchige, Viraj Jagathpriya Muthugala	University of Moratuwa
Jayasekara, A.G.B.P.	University of Moratuwa

17:06-17:09	ThETS8.3
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*Robot Approaching and Engaging People in a Human-Robot Companion Framework*, pp. 8200-8205.

Repiso, Ely	Institut De Robòtica I Informàtica Industrial, CSIC-UPC
Garrell, Anais	UPC-CSIC
Sanfeliu, Alberto	Universitat Politècnica De Catalunya

17:09-17:12	ThETS8.4
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*A 7-DOF Wire-Driven Lightweight Arm with Wide Wrist Motion Range*, pp. 8206-8211.

Tsumaki, Yuichi	Yamagata University
Suzuki, Yuya	Secom Industries, Ltd
Sasaki, Narumi	Yamagata University
Obara, Eiki	Yamagata University
Kanazawa, Shuta	Yamagata University

17:12-17:15	ThETS8.5
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*Don't Make the Same Mistakes Again and Again: Learning Local Recovery Policies for Navigation from Human Demonstrations*, N/A.

Del Duchetto, Francesco	University of Lincoln
Kucukyilmaz, Ayse	University of Lincoln
Iocchi, Luca	Sapienza University of Roma
Hanheide, Marc	University of Lincoln

17:15-17:18	ThETS8.6
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*RAMCIP – a Service Robot for MCI Patients at Home*, pp. 8220-8220.

Peleka, Georgia	CERTH, Thessaloniki Greece
Kargakos, Andreas	CERTH

Skartados, Evangelos  
Kostavelis, Ioannis

CERTH, Thessaloniki, Greece  
Center for Research and Technology Hellas

Giakoumis, Dimitris

Centre for Research and Technology Hellas

Sarantopoulos, Iason

Aristotle University of Thessaloniki

Doulgeri, Zoe

Aristotle University of Thessaloniki

Foukarakis, Michalis

Foundation for Research and Technology Hellas

Antona, Margherita

Foundation for Research and Technology - Hellas (FORTH)

Hirche, Sandra

Technische Universität München

Ruffaldi, Emanuele

Scuola Superiore Sant'Anna

Stanczyk, Bartlomiej

ACCREA

Zompas, Anastasios

Shadow Robot Company

Hernández Farigola, Joan

Alzheimer Research Center and Memory Clinic of Fundacio ACE

Roberto, Natalia

Alzheimer Research Center and Memory Clinic of Fundacio ACE

Rejdak, Konrad

Medical University of Lublin

Tzouvaras, Dimitrios

Centre for Research and Technology Hellas

17:18-17:21	ThETS8.7
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*Nonlinear Analysis of an Indirectly Controlled Sliding Locomotion Robot*, pp. 8221-8226.

Li, Longchuan

Japan Advanced Institute of Science and Technology

Asano, Fumihiko

Japan Advanced Institute of Science and Technology

Tokuda, Isao

Ritsumeikan University

17:21-17:24	ThETS8.8
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*Planning Topological Navigation for Complex Indoor Environments*, pp. 8227-8232.

Martin Rico, Francisco

Carnegie Mellon University

Gines Clavero, Jonatan

King Juan Carlos University

Vargas Frutos, David

Universidad Rey Juan Carlos

Rodríguez Lera, Francisco Javier

Universidad De León

Matellán, Vicente

Universidad De Leon

<b>ThETS9</b>	Room 4.L1
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**Agriculture Robotics II (Regular session)**

Chair: Ribeiro, Angela

CSIC

Co-Chair: Chen, Zetao

ETH Zurich

17:00-17:03	ThETS9.1
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*Joint Stem Detection and Crop-Weed Classification for Plant-Specific Treatment in Precision Farming*, pp. 8233-8238.

Lottes, Philipp

University of Bonn

Behley, Jens

University of Bonn

Chebroly, Nived

University of Bonn

Milioto, Andres

University of Bonn

Stachniss, Cyrill

University of Bonn

17:03-17:06	ThETS9.2
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*Seeing the Wood for the Trees: Reliable Localization in Urban and Natural Environments*, pp. 8239-8246.

Tinchev, Georgi

University of Oxford

Nobili, Simona

University of Edinburgh

Fallon, Maurice

University of Oxford

17:06-17:09	ThETS9.3
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*Extracting Phenotypic Characteristics of Corn Crops through the*

*Use of Reconstructed 3D Models*, pp. 8247-8254.

Zermas, Dimitris CSE, UMN  
Morellas, Vassilios U. of Minnesota  
Mulla, David University of Minnesota  
Papanikolopoulos, Nikos University of Minnesota

17:09-17:12 ThETS9.4

*Automatic Segmentation of Tree Structure from Point Cloud Data*, N/A.

Digumarti, Sundara Tejaswi ETH Zurich  
Nieto, Juan ETH Zürich  
Cadena Lerma, Cesar ETH Zurich  
Siegwart, Roland ETH Zurich  
Beardsley, Paul Disney Research Zurich

17:12-17:15 ThETS9.5

*Analysis of Morphology-Based Features for Classification of Crop and Weeds in Precision Agriculture*, N/A.

Bosilj, Petra University of Lincoln  
Duckett, Tom University of Lincoln  
Cielniak, Grzegorz University of Lincoln

17:15-17:18 ThETS9.6

*A Novel Autonomous Robot for Greenhouse Applications*, pp. 8270-8277.

Grimstad, Lars Norwegian University of Life Sciences  
Zakaria, Remy Nazir Bård Norwegian University of Life Sciences  
Le, Tuan Dung Norwegian University of Life Sciences  
From, Pål Johan Norwegian University of Life Sciences

17:18-17:21 ThETS9.7

*An Effective Multi-Cue Positioning System for Agricultural Robotics*, N/A.

Imperoli, Marco Sapienza University of Rome  
Potena, Ciro Sapienza University of Rome  
Nardi, Daniele Sapienza University of Rome  
Grisetti, Giorgio Sapienza University of Rome  
Pretto, Alberto Sapienza University of Rome

17:21-17:24 ThETS9.8

*The Use of Dynamic Sensing Strategies to Improve Detection for a Pepper Harvesting Robot*, pp. 8286-8293.

Kurtser, Polina Ben Gurion University of the Negev  
Edan, Yael Ben-Gurion University of the Negev

**ThETS10** Room 4.R1  
**Software and Middleware II** (Regular session)

Chair: Cherubini, Andrea LIRMM - Universite De Montpellier CNRS  
Co-Chair: Cianchetti, Matteo Scuola Superiore Sant'Anna

17:00-17:03 ThETS10.1

*Dolphin: A Task Orchestration Language for Autonomous Vehicle Networks*, pp. 8294-8301.

Lima, Keila Laboratório De Sistemas E Tecnologia Subaquática - Faculdade De  
Marques, Eduardo R. B. Dcc/fcup & Cracs/Inesc-Tec  
Pinto, José Faculty of Engineering, Porto University  
Sousa, João Universidade Porto - Faculdade Engenharia

17:03-17:06 ThETS10.2

*$\pi$ -SoC: Heterogeneous SoC Architecture for Visual Inertial SLAM Applications*, pp. 8302-8307.

Tang, Jie South China University of Technology  
Yu, Bo PerceptIn  
Liu, Shaoshan PerceptIn  
Zhang, Zhe PerceptIn  
Fang, Weikang Beijing Institute of Technology  
Zhang, Yanjun Beijing Institute of Technology

17:06-17:09 ThETS10.3

*VTSL - a Formally Verifiable DSL for Specifying Robot Tasks*, pp. 8308-8314.

Heinzemann, Christian Robert Bosch GmbH  
Lange, Ralph Robert Bosch GmbH

17:09-17:12 ThETS10.4

*GPU-Accelerated Next-Best-View Coverage of Articulated Scenes*, pp. 8315-8322.

Osswald, Stefan University of Bonn  
Bennewitz, Maren University of Bonn

17:12-17:15 ThETS10.5

*Scene Modeling and Augmented Virtuality Interface for Telerobotic Satellite Servicing*, N/A.

Vagvolgyi, Balazs Johns Hopkins University  
Pryor, Will Johns Hopkins University  
Reedy, Ryan University of Central Florida  
Niu, Wenlong National Space Science Center, University of Chinese Academy Of  
Deguet, Anton Johns Hopkins University  
Whitcomb, Louis The Johns Hopkins University  
Leonard, Simon The Johns Hopkins University  
Kazanzides, Peter Johns Hopkins University

17:15-17:18 ThETS10.6

*A 3D Convolutional Neural Network towards Real-Time Amodal 3D Object Detection*, pp. 8331-8338.

Sun, Hao National University of Singapore  
Meng, Zehui National University of Singapore  
Du, Xinxin Singapore-MIT Alliance for Research and Technology (SMART)  
Ang Jr, Marcelo H National University of Singapore

**ThFTS1** Room 1.L5

**Motion and Path Planning for Manipulators** (Regular session)

Chair: Alami, Rachid CNRS  
Co-Chair: Prasad, Dilip Nanyang Technological University

18:00-18:03 ThFTS1.1

*Sinc-Based Dynamic Movement Primitives for Encoding Point-To-Point Kinematic Behaviors*, pp. 8339-8345.

Papageorgiou, Dimitrios Aristotle University of Thessaloniki  
Sidiropoulos, Antonis Aristotle University of Thessaloniki  
Doulgeri, Zoe Aristotle University of Thessaloniki

18:03-18:06 ThFTS1.2

*An Optimization-Based Approach to Dual-Arm Motion Planning with Closed Kinematics*, pp. 8346-8351.

Völz, Andreas Ulm University



Graichen, Knut	Ulm University
18:06-18:09	ThFTS1.3
<i>Smooth Point-To-Point Trajectory Planning in SE(3) with Self-Collision and Joint Constraints Avoidance</i> , pp. 8352-8359.	
Grassmann, Reinhard	Gottfried Wilhelm Leibniz Universität Hannover
Johannsmeier, Lars	Technical University Munich
Haddadin, Sami	Technical University of Munich
18:09-18:12	ThFTS1.4
<i>Collision-Free Path Planning of Dual-Manipulator System Based on Energy Conversion</i> , pp. 8360-8366.	
Su, Chang	Huazhong University of Science & Technology
Wei, Ruixin	Huazhong University of Science and Technology
Mingliang, Zhang	Bosch (China) Investment Ltd
Rose, Hannes	Bosch (China) Investment Ltd
Jianfeng, Xu	Huazhong University of Science and Technology
18:12-18:15	ThFTS1.5
<i>CROC: Convex Resolution of Centroidal Dynamics Trajectories to Provide a Feasibility Criterion for the Multi Contact Planning Problem</i> , pp. 8367-8373.	
Fernbach, Pierre	Cnrs - Laas
Tonneau, Steve	Cnrs - Laas
Taïx, Michel	LAAS-CNRS/Université Paul Sabatier
18:15-18:18	ThFTS1.6
<i>A Framework for Manipulating Deformable Linear Objects by Coherent Point Drift</i> , N/A.	
Tang, Te	University of California, Berkeley
Wang, Changhao	University of California, Berkeley
Tomizuka, Masayoshi	University of California
18:18-18:21	ThFTS1.7
<i>Direct Collocation for Dynamic Behaviors with Nonprehensile Contacts: Application to Flipping Burgers</i> , N/A.	
Kolathaya, Shishir	Texas A&M University
Guffey, William	Miso Robotics
Sinnet, Ryan	ESolar, Inc
Ames, Aaron	Caltech
18:21-18:24	ThFTS1.8
<i>Variations on a Theme: "It's a Poor Sort of Memory That Only Works Backwards"</i> , pp. 8390-8396.	
Balint-Benczedi, Ferenc	University of Bremen
Beetz, Michael	University of Bremen
<b>ThFTS2</b>	Room 2.L5 KUKA
<b>Sensorial Perception IX (Regular session)</b>	
Chair: Nunes, Urbano	Instituto De Sistemas E Robotica
Co-Chair: Kim, Joohee	Illinois Institute of Technology
18:00-18:03	ThFTS2.1
<i>Attitude Estimation from Polarimetric Cameras</i> , pp. 8397-8403.	
Rastgoo, Mojdeh	Universite De Bourgogne Franche-Comte
Demonceaux, Cédric	Université Bourgogne Franche-COMté
Seulin, Ralph	University of Burgundy, Le2i Laboratory, UMR-CNRS 5158, 71200 L
Morel, Olivier	University of Burgundy
18:03-18:06	ThFTS2.2

<i>The Earth Ain't Flat: Monocular Reconstruction of Vehicles on Steep and Graded Roads from a Moving Camera</i> , pp. 8404-8410.	
Ansari, Junaid Ahmed	International Institute of Information Technology, Hyderabad
Sharma, Sarthak	International Institute of Information Technology, Hyderabad
Majumdar, Anshuman	International Institute of Information Technology, Hyderabad
Jatavallabhula, Krishna Murthy	International Institute of Information Technology Hyderabad
Krishna, Madhava	IIIT Hyderabad
18:06-18:09	ThFTS2.3
<i>Fusing Joint Measurements and Visual Features for In-Hand Object Pose Estimation</i> , N/A.	
Pfanne, Martin	DLR German Aerospace Center
Chalon, Maxime	German Aerospace Center (DLR)
Stulp, Freek	DLR - Deutsches Zentrum Für Luft Und Raumfahrt E.V
Albu-Schäffer, Alin	DLR - German Aerospace Center
18:09-18:12	ThFTS2.4
<i>Real-World Multi-Object, Multi-Grasp Detection</i> , N/A.	
Chu, Fu-Jen	University of Michigan
Xu, Ruinian	Georgia Institute of Technology
Vela, Patricio	Georgia Institute of Technology
18:12-18:15	ThFTS2.5
<i>Extraction of Physically Plausible Support Relations to Predict and Validate Manipulation Action Effects</i> , N/A.	
Kartmann, Rainer	Karlsruhe Institute of Technology
Paus, Fabian	Karlsruhe Institute of Technology (KIT)
Grotz, Markus	Karlsruhe Institute of Technology (KIT)
Asfour, Tamim	Karlsruhe Institute of Technology (KIT)
18:15-18:18	ThFTS2.6
<i>Towards a Context Enhanced Framework for Multi Object Tracking in Human Robot Collaboration</i> , pp. 8435-8442.	
Akkaladevi, Sharath Chandra	Profactor GmbH
Plasch, Matthias	PROFACTOR
Eitzinger, Christian	Profactor GmbH
Pichler, Andreas	Profactor Produktionsforschung GmbH
Rinner, Bernhard	Klagenfurt University
18:18-18:21	ThFTS2.7
<i>Lane Marking Quality Assessment for Autonomous Driving</i> , pp. 8443-8448.	
Li, Binbin	Texas A&M University
Song, Dezhen	Texas A&M University
Li, Haifeng	Civil Aviation University of China
Pike, Adam	Texas A&M Transportation Institute
Carlson, Paul	Road Infrastructure Inc
18:21-18:24	ThFTS2.8
<i>Real-Time 3D Reconstruction Using a Combination of Point-Based and Volumetric Fusion</i> , pp. 8449-8455.	
Xia, Zhengyu	Illinois Institute of Technology
Kim, Joohee	Illinois Institute of Technology
Park, Young Soo	Argonne National Laboratory

<b>ThFTS3</b>	Room 1.L2
<b>Motion and Path Planning for UAVs (Regular session)</b>	
Co-Chair: Verdoja, Francesco	Aalto University
18:00-18:03	ThFTS3.1
<i>P-CAP: Pre-Computed Alternative Paths to Enable Aggressive Aerial Maneuvers in Cluttered Environments</i> , pp. 8456-8463.	
Zhang, Ji	Carnegie Mellon University
Gupta chadha, Rushat	Near Earth Autonomy
Velivela, Vivek	Carnegie Mellon University
Singh, Sanjiv	Carnegie Mellon University
18:03-18:06	ThFTS3.2
<i>Motion Planning for a Small Aerobatic Fixed-Wing Unmanned Aerial Vehicle</i> , pp. 8464-8470.	
Levin, Joshua Max	McGill University
Paranjape, Aditya Avinash	Imperial College London
Nahon, Meyer	McGill University
18:06-18:09	ThFTS3.3
<i>First Experimental Results on Motion Planning for Transportation in Aerial Long-Reach Manipulators with Two Arms</i> , pp. 8471-8477.	
Caballero, Alvaro	University of Seville
Suarez, Alejandro	University of Seville
Real, Fran	University of Seville
Vega, Victor M.	University of Seville
Béjar, Manuel	University Pablo De Olavide (Seville, Spain)
Rodriguez Castaño, Angel	University of Seville
Ollero, Anibal	University of Seville
18:09-18:12	ThFTS3.4
<i>Sparse 3D Topological Graphs for Micro-Aerial Vehicle Planning</i> , pp. 8478-8485.	
Oleynikova, Helen	ETH Zürich
Taylor, Zachary Jeremy	ETH Zürich
Sieewart, Roland	ETH Zurich
Nieto, Juan	ETH Zürich
18:12-18:15	ThFTS3.5
<i>Motion Planning for a UAV with a Straight or Kinked Tether</i> , pp. 8486-8492.	
Xiao, Xuesu	Texas A&M University
Dufek, Jan	Texas A&M University
Suhail, Mohamed	Texas A&M University
Murphy, Robin	Texas A&M
18:15-18:18	ThFTS3.6
<i>Persistent Monitoring with Refueling on a Terrain Using a Team of Aerial and Ground Robots</i> , pp. 8493-8498.	
Maini, Parikshit	Indraprastha Institute of Information Technology, Delhi
Yu, Kevin	Virginia Tech
Pb, Sujit	Indraprastha Institute of Information Technology Delhi
Tokekar, Pratap	Virginia Tech
18:18-18:21	ThFTS3.7
<i>A Mobility Model Based on Improved Artificial Potential Fields for Swarms of UAVs</i> , pp. 8499-8504.	
Falimir, Ema	LaBRI Bordeaux Computer Science Research Laboratory, University
Chaumette, Serge	LaBRI, Bordeaux Computer Science Research Laboratory, University

Guerrini, Gilles	THALES DMS France
18:21-18:24	ThFTS3.8
<i>UAV/UGV Search and Capture of Goal-Oriented Uncertain Targets</i> , pp. 8505-8512.	
Sinay, Mor	Bar Ilan University
Agmon, Noa	Bar Ilan University
Maksimov, Oleg	Bar Ilan University
Levy, Guy	Bar Ilan
Bitan, Moshe	Bar Ilan University
Kraus, Sarit	Bar-Ilan University
<b>ThFTS4</b>	Room 2.L2
<b>Control VI (Regular session)</b>	
Chair: Gifftthaler, Markus	Swiss Federal Institute of Technology (ETH) Zurich, Switzerland
Co-Chair: Robuffo Giordano, Paolo	Centre National De La Recherche Scientifique (CNRS)
18:00-18:03	ThFTS4.1
<i>Lightweight Collision Avoidance for Resource-Constrained Robots</i> , pp. 8513-8518.	
Shahriari, Mohammadali	University of Guelph
Svogor, Ivan	Montreal Polytechnic
St-Onge, David	Ecole Polytechnique De Montreal
Beltrame, Giovanni	Ecole Polytechnique De Montreal
18:03-18:06	ThFTS4.2
<i>Control of Musculoskeletal Systems Using Learned Dynamics Models</i> , N/A.	
Buechler, Dieter	Max Planck Institute for Intelligent Systems Tübingen
Calandra, Roberto	University of California Berkeley
Schölkopf, Bernhard	Max Planck Institute for Intelligent Systems
Peters, Jan	Technische Universität Darmstadt
18:06-18:09	ThFTS4.3
<i>A Topological Approach to Workspace and Motion Planning for a Cable-Controlled Robot in Cluttered Environments</i> , N/A.	
Wang, Xiaolong	Lehigh University
Bhattacharya, Subhrajit	Lehigh University
18:09-18:12	ThFTS4.4
<i>An Improved Formulation for Model Predictive Control of Legged Robots for Gait Planning and Feedback Control</i> , pp. 8535-8542.	
Yuan, Kai	University of Edinburgh
Li, Zhibin	University of Edinburgh
18:12-18:15	ThFTS4.5
<i>Cable-Driven Actuation for Highly Dynamic Robotic Systems</i> , pp. 8543-8550.	
Hwangbo, Jemin	Swiss Federal Institute of Technology, Zurich
Tsounis, Vassilios	Swiss Federal Institute of Technology in Zurich
Kolvenbach, Hendrik	ETHZ
Hutter, Marco	ETH Zurich
18:15-18:18	ThFTS4.6
<i>Disturbance Observer Based Hovering Control of Quadrotor Tail-Sitter VTOL UAVs Using H-Infinity Synthesis</i> , N/A.	
Lyu, Ximin	Hong Kong University of Science and Technology
Zhou, Jinni	Hong Kong University of Science

	and Technology	
Gu, Haowei	Hong Kong University of Science and Technology	
Li, Zexiang	Hong Kong University of Science and Technology	
Shen, Shaojie	Hong Kong University of Science and Technology	
Zhang, Fu	University of Hong Kong	

18:18-18:21 ThFTS4.7

*A Control Architecture with Online Predictive Planning for Position and Torque Controlled Walking of Humanoid Robots*, pp. 8559-8566.

Dafarra, Stefano	Istituto Italiano Di Tecnologia
Nava, Gabriele	Istituto Italiano Di Tecnologia
Charbonneau, Marie	Istituto Italiano Di Tecnologia
Guedelha, Nuno	IIT
Andrade Chavez, Francisco Javier	Istituto Italiano Di Tecnologia
Traversaro, Silvio	Istituto Italiano Di Tecnologia
Fiorio, Luca	Istituto Italiano Di Tecnologia
Romano, Francesco	Istituto Italiano Di Tecnologia
Nori, Francesco	DeepMind
Metta, Giorgio	Istituto Italiano Di Tecnologia (IIT)
Pucci, Daniele	Italian Institute of Technology

**ThFTS5** Room 2.R3  
**Human-Centered Robotics** (Regular session)

Chair: Tzovaras, Dimitrios	Centre for Research and Technology Hellas
Co-Chair: Reinoso, Oscar	Miguel Hernandez University

18:00-18:03 ThFTS5.1

*Proactive Robot Assistants for Freeform Collaborative Tasks through Multimodal Recognition of Generic Subtasks*, pp. 8567-8573.

Brooks, Connor	University of Colorado Boulder
Atreya, Madhur	University of Colorado Boulder
Szafir, Daniel J.	University of Colorado Boulder

18:03-18:06 ThFTS5.2

*Virtual Borders: Accurate Definition of a Mobile Robot's Workspace Using Augmented Reality*, pp. 8574-8581.

Sprute, Dennis	Bielefeld University of Applied Sciences
Tönnies, Klaus	Otto-Von-Guericke University Magdeburg
König, Matthias	Bielefeld University of Applied Sciences

18:06-18:09 ThFTS5.3

*Multi-Modal Robot Apprenticeship: Imitation Learning Using Linearly Decayed DMP+ in a Human-Robot Dialogue System*, pp. 8582-8588.

Wu, Yan	A*STAR Institute for Infocomm Research
Wang, Ruohan	Imperial College London
D'Haro, Luis Fernando	Institute for Infocomm Research, A*STAR, Singapore
Banchs, Rafael E	Institute for Infocomm Research
Tee, Keng Peng	Institute for Infocomm Research

18:09-18:12 ThFTS5.4

*A Transient-Goal Driven Communication-Aware Navigation Strategy for Large Human-Populated Environments*, pp. 8589-8596.

K. Narayanan, Vishnu	ATR
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Miyashita, Takahiro	ATR
Horikawa, Yukiko	ATR
Hagita, Norihiro	ATR

18:12-18:15 ThFTS5.5

*Walking Assistance and Resistance of Walking Motion by Trunk and Pelvis Motion Assist*, pp. 8597-8602.

Hashimoto, Kotaro	Hokkaido University
Tanaka, Takayuki	Hokkaido University
Kusaka, Takashi	Hokkaido University

18:15-18:18 ThFTS5.6

*Optimizing Contextual Ergonomics Models in Human-Robot Interaction*, pp. 8603-8608.

Gonzales Marin, Antonio	Robotics and Mechatronics Center (DLR)
S. Shrorijeh, Mohammad	Rice University
Galibarov, Pavel	ABT
Damsgaard, Michael	AnyBody Technology
Fritzsche, Lars	IMK Automotive
Stulp, Freek	DLR - Deutsches Zentrum Für Luft Und Raumfahrt E.V

18:18-18:21 ThFTS5.7

*Drivers' Manoeuvre Prediction for Safe HRI*, pp. 8609-8614.

Lopez Pulgarin, Erwin Jose	University of Bristol
Herrmann, Guido	University of Bristol
Leonards, Ute	University of Bristol

18:21-18:24 ThFTS5.8

*Human Gaze Following for Human-Robot Interaction*, pp. 8615-8621.

Saran, Akanksha	University of Texas at Austin
Majumdar, Srinjoy	University of Texas at Austin
Short, Elaine Schaertl	University of Texas at Austin
Thomaz, Andrea Lockerd	University of Texas at Austin
Niekum, Scott	University of Texas at Austin

**ThFTS6** Room 1.L3  
**Motion and Path Planning IV** (Regular session)

Co-Chair: Cañas, José M. Universidad Rey Juan Carlos

18:00-18:03 ThFTS6.1

*Incorporating Kinematic Properties into Fused Deposition Toolpath Optimization*, pp. 8622-8627.

Lensgraf, Samuel	Tulane University
Mettu, Ramgopal	Tulane University

18:03-18:06 ThFTS6.2

*A Natural Adaptive Control Law for Robot Manipulators*, pp. 8628-8635.

Lee, Taeyoon	Seoul National University
Kwon, Jaewoon	Seoul National University
Park, Frank	Seoul National University

18:06-18:09 ThFTS6.3

*Reactive Magnetic-Field-Inspired Navigation Method for Robots in Unknown Convex 3D Environments*, N/A.

Ataka, Ahmad	King's College London
Lam, Hak-Keung	King's College London
Althoefer, Kaspar	Queen Mary University of London

18:09-18:12 ThFTS6.4

*Map-Based Deep Imitation Learning for Obstacle Avoidance*, pp. 8644-8649.

Liu, Yuejiang	Segway Robotics Inc
Xu, An	Tsinghua University

Chen, Zichong	Segway Robotics Inc
18:12-18:15	ThFTS6.5
<i>Multi-World Motion Planning, N/A.</i>	
Davis, Bobby	University of Minnesota
Sohre, Nick	University of Minnesota
Guy, Stephen J.	University of Minnesota - Twin Cities
18:15-18:18	ThFTS6.6
<i>Wireframe Mapping for Resource-Constrained Robots, pp. 8658-8665.</i>	
Caccavale, Adam	Stanford University
Schwager, Mac	Stanford University
18:18-18:21	ThFTS6.7
<i>Accelerating Goal-Directed Reinforcement Learning by Model Characterization, pp. 8666-8673.</i>	
Debnath, Shoubhik	NVIDIA
Sukhatme, Gaurav	University of Southern California
Liu, Lantao	Indiana University
18:21-18:24	ThFTS6.8
<i>Improving Trajectory Optimization Using a Roadmap Framework, pp. 8674-8681.</i>	
Dai, Siyu	Massachusetts Institute of Technology
Orton, Matthew	Massachusetts Institute of Technology
Schaffert, Shawn	Massachusetts Institute of Technology
Hofmann, Andreas	MIT
Williams, Brian	MIT
<b>ThFTS7</b>	Room 2.L3
<b>Bioinspired Robotics IV (Regular session)</b>	
Chair: Dieber, Bernhard	Joanneum Research
Co-Chair: Pallottino, Lucia	Università Di Pisa
18:00-18:03	ThFTS7.1
<i>PH Model-Based Shape Reconstruction of Heterogeneous Continuum Closed Loop Kinematic Chain: An Application to Skipping Rope, pp. 8682-8688.</i>	
Singh, Inderjeet	CRISTAL, CNRS UMR 9189, University of Lille1
Amara, Yacine	Ecole Militaire Polytechnique
Lakhal, Othman	University Lille1
Achille, Melingui	University of Lille1, Polytech' Lille, LAGIS Laboratory
Merzouki, Rochdi	CRISTAL, CNRS UMR 9189, University of Lille1
18:03-18:06	ThFTS7.2
<i>Optimal Feedback Control Based on Analytical Linear Models Extracted from Neural Networks Trained for Nonlinear Systems, pp. 8689-8694.</i>	
Duan, Yu	Osaka University
Ikemoto, Shuhei	Osaka University
Hosoda, Koh	Osaka University
18:06-18:09	ThFTS7.3
<i>Learning to Grasp by Extending the Peri-Personal Space Graph, pp. 8695-8700.</i>	
Juett, Jonathan	University of Michigan at Ann Arbor
Kuipers, Benjamin	University of Michigan
18:09-18:12	ThFTS7.4
<i>Impedance Control of a High Performance Twisted-Coiled</i>	

<i>Polymer Actuator, pp. 8701-8706.</i>	
Luong, Anh Tuan	Sungkyunkwan University
Moon, Hyungpil	Sungkyunkwan University
Seo, Sungwon	SungKyunKwan Univ
Kim, Youngeun	Sungkyunkwan University
Yang, Sang Yul	Sungkyunkwan University
Cho, Kyeong Ho	SungKyunKwan University
Choi, Hyouk Ryeol	Sungkyunkwan University
Koo, Ja Choon	Sungkyunkwan University
Park, Jae Hyeong	Sungkwunkwan University
Kim, Kihyeon	Sungkyunkwan University

18:12-18:15	ThFTS7.5
<i>Jumping Motion Generation of a Humanoid Robot Utilizing Human-Like Joint Elasticity, pp. 8707-8714.</i>	
Otani, Takuya	Waseda University
Hashimoto, Kenji	Meiji University
Ueta, Hiroki	Waseda University
Sakaguchi, Masanori	Waseda University
Kawakami, Yasuo	Waseda University
Lim, Hun-ok	Kanagawa University
Takanishi, Atsuo	Waseda University

18:15-18:18	ThFTS7.6
<i>Ostraciiform Underwater Robot with Segmented Caudal Fin, N/A.</i>	
Zhang, Runzhi	The University of Hong Kong
Shen, Zhong	The University of Hong Kong
Wang, Zheng	The University of Hong Kong

18:18-18:21	ThFTS7.7
<i>Secure Data Recording and Bio-Inspired Functional Integrity for Intelligent Robots, pp. 8723-8728.</i>	
Taurer, Sebastian	JOANNEUM RESEARCH Forschungsgesellschaft
Dieber, Bernhard	Joanneum Research
Schartner, Peter	Alpen-Adria Universität Klagenfurt

<b>ThFTS8</b>	Room 2.R1
<b>Haptics (Regular session)</b>	
Chair: Khalil, Islam S.M.	German University in Cairo
Co-Chair: Ferre, Manuel	Universidad Politecnica De Madrid

18:00-18:03	ThFTS8.1
<i>A Wearable 3-Axis Tactile Sensor for Human Fingertips, N/A.</i>	
Kristanto, Harris	Waseda University
Schmitz, Alexander	Waseda University
Sathe, Prathamesh	Waseda University
Tomo, Tito Pradhono	Waseda University
Somlor, Sophon	Waseda University
Sugano, Shigeki	Waseda University

18:03-18:06	ThFTS8.2
<i>Rendering of Virtual Volumetric Shapes Using an Electromagnetic-Based Haptic Interface, pp. 8737-8742.</i>	
Adel, Alaa	German University in Cairo
Micheal, Mina	German University in Cairo
Abou Seif, Mohamed	German University in Cairo
Abdennadher, Slim	German University in Cairo
Khalil, Islam S.M.	German University in Cairo

18:06-18:09	ThFTS8.3
<i>ErgoTac: A Tactile Feedback Interface for Improving Human</i>	

*Ergonomics in Workplaces, N/A.*

Kim, Wansoo	Istituto Italiano Di Tecnologia
Lorenzini, Marta	Istituto Italiano Di Tecnologia
Kapicioglu, Kagan	Bahçeşehir University
Ajoudani, Arash	Istituto Italiano Di Tecnologia

18:09-18:12 ThFTS8.4

*Master-Slave Coordination Using Virtual Constraints for a Redundant Dual-Arm Haptic Interface, pp. 8751-8757.*

Ghazaei Ardakani, M. Mahdi	Istituto Italiano Di Tecnologia (IIT)
Karlsson, Martin	Lund University
Nilsson, Klas	Lund University
Robertsson, Anders	LTH, Lund University
Johansson, Rolf	Lund University

18:12-18:15 ThFTS8.5

*Gaussian Process Dynamic Programming for Optimizing Ungrounded Haptic Guidance, pp. 8758-8764.*

Walker, Julie M.	Stanford University
Okamura, Allison M.	Stanford University
Kochenderfer, Mykel	Stanford University

18:15-18:18 ThFTS8.6

*A Novel Input Device for Robotic Prosthetic Hand : Design and Preliminary Results, pp. 8765-8770.*

Kim, Young-Jin	University of Science and Technology, Korea
Lee, Dong-Hyuk	Korea Institute of Industrial Technology (KITECH)
Park, Hyeonjun	Seoul National University
Park, Jae-Han	Korea Institute of Industrial Technology
Bae, Ji-Hun	Korea Institute of Industrial Technology

18:18-18:21 ThFTS8.7

*Combining Wearable Haptics and Augmented Reality: User Evaluation Using an External Camera and the Microsoft HoloLens, N/A.*

Meli, Leonardo	University of Siena
Pacchierotti, Claudio	Centre National De La Recherche Scientifique (CNRS)
Salviotti, Gionata	University of Siena
Chinello, Francesco	Aarhus University
Maisto, Maurizio	Dipartimento Di Ingegneria Informatica, Automatica E Gestionale,
De Luca, Alessandro	Sapienza University of Rome
Prattichizzo, Domenico	University of Siena

18:21-18:24 ThFTS8.8

*Continuous State-Action-Observation POMDPs for Trajectory Planning with Bayesian Optimisation, pp. 8779-8786.*

Morere, Philippe	University of Sydney
Marchant, Roman	University of Sydney
Ramos, Fabio	University of Sydney

**ThFTS9** Room 4.L1

**Agriculture Robotics III (Regular session)**

Chair: Berns, Karsten	University of Kaiserslautern
Co-Chair: Misimi, Ekrem	SINTEF Ocean

18:00-18:03 ThFTS9.1

*Super-High-Purity Seed Sorter Using Low-Latency Image Recognition Based on Deep Learning, N/A.*

Heo, Young Jin	POSTECH
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Kim, Se Jin	POSTECH
Kim, Dayeon	POSTECH
Lee, Keondo	POSTECH, Mechanical Engineering
Chung, Wan Kyun	POSTECH

18:03-18:06 ThFTS9.2

*Crop Row Detection on Tiny Plants with the Pattern Hough Transform, N/A.*

Winterhalter, Wera	University of Freiburg
Fleckenstein, Freya Veronika	University of Freiburg
Dornhege, Christian	University of Freiburg
Burgard, Wolfram	University of Freiburg

18:06-18:09 ThFTS9.3

*3D Soil Compaction Mapping through Kriging-Based Exploration with a Mobile Robot, N/A.*

Pulido Fentanes, Jaime	University of Lincoln
Gould, Iain	University of Lincoln
Duckett, Tom	University of Lincoln
Pearson, Simon	University of Lincoln
Cielniak, Grzegorz	University of Lincoln

18:09-18:12 ThFTS9.4

*Achieving Robotically Peeled Lettuce, N/A.*

Hughes, Josie	University of Cambridge
Scimeca, Luca	University of Cambridge
Ifrim, Ioana	University of Cambridge
Maiolino, Perla	University of Cambridge
Iida, Fumiya	University of Cambridge

18:12-18:15 ThFTS9.5

*Robotics for Sugarcane Cultivation: Analysis of Billet Quality Using Computer Vision, N/A.*

Alencastre-Miranda, Moises	Massachusetts Institute of Technology (MIT)
Davidson, Joseph	Massachusetts Institute of Technology
Johnson, Richard M.	United States Department of Agriculture – Agricultural Research
Waguespack, Herman	American Sugar Cane League
Krebs, Hermano Igo	MIT

18:15-18:18 ThFTS9.6

*Robust Long-Term Registration of UAV Images of Crop Fields for Precision Agriculture, N/A.*

Chebrolu, Nived	University of Bonn
Läbe, Thomas	University of Bonn
Stachniss, Cyrill	University of Bonn

18:18-18:21 ThFTS9.7

*Fully Convolutional Networks with Sequential Information for Robust Crop and Weed Detection in Precision Farming, N/A.*

Lottes, Philipp	University of Bonn
Behley, Jens	University of Bonn
Milioto, Andres	University of Bonn
Stachniss, Cyrill	University of Bonn

Technical Program for Friday October 5, 2018

<b>FrA1</b>	Room 1.L2
<b>WSFFD09 - Robotics for Logistics in Warehouses and Environments Shared with Humans, Part I (Workshop)</b>	
Chair: Villani, Luigi	Univ. Napoli Federico II
09:00-11:00	FrA1.1
<i>Robotics for Logistics in Warehouses and Environments Shared with Humans*</i> .	
Villani, Luigi	Univ. Napoli Federico II
Magnusson, Martin	Örebro University
Prassler, Erwin	Bonn-Rhein-Sieg Univ. of Applied Sciences
Puljiz, David	Karlsruhe Institute of Technology
De la Riva, Jesús Julián	ITAINNOVA / Instituto Tecnológico de Aragón, Spain
Alfonso	
<b>FrA2</b>	Room 1.L3
<b>TUFAM04 - Screw Theory for Robotics: A Practical Approach for Modern Robot Mechanics for Robotics: A Practical Approach for Modern Robot Mechanics, Part I (Tutorial)</b>	
Chair: Pardos-Gotor, Jose M.	Universidad Carlos III De Madrid
09:00-11:00	FrA2.1
<i>SCREW THEORY for ROBOTICS - a Practical Approach for Modern Robot Mechanics*</i> .	
Pardos-Gotor, Jose M.	Universidad Carlos III de Madrid
<b>FrA3</b>	Room 4.L3
<b>WSFFD12 - Soft Robotic Modeling and Control: Bringing Together Articulated Soft Robots and Soft-Bodied Robots, Part I (Workshop)</b>	
Chair: Katzschmann, Robert	Massachusetts Institute of Technology
Kevin	
09:00-11:00	FrA3.1
<i>Soft Robotic Modeling and Control: Bringing Together Articulated Soft Robots and Soft-Bodied Robots*</i> .	
Katzschmann, Robert Kevin	Massachusetts Institute of Technology
Della Santina, Cosimo	Centro E. Piaggio
Rus, Daniela	MIT
<b>FrA4</b>	Room 1.R3
<b>WSFFD13 - Shape Changing Robotic Structures and Interfaces, Part I (Workshop)</b>	
Chair: Wurdemann, Helge	University College London
Arne	
09:00-11:00	FrA4.1
<i>Workshop on Shape Changing Robotic Structures and Interfaces*</i> .	
Wurdemann, Helge Arne	University College London
Roudaut, Anne	University of Bristol
Dogramadzi, Sanja	University of the West of England
Paik, Jamie	Ecole Polytechnique Federale de Lausanne
Girouard, Audrey	Carleton University
Althoefer, Kaspar	Queen Mary University of London
Ho, Van	Japan Advanced Institute of Science and Technology
<b>FrA5</b>	Room 2.L2

**WSFFD15 - Experimental Robotic Grasping and Manipulation: Benchmarks, Datasets, and Competitions, Part I (Workshop)**

Chair: Sun, Yu	University of South Florida
09:00-11:00	FrA5.1
<i>Experimental Robotic Grasping and Manipulation -- Benchmarks, Datasets, and Competitions*</i> .	
Sun, Yu	University of South Florida
Moon, Hyungpil	Sungkyunkwan University
Falco, Joe	NIST
Calli, Berk	Worcester Institute of Technology

**FrA6** Auditorium  
**WSFFD04 - Machine Learning in Robot Motion Planning, Part I (Workshop)**

Chair: Choudhury, Sanjiban	University of Washington
09:00-11:00	FrA6.1
<i>Machine Learning in Robot Motion Planning*</i> .	
Choudhury, Sanjiban	University of Washington
Dey, Debadeepta	Microsoft
Srinivasa, Siddhartha	University of Washington
Toussaint, Marc	University of Stuttgart
Boots, Byron	Georgia Institute of Technology

**FrA7** Room 1.L5  
**WSFFD02 - Vision-Based Drones: What's Next? Part I (Workshop)**

Chair: Loiano, Giuseppe	New York University
09:00-11:00	FrA7.1
<i>Vision-Based Drones: What's Next?*</i> .	
Loiano, Giuseppe	New York University
Scaramuzza, Davide	University of Zurich
Kumar, Vijay	University of Pennsylvania

**FrA8** Room 4.R1  
**WSFAM20 - Human-Robot Cooperation and Collaboration in Manipulation: Advancements and Challenges, Part I (Workshop)**

Chair: Ortenzi, Valerio	Queensland University of Technology / ACRV
09:00-11:00	FrA8.1
<i>Human-Robot Cooperation and Collaboration in Manipulation: Advancements and Challenges*</i> .	
Ortenzi, Valerio	Queensland University of Technology / ACRV
Controzzi, Marco	Scuola Superiore Sant'Anna
Marturi, Naresh	University of Birmingham
Bekiroglu, Yasemin	Vicarious AI
Corke, Peter	Queensland University of Technology
Cherubini, Andrea	LIRMM - Universite de Montpellier CNRS

**FrA9** Room 2.R1  
**WSFFD14 - Development of Agile Robots, Part I (Workshop)**

Chair: Kashiri, Navvab	Istituto Italiano Di Tecnologia
09:00-11:00	FrA9.1
<i>Development of Agile Robots*</i> .	
Kashiri, Navvab	Istituto Italiano di Tecnologia

Malzahn, Jörn Istituto Italiano di Tecnologia  
Tsagarakis, Nikos Istituto Italiano di Tecnologia

**FrA10** Room 4.L4  
**WSFAM19 - New Horizons for Underwater Intervention Missions: From Current Technologies to Future Applications, Part I (Workshop)**

Chair: Sanz, Pedro J Jaime I

09:00-11:00 FrA10.1

*New Horizons for Underwater Intervention Missions: From Current Technologies to Future Applications\**.

Sanz, Pedro J Jaime I

Khatib, Oussama Stanford University

Choi, Hyun-Taek Korea Institute of Oceans Science and Technology

Kawamura, Sadao Ritsumeikan University

Ridao, Pere Universitat de Girona

**FrA11** Room 4.R3  
**WSFAM25 - Robotic Co-Workers 4.0: Human Safety and Comfort in Human-Robot Interactive Social Environments, Part I (Workshop)**

Chair: Ngo, Trung-Dung University of Prince Edward Island

09:00-11:00 FrA11.1

*Robotic Co-Workers 4.0: Human Safety and Comfort in Human-Robot Interactive Social Environments\**.

Ngo, Trung-Dung University of Prince Edward Island

Alami, Rachid CNRS

Nejat, Goldie University of Toronto

Ou, Yongsheng Chinese Academy of Sciences

Kanda, Takayuki Kyoto University

Truong, Xuan-Tung Le Quy Don Technical University

**FrA12** Room 4.R5  
**WSFFD07 - Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction, Part I (Workshop)**

Chair: Ishiguro, Hiroshi Osaka University

09:00-11:00 FrA12.1

*Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction\**.

Ishiguro, Hiroshi Osaka University

Kawahara, Tatsuya Kyoto Univ.

Nakamura, Yutaka Osaka university

**FrA13** Room 2.L5 KUKA  
**WSFFD01 - 2nd Workshop on Multi-Robot Perception-Driven Control and Planning, Part I (Workshop)**

Chair: Alonso-Mora, Javier Delft University of Technology

09:00-11:00 FrA13.1

*Second Workshop on Multi-Robot Perception-Driven Control and Planning\**.

Alonso-Mora, Javier Delft University of Technology

Montijano, Eduardo Universidad de Zaragoza

Rus, Daniela MIT

Schwager, Mac Stanford University

**FrA14** Room 1.R4

**TUFFD01 - Aerial Robotic Manipulation, Part I (Tutorial)**

Chair: Heredia, Guillermo University of Seville

09:00-11:00 FrA14.1

*Aerial Robotic Manipulation\**.

Heredia, Guillermo University of Seville

**FrA15** Room 2.R4  
**WSFFD11 - Continuum and Soft Robots (CSR) for Medical Interventions: Modelling, Fabrication, and Control, Part I (Workshop)**

Chair: Rabenoroosa, Kanty Univ. Bourgogne Franche-Comté, CNRS

09:00-11:00 FrA15.1

*Continuum and Soft Robots (CSR) for Medical Interventions: Modeling, Fabrication, and Control\**.

Rabenoroosa, Kanty Univ. Bourgogne Franche-Comté, CNRS

Burgner-Kahrs, Jessica Leibniz Universität Hannover

Cianchetti, Matteo Scuola Superiore Sant'Anna

Rucker, Caleb University of Tennessee

**FrA16** Room 1.R5  
**WSFFD06 - Collaboratively Working towards Ontology-Based Standards for Robotics and Automation, Part I (Workshop)**

Chair: Bermejo, Julita Universidad Politecnica De Madrid

09:00-11:00 FrA16.1

*Collaboratively Working towards Ontology-Based Standards for Robotics and Automation\**.

Bermejo, Julita Universidad Politecnica de Madrid

Chibani, Abdelghani Lissi Lab Paris EST University

Gonçalves, Paulo Instituto Politecnico de Castelo Branco

Li, Howard University of New Brunswick

Jordan, Sara Rene Virginia Tech

Olivares, Alberto Universidad de Castilla-La Mancha

Olszewska, Joanna Isabelle University of Gloucestershire, United Kingdom

Prestes, Edson UFRGS

Rama Fiorini, Sandro Université Paris-Est Creteil

Sanz, Ricardo Universidad Politecnica de Madrid

**FrA17** Room 1.L1  
**WSFAM21 - Hand-Shaking Advanced Control in Marine Robotics Applications, Part I (Workshop)**

Chair: Zereik, Enrica CNR - National Research Council

09:00-11:00 FrA17.1

*Hand-Shaking Advanced Control in Marine Robotics Applications\**.

Zereik, Enrica CNR - National Research Council

Bonsignorio, Fabio Paolo Heron Robots srl and The Biorobotics Insitute Scuola Superiore S. Anna

**FrA18** Room 2.L3  
**WSFFD05 - Robots for Assisted Living, Part I (Workshop)**

Chair: Calinon, Sylvain Idiap Research Institute

09:00-11:00 FrA18.1

*Robots for Assisted Living\**.

Calinon, Sylvain	Idiap Research Institute
Dogramadzi, Sanja	University of the West of England
Torras, Carme	CSIC - UPC
Shibata, Tomohiro	Kyushu institute of technology
Demiris, Yiannis	Imperial College London

**FrA19** Room 4.R4

**WSFFD03 - ImPACT Tough Robotics Challenge: A National Project of Disaster Robotics Aiming at Social Innovation in Safety and Security, Part I (Workshop)**

Chair: Tadokoro, Satoshi Tohoku University

09:00-11:00 FrA19.1

*ImPACT Tough Robotics Challenge - a National Project of Disaster Robotics Aiming at Social Innovation in Safety and Security\**.

Tadokoro, Satoshi	Tohoku University
Matsuno, Fumitoshi	Kyoto University

**FrA20** Room 2.R3

**WSFAM17 - Workshop on Crossmodal Learning for Intelligent Robotics, Part I (Workshop)**

Chair: Parisi, German Ignacio University of Hamburg

09:00-11:00 FrA20.1

*Workshop on Crossmodal Learning for Intelligent Robotics\**.

Parisi, German Ignacio	University of Hamburg
Barros, Pablo	University of Hamburg
Jirak, Doreen	University of Hamburg
Tani, Jun	Okinawa Institute of Science and Technology
Choe, Yoonsuck	Texas A and M University

**FrA21** Room 4.R2

**TUFAM03 - Robot Audition: Open Source Software HARK, Part I (Tutorial)**

Chair: Nakadai, Kazuhiro Honda Research Inst. Japan Co., Ltd

09:00-11:00 FrA21.1

*Tutorial on Robot Audition Open Source Software HARK\**.

Nakadai, Kazuhiro	Honda Research Inst. Japan Co., Ltd.
Okuno, Hiroshi G.	Waseda University
Kumon, Makoto	Graduate School of Science and Technology, Kumamoto
Ince, Gokhan	Istanbul Technical University
Sugiyama, Osamu	Kyoto University Hospital
Itoyama, Katsutoshi	Kyoto University
Kojima, Ryosuke	Kyoto University
Suzuki, Reiji	Nagoya University
Hoshiba, Kotaro	Kanagawa University

**FrA22** Room 2.R2

**TUFFD02 - Collaborative Robotics Toolkit (CRTK) and Open Platforms for Medical Robotics Research, Part I (Tutorial)**

Chair: Kazanides, Peter Johns Hopkins University

09:00-11:00 FrA22.1

*Collaborative Robotics Toolkit (CRTK) and Open Platforms for*

*Medical Robotics Research\**.

Kazanides, Peter	Johns Hopkins University
Hannaford, Blake	University of Washington
Fischer, Gregory Scott	Worcester Polytechnic Institute, WPI

**FrA23** Room 4.L1

**WSFFD08 - Semantic Policy and Action Representations for Autonomous Robots, Part I (Workshop)**

Chair: Aksoy, Eren Erdal Halmstad University

09:00-11:00 FrA23.1

*Semantic Policy and Action Representations for Autonomous Robots\**.

Aksoy, Eren Erdal	Halmstad University
Yang, Yezhou	Arizona State University
Ramirez-Amaro, Karinne	Institute for Cognitive Systems. Technische Universität München.
Dantam, Neil	Colorado School of Mines
Cheng, Gordon	Technical University of Munich

**FrB1** Room 1.L2

**WSFFD09 - Robotics for Logistics in Warehouses and Environments Shared with Humans, Part II (Workshop)**

Chair: Villani, Luigi Univ. Napoli Federico II

11:30-13:30 FrB1.1

*Robotics for Logistics in Warehouses and Environments Shared with Humans\**.

Villani, Luigi	Univ. Napoli Federico II
Magnusson, Martin	Örebro University
Prassler, Erwin	Bonn-Rhein-Sieg Univ. of Applied Sciences
Puljiz, David	Karlsruhe Institute of Technology
De la Riva, Jesús Julián Alfonso	ITAINNOVA / Instituto Tecnológico de Aragón, Spain

**FrB2** Room 1.L3

**TUFAM04 - Screw Theory for Robotics: A Practical Approach for Modern Robot Mechanics for Robotics: A Practical Approach for Modern Robot Mechanics, Part II (Tutorial)**

Chair: Pardos-Gotor, Jose M. Universidad Carlos III De Madrid

11:30-13:30 FrB2.1

*SCREW THEORY for ROBOTICS - a Practical Approach for Modern Robot Mechanics\**.

Pardos-Gotor, Jose M. Universidad Carlos III de Madrid

**FrB3** Room 4.L3

**WSFFD12 - Soft Robotic Modeling and Control: Bringing Together Articulated Soft Robots and Soft-Bodied Robots, Part II (Workshop)**

Chair: Katzschmann, Robert Massachusetts Institute of Technology

11:30-13:30 FrB3.1

*Soft Robotic Modeling and Control: Bringing Together Articulated Soft Robots and Soft-Bodied Robots\**.

Katzschmann, Robert Kevin	Massachusetts Institute of Technology
Della Santina, Cosimo	Centro E. Piaggio
Rus, Daniela	MIT



**FrB4** Room 1.R3  
**WSFFD13 - Shape Changing Robotic Structures and Interfaces, Part II (Workshop)**

Chair: Wurdemann, Helge University College London  
Arne

11:30-13:30 FrB4.1

*Workshop on Shape Changing Robotic Structures and Interfaces\**.

Wurdemann, Helge Arne University College London

Roudaut, Anne University of Bristol

Dogramadzi, Sanja University of the West of England

Paik, Jamie Ecole Polytechnique Federale de Lausanne

Girouard, Audrey Carleton University

Althoefer, Kaspar Queen Mary University of London

Ho, Van Japan Advanced Institute of Science and Technology

**FrB5** Room 2.L2

**WSFFD15 - Experimental Robotic Grasping and Manipulation: Benchmarks, Datasets, and Competitions, Part II (Workshop)**

Chair: Sun, Yu University of South Florida

11:30-13:30 FrB5.1

*Experimental Robotic Grasping and Manipulation -- Benchmarks, Datasets, and Competitions\**.

Sun, Yu University of South Florida

Moon, Hyungpil Sungkyunkwan University

Falco, Joe NIST

Calli, Berk Worcester Institute of Technology

**FrB6** Auditorium

**WSFFD04 - Machine Learning in Robot Motion Planning, Part II (Workshop)**

Chair: Choudhury, Sanjiban University of Washington

11:30-13:30 FrB6.1

*Machine Learning in Robot Motion Planning\**.

Choudhury, Sanjiban University of Washington

Dey, Debadeepta Microsoft

Srinivasa, Siddhartha University of Washington

Toussaint, Marc University of Stuttgart

Boots, Byron Georgia Institute of Technology

**FrB7** Room 1.L5

**WSFFD02 - Vision-Based Drones: What's Next? Part II (Workshop)**

Chair: Loianno, Giuseppe New York University

11:30-13:30 FrB7.1

*Vision-Based Drones: What's Next?\**.

Loianno, Giuseppe New York University

Scaramuzza, Davide University of Zurich

Kumar, Vijay University of Pennsylvania

**FrB8** Room 4.R1

**WSFAM20 - Human-Robot Cooperation and Collaboration in Manipulation: Advancements and Challenges, Part II (Workshop)**

Chair: Ortenzi, Valerio Queensland University of Technology / ACRV

11:30-13:30 FrB8.1

*Human-Robot Cooperation and Collaboration in Manipulation: Advancements and Challenges\**.

Ortenzi, Valerio Queensland University of Technology / ACRV

Controzzi, Marco Scuola Superiore Sant'Anna

Marturi, Naresh University of Birmingham

Bekiroglu, Yasemin Vicarious AI

Corke, Peter Queensland University of Technology

Cherubini, Andrea LIRMM - Universite de Montpellier CNRS

**FrB9** Room 2.R1

**WSFFD14 - Development of Agile Robots, Part II (Workshop)**

Chair: Kashiri, Navvab Istituto Italiano Di Tecnologia

11:30-13:30 FrB9.1

*Development of Agile Robots\**.

Kashiri, Navvab Istituto Italiano di Tecnologia

Malzahn, Jörn Istituto Italiano di Tecnologia

Tsagarakis, Nikos Istituto Italiano di Tecnologia

**FrB10** Room 4.L4

**WSFAM19 - New Horizons for Underwater Intervention Missions: From Current Technologies to Future Applications, Part II (Workshop)**

Chair: Sanz, Pedro J Jaume I

11:30-13:30 FrB10.1

*New Horizons for Underwater Intervention Missions: From Current Technologies to Future Applications\**.

Sanz, Pedro J Jaume I

Khatib, Oussama Stanford University

Choi, Hyun-Taek Korea Institute of Oceans Science and Technology

Kawamura, Sadao Ritsumeikan University

Ridao, Pere Universitat de Girona

**FrB11** Room 4.R3

**WSFAM25 - Robotic Co-Workers 4.0: Human Safety and Comfort in Human-Robot Interactive Social Environments, Part II (Workshop)**

Chair: Ngo, Trung-Dung University of Prince Edward Island

11:30-13:30 FrB11.1

*Robotic Co-Workers 4.0: Human Safety and Comfort in Human-Robot Interactive Social Environments\**.

Ngo, Trung-Dung University of Prince Edward Island

Alami, Rachid CNRS

Nejat, Goldie University of Toronto

Ou, Yongsheng Chinese Academy of Sciences

Kanda, Takayuki Kyoto University

Truong, Xuan-Tung Le Quy Don Technical University

**FrB12** Room 4.R5

**WSFFD07 - Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction, Part II (Workshop)**

Chair: Ishiguro, Hiroshi Osaka University

11:30-13:30 FrB12.1

*Autonomous Dialogue Technologies in Symbiotic Human-Robot*

Interaction\*.

Ishiguro, Hiroshi	Osaka University
Kawahara, Tatsuya	Kyoto Univ.
Nakamura, Yutaka	Osaka university

**FrB13** Room 2.L5 KUKA  
**WSFFD01 - 2nd Workshop on Multi-Robot Perception-Driven Control and Planning, Part II (Workshop)**

Chair: Alonso-Mora, Javier Delft University of Technology

11:30-13:30 FrB13.1

*Second Workshop on Multi-Robot Perception-Driven Control and Planning\*.*

Alonso-Mora, Javier	Delft University of Technology
Montijano, Eduardo	Universidad de Zaragoza
Rus, Daniela	MIT
Schwager, Mac	Stanford University

**FrB14** Room 1.R4  
**TUFFD01 - Aerial Robotic Manipulation, Part II (Tutorial)**

Chair: Heredia, Guillermo University of Seville

11:30-13:30 FrB14.1

*Aerial Robotic Manipulation\*.*

Heredia, Guillermo University of Seville

**FrB15** Room 2.R4  
**WSFFD11 - Continuum and Soft Robots (CSR) for Medical Interventions: Modelling, Fabrication, and Control, Part II (Workshop)**

Chair: Rabenorosoa, Kanty Univ. Bourgogne Franche-Comté, CNRS

11:30-13:30 FrB15.1

*Continuum and Soft Robots (CSR) for Medical Interventions: Modeling, Fabrication, and Control\*.*

Rabenorosoa, Kanty	Univ. Bourgogne Franche-Comté, CNRS
Burgner-Kahrs, Jessica	Leibniz Universität Hannover
Cianchetti, Matteo	Scuola Superiore Sant'Anna
Rucker, Caleb	University of Tennessee

**FrB16** Room 1.R5  
**WSFFD06 - Collaboratively Working towards Ontology-Based Standards for Robotics and Automation, Part II (Workshop)**

Chair: Bermejo, Julita Universidad Politecnica De Madrid

11:30-13:30 FrB16.1

*Collaboratively Working towards Ontology-Based Standards for Robotics and Automation\*.*

Bermejo, Julita	Universidad Politecnica de Madrid
Chibani, Abdelghani	Lissi Lab Paris EST University
Gonçalves, Paulo	Instituto Politecnico de Castelo Branco
Li, Howard	University of New Brunswick
Jordan, Sara Rene	Virginia Tech
Olivares, Alberto	Universidad de Castilla-La Mancha
Olszewska, Joanna Isabelle	University of Gloucestershire, United Kingdom
Prestes, Edson	UFRGS
Rama Fiorini, Sandro	Université Paris-Est Creteil

Sanz, Ricardo Universidad Politecnica de Madrid

**FrB17** Room 1.L1  
**WSFAM21 - Hand-Shaking Advanced Control in Marine Robotics Applications, Part II (Workshop)**

Chair: Zereik, Enrica CNR - National Research Council

11:30-13:30 FrB17.1

*Hand-Shaking Advanced Control in Marine Robotics Applications\*.*

Zereik, Enrica	CNR - National Research Council
Bonsignorio, Fabio Paolo	Heron Robots srl and The Biorobotics Institute Scuola Superiore S. Anna

**FrB18** Room 2.L3  
**WSFFD05 - Robots for Assisted Living, Part II (Workshop)**

Chair: Calinon, Sylvain Idiap Research Institute

11:30-13:30 FrB18.1

*Robots for Assisted Living\*.*

Calinon, Sylvain	Idiap Research Institute
Dogramadzi, Sanja	University of the West of England
Torras, Carme	CSIC - UPC
Shibata, Tomohiro	Kyushu institute of technology
Demiris, Yiannis	Imperial College London

**FrB19** Room 4.R4  
**WSFFD03 - ImPACT Tough Robotics Challenge: A National Project of Disaster Robotics Aiming at Social Innovation in Safety and Security, Part II (Workshop)**

Chair: Tadokoro, Satoshi Tohoku University

11:30-13:30 FrB19.1

*ImPACT Tough Robotics Challenge - a National Project of Disaster Robotics Aiming at Social Innovation in Safety and Security\*.*

Tadokoro, Satoshi	Tohoku University
Matsuno, Fumitoshi	Kyoto University

**FrB20** Room 2.R3  
**WSFAM17 - Workshop on Crossmodal Learning for Intelligent Robotics, Part II (Workshop)**

Chair: Parisi, German University of Hamburg Ignacio

11:30-13:30 FrB20.1

*Workshop on Crossmodal Learning for Intelligent Robotics\*.*

Parisi, German Ignacio	University of Hamburg
Barros, Pablo	University of Hamburg
Jirak, Doreen	University of Hamburg
Tani, Jun	Okinawa Institute of Science and Technology
Choe, Yoonsuck	Texas A and M University

**FrB21** Room 4.R2  
**TUFAM03 - Robot Audition: Open Source Software HARK, Part II (Tutorial)**

Chair: Nakadai, Kazuhiro Honda Research Inst. Japan Co., Ltd

11:30-13:30 FrB21.1

*Tutorial on Robot Audition Open Source Software HARK\**.

Nakadai, Kazuhiro	Honda Research Inst. Japan Co., Ltd.
Okuno, Hiroshi G.	Waseda University
Kumon, Makoto	Graduate School of Science and Technology, Kumamoto
Ince, Gokhan	Istanbul Technical University
Sugiyama, Osamu	Kyoto University Hospital
Itoyama, Katsutoshi	Kyoto University
Kojima, Ryosuke	Kyoto University
Suzuki, Reiji	Nagoya University
Hoshiba, Kotaro	Kanagawa University

**FrB22** Room 2.R2

**TUFFD02 - Collaborative Robotics Toolkit (CRTK) and Open Platforms for Medical Robotics Research, Part II (Tutorial)**

Chair: Kazanzides, Peter Johns Hopkins University

11:30-13:30 FrB22.1

*Collaborative Robotics Toolkit (CRTK) and Open Platforms for Medical Robotics Research\**.

Kazanzides, Peter	Johns Hopkins University
Hannaford, Blake	University of Washington
Fischer, Gregory Scott	Worcester Polytechnic Institute, WPI

**FrB23** Room 4.L1

**WSFFD08 - Semantic Policy and Action Representations for Autonomous Robots, Part II (Workshop)**

Chair: Aksoy, Eren Erdal Halmstad University

11:30-13:30 FrB23.1

*Semantic Policy and Action Representations for Autonomous Robots\**.

Aksoy, Eren Erdal	Halmstad University
Yang, Yezhou	Arizona State University
Ramirez-Amaro, Karinne	Institute for Cognitive Systems. Technische Universität München.
Dantam, Neil	Colorado School of Mines
Cheng, Gordon	Technical University of Munich

**FrC1** Room 1.L2

**WSFFD09 - Robotics for Logistics in Warehouses and Environments Shared with Humans, Part III (Workshop)**

Chair: Villani, Luigi Univ. Napoli Federico II

14:30-16:30 FrC1.1

*Robotics for Logistics in Warehouses and Environments Shared with Humans\**.

Villani, Luigi	Univ. Napoli Federico II
Magnusson, Martin	Örebro University
Prassler, Erwin	Bonn-Rhein-Sieg Univ. of Applied Sciences
Puljiz, David	Karlsruhe Institute of Technology
De la Riva, Jesús Julián Alfonso	ITAINNOVA / Instituto Tecnológico de Aragón, Spain

**FrC2** Room 1.L3

**WSFPM23 - Unconventional Sensing and Processing for Robotic Visual Perception (PM), Part I (Workshop)**

Chair: Sandamirskaya, Yulia University and ETH Zurich

14:30-16:30 FrC2.1

*Unconventional Sensing and Processing for Robotic Visual Perception\**.

Sandamirskaya, Yulia	University and ETH Zurich
Martel, Julien	University of Zurich & ETH Zurich

**FrC3** Room 4.L3

**WSFFD12 - Soft Robotic Modeling and Control: Bringing Together Articulated Soft Robots and Soft-Bodied Robots, Part III (Workshop)**

Chair: Katzschmann, Robert Massachusetts Institute of Technology

14:30-16:30 FrC3.1

*Soft Robotic Modeling and Control: Bringing Together Articulated Soft Robots and Soft-Bodied Robots\**.

Katzschmann, Robert Kevin	Massachusetts Institute of Technology
Della Santina, Cosimo	Centro E. Piaggio
Rus, Daniela	MIT

**FrC4** Room 1.R3

**WSFFD13 - Shape Changing Robotic Structures and Interfaces, Part III (Workshop)**

Chair: Wurdemann, Helge University College London

14:30-16:30 FrC4.1

*Workshop on Shape Changing Robotic Structures and Interfaces\**.

Wurdemann, Helge Arne	University College London
Roudaut, Anne	University of Bristol
Dogramadzi, Sanja	University of the West of England
Paik, Jamie	Ecole Polytechnique Federale de Lausanne
Girouard, Audrey	Carleton University
Althoefer, Kaspar	Queen Mary University of London
Ho, Van	Japan Advanced Institute of Science and Technology

**FrC5** Room 2.L2

**WSFFD15 - Experimental Robotic Grasping and Manipulation: Benchmarks, Datasets, and Competitions, Part III (Workshop)**

Chair: Sun, Yu University of South Florida

14:30-16:30 FrC5.1

*Experimental Robotic Grasping and Manipulation -- Benchmarks, Datasets, and Competitions\**.

Sun, Yu	University of South Florida
Moon, Hyungpil	Sungkyunkwan University
Falco, Joe	NIST
Calli, Berk	Worcester Institute of Technology

**FrC6** Auditorium

**WSFFD04 - Machine Learning in Robot Motion Planning, Part III (Workshop)**

Chair: Choudhury, Sanjiban University of Washington

14:30-16:30 FrC6.1

*Machine Learning in Robot Motion Planning\**.

Choudhury, Sanjiban	University of Washington
Dey, Debadeepta	Microsoft
Srinivasa, Siddhartha	University of Washington

Toussaint, Marc University of Stuttgart  
Boots, Byron Georgia Institute of Technology

**FrC7** Room 1.L5  
**WSFFD02 - Vision-Based Drones: What's Next? Part III (Workshop)**

Chair: Loiano, Giuseppe New York University

14:30-16:30 FrC7.1

*Vision-Based Drones: What's Next?\**

Loiano, Giuseppe New York University  
Scaramuzza, Davide University of Zurich  
Kumar, Vijay University of Pennsylvania

**FrC8** Room 4.R1  
**WSFPM24 - Automating Robot Experiments: Manipulation and Learning, Part I (Workshop)**

Chair: Kroemer, Oliver Carnegie Mellon University

14:30-16:30 FrC8.1

*Automating Robot Experiments: Manipulation and Learning\**

Kroemer, Oliver Carnegie Mellon University  
Pinto, Lerrel Joseph Carnegie Mellon University  
Muelling, Katharina Carnegie Mellon University

**FrC9** Room 2.R1  
**WSFFD14 - Development of Agile Robots, Part III (Workshop)**

Chair: Kashiri, Navvab Istituto Italiano Di Tecnologia

14:30-16:30 FrC9.1

*Development of Agile Robots\**

Kashiri, Navvab Istituto Italiano di Tecnologia  
Malzahn, Jörn Istituto Italiano di Tecnologia  
Tsagarakis, Nikos Istituto Italiano di Tecnologia

**FrC10** Room 4.L4  
**WSFPM26 - towards Intelligent Social Robots: From Naive Robots to Robot Sapiens, Part I (Workshop)**

Chair: Aly, Amir Ritsumeikan University

14:30-16:30 FrC10.1

*Towards Intelligent Social Robots: From Naive Robots to Robot Sapiens\**

Aly, Amir Ritsumeikan University

**FrC11** Room 4.R3  
**WSFAM18 - Robot Safety: Filling the Gap between Technology Offer and Industry Needs for a Fully Deployable Human Robot Collaboration, Part I (Workshop)**

Chair: Albert, Fabien Airbus

14:30-16:30 FrC11.1

*Robot Safety: Filling the Gap between Technology Offer and Industry Needs, for a Fully Deployable Human Robot Collaboration\**

Albert, Fabien Airbus  
Cristalli, Cristina Loccioni Group - AEA

**FrC12** Room 4.R5  
**WSFFD07 - Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction, Part III (Workshop)**

Chair: Ishiguro, Hiroshi Osaka University

14:30-16:30 FrC12.1

*Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction\**

Ishiguro, Hiroshi Osaka University  
Kawahara, Tatsuya Kyoto Univ.  
Nakamura, Yutaka Osaka university

**FrC13** Room 2.L5 KUKA  
**WSFFD01 - 2nd Workshop on Multi-Robot Perception-Driven Control and Planning, Part III (Workshop)**

Chair: Alonso-Mora, Javier Delft University of Technology

14:30-16:30 FrC13.1

*Second Workshop on Multi-Robot Perception-Driven Control and Planning\**

Alonso-Mora, Javier Delft University of Technology  
Montijano, Eduardo Universidad de Zaragoza  
Rus, Daniela MIT  
Schwager, Mac Stanford University

**FrC14** Room 1.R4  
**TUFFD01 - Aerial Robotic Manipulation, Part III (Tutorial)**

Chair: Heredia, Guillermo University of Seville

14:30-16:30 FrC14.1

*Aerial Robotic Manipulation\**

Heredia, Guillermo University of Seville

**FrC15** Room 2.R4  
**WSFFD11 - Continuum and Soft Robots (CSR) for Medical Interventions: Modelling, Fabrication, and Control, Part III (Workshop)**

Chair: Rabenoroosa, Kanty Univ. Bourgogne Franche-Comté, CNRS

14:30-16:30 FrC15.1

*Continuum and Soft Robots (CSR) for Medical Interventions: Modeling, Fabrication, and Control\**

Rabenoroosa, Kanty Univ. Bourgogne Franche-Comté, CNRS  
Burgner-Kahrs, Jessica Leibniz Universität Hannover  
Cianchetti, Matteo Scuola Superiore Sant'Anna  
Rucker, Caleb University of Tennessee

**FrC16** Room 1.R5  
**WSFFD06 - Collaboratively Working towards Ontology-Based Standards for Robotics and Automation, Part III (Workshop)**

Chair: Bermejo, Julita Universidad Politecnica De Madrid

14:30-16:30 FrC16.1

*Collaboratively Working towards Ontology-Based Standards for Robotics and Automation\**

Bermejo, Julita Universidad Politecnica de Madrid  
Chibani, Abdelghani Lissi Lab Paris EST University  
Gonçalves, Paulo Instituto Politecnico de Castelo Branco  
Li, Howard University of New Brunswick  
Jordan, Sara Rene Virginia Tech  
Olivares, Alberto Universidad de Castilla-La Mancha  
Olszewska, Joanna Isabelle University of Gloucestershire, United Kingdom

Prestes, Edson  
 Rama Fiorini, Sandro  
 Sanz, Ricardo

UFRRS  
 Université Paris-Est Creteil  
 Universidad Politecnica de Madrid

Faragasso, Angela  
 Murphy, Robin  
 Asama, Hajime

The University of Tokyo  
 Texas A&M  
 The University of Tokyo

**FrC17** Room 1.L1  
**WSFPM27 - RoboCup Humanoid League, Part I (Workshop)**  
 Chair: Hofer, Ludovic LaBRI, Bordeaux University  
 14:30-16:30 FrC17.1  
*RoboCup Humanoid League\**.  
 Hofer, Ludovic LaBRI, Bordeaux University  
 Gerndt, Reinhard Ostfalia University of Applied Sciences

**FrC18** Room 2.L3  
**WSFFD05 - Robots for Assisted Living, Part III (Workshop)**  
 Chair: Calinon, Sylvain Idiap Research Institute  
 14:30-16:30 FrC18.1  
*Robots for Assisted Living\**.  
 Calinon, Sylvain Idiap Research Institute  
 Dogramadzi, Sanja University of the West of England  
 Torras, Carme CSIC - UPC  
 Shibata, Tomohiro Kyushu institute of technology  
 Demiris, Yiannis Imperial College London

**FrC19** Room 4.R4  
**WSFFD03 - ImPACT Tough Robotics Challenge: A National Project of Disaster Robotics Aiming at Social Innovation in Safety and Security, Part III (Workshop)**  
 Chair: Tadokoro, Satoshi Tohoku University  
 14:30-16:30 FrC19.1  
*ImPACT Tough Robotics Challenge - a National Project of Disaster Robotics Aiming at Social Innovation in Safety and Security\**.  
 Tadokoro, Satoshi Tohoku University  
 Matsuno, Fumitoshi Kyoto University

**FrC20** Room 2.R3  
**WSFPM22 - Robots That Learn and Reason: Towards Learning Logic Rules from Noisy Data, Part I (Workshop)**  
 Chair: Moreno, Plinio IST-ID  
 14:30-16:30 FrC20.1  
*Robots That Learn and Reason: Towards Learning Logic Rules from Noisy Data\**.  
 Moreno, Plinio IST-ID  
 Kersting, Kristian Fraunhofer IAIS and University of Bonn  
 Santos-Victor, José Instituto Superior Técnico - Lisboa  
 Bernardino, Alexandre IST - Técnico Lisboa  
 Ventura, Rodrigo Instituto Superior Técnico

**FrC21** Room 4.R2  
**WSFPM16 - Human-Aiding Robotics: Open Issues and Future Direction, Part I (Workshop)**  
 Chair: Faragasso, Angela The University of Tokyo  
 14:30-16:30 FrC21.1  
*Human-Aiding Robotics: Open Issues and Future Direction\**.

**FrC22** Room 2.R2  
**TUFFD02 - Collaborative Robotics Toolkit (CRTK) and Open Platforms for Medical Robotics Research, Part III (Tutorial)**  
 Chair: Kazanzides, Peter Johns Hopkins University  
 14:30-16:30 FrC22.1  
*Collaborative Robotics Toolkit (CRTK) and Open Platforms for Medical Robotics Research\**.  
 Kazanzides, Peter Johns Hopkins University  
 Hannaford, Blake University of Washington  
 Fischer, Gregory Scott Worcester Polytechnic Institute, WPI

**FrC23** Room 4.L1  
**WSFFD08 - Semantic Policy and Action Representations for Autonomous Robots, Part III (Workshop)**  
 Chair: Aksoy, Eren Erdal Halmstad University  
 14:30-16:30 FrC23.1  
*Semantic Policy and Action Representations for Autonomous Robots\**.  
 Aksoy, Eren Erdal Halmstad University  
 Yang, Yezhou Arizona State University  
 Ramirez-Amaro, Karinne Institute for Cognitive Systems, Technische Universität München.  
 Dantam, Neil Colorado School of Mines  
 Cheng, Gordon Technical University of Munich

**FrD1** Room 1.L2  
**WSFFD09 - Robotics for Logistics in Warehouses and Environments Shared with Humans, Part IV (Workshop)**  
 Chair: Villani, Luigi Univ. Napoli Federico II  
 17:00-19:00 FrD1.1  
*Robotics for Logistics in Warehouses and Environments Shared with Humans\**.  
 Villani, Luigi Univ. Napoli Federico II  
 Magnusson, Martin Örebro University  
 Prassler, Erwin Bonn-Rhein-Sieg Univ. of Applied Sciences  
 Puljiz, David Karlsruhe Institute of Technology  
 De la Riva, Jesús Julián ITAINNOVA / Instituto Tecnológico de Aragón, Spain  
 Alfonso

**FrD2** Room 1.L3  
**WSFPM23 - Unconventional Sensing and Processing for Robotic Visual Perception (PM), Part II (Workshop)**  
 Chair: Sandamirskaya, Yulia University and ETH Zurich  
 17:00-19:00 FrD2.1  
*Unconventional Sensing and Processing for Robotic Visual Perception\**.  
 Sandamirskaya, Yulia University and ETH Zurich  
 Martel, Julien University of Zurich & ETH Zurich

**FrD3** Room 4.L3  
**WSFFD12 - Soft Robotic Modeling and Control: Bringing Together Articulated Soft Robots and Soft-Bodied Robots,**

<b>Part IV (Workshop)</b>	
Chair: Katzschmann, Robert Kevin	Massachusetts Institute of Technology
17:00-19:00	FrD3.1
<i>Soft Robotic Modeling and Control: Bringing Together Articulated Soft Robots and Soft-Bodied Robots*</i> .	
Katzschmann, Robert Kevin	Massachusetts Institute of Technology
Della Santina, Cosimo	Centro E. Piaggio
Rus, Daniela	MIT
<b>FrD4</b>	Room 1.R3
<b>WSFFD13 - Shape Changing Robotic Structures and Interfaces, Part IV (Workshop)</b>	
Chair: Wurdemann, Helge Arne	University College London
17:00-19:00	FrD4.1
<i>Workshop on Shape Changing Robotic Structures and Interfaces*</i> .	
Wurdemann, Helge Arne	University College London
Roudaut, Anne	University of Bristol
Dogramadzi, Sanja	University of the West of England
Paik, Jamie	Ecole Polytechnique Federale de Lausanne
Girouard, Audrey	Carleton University
Althoefer, Kaspar	Queen Mary University of London
Ho, Van	Japan Advanced Institute of Science and Technology
<b>FrD5</b>	Room 2.L2
<b>WSFFD15 - Experimental Robotic Grasping and Manipulation: Benchmarks, Datasets, and Competitions, Part IV (Workshop)</b>	
Chair: Sun, Yu	University of South Florida
17:00-19:00	FrD5.1
<i>Experimental Robotic Grasping and Manipulation -- Benchmarks, Datasets, and Competitions*</i> .	
Sun, Yu	University of South Florida
Moon, Hyungpil	Sungkyunkwan University
Falco, Joe	NIST
Calli, Berk	Worcester Institute of Technology
<b>FrD6</b>	Auditorium
<b>WSFFD04 - Machine Learning in Robot Motion Planning, Part IV (Workshop)</b>	
Chair: Choudhury, Sanjiban	University of Washington
17:00-19:00	FrD6.1
<i>Machine Learning in Robot Motion Planning*</i> .	
Choudhury, Sanjiban	University of Washington
Dey, Debadeepta	Microsoft
Srinivasa, Siddhartha	University of Washington
Toussaint, Marc	University of Stuttgart
Boots, Byron	Georgia Institute of Technology
<b>FrD7</b>	Room 1.L5
<b>WSFFD02 - Vision-Based Drones: What's Next? Part IV (Workshop)</b>	
Chair: Loianno, Giuseppe	New York University
17:00-19:00	FrD7.1

*Vision-Based Drones: What's Next?\**.

Loianno, Giuseppe	New York University
Scaramuzza, Davide	University of Zurich
Kumar, Vijay	University of Pennsylvania

**FrD8** Room 4.R1  
**WSFPM24 - Automating Robot Experiments: Manipulation and Learning, Part II (Workshop)**

Chair: Kroemer, Oliver Carnegie Mellon University

17:00-19:00 FrD8.1

*Automating Robot Experiments: Manipulation and Learning\**.

Kroemer, Oliver	Carnegie Mellon University
Pinto, Lerrel Joseph	Carnegie Mellon University
Muelling, Katharina	Carnegie Mellon University

**FrD9** Room 2.R1  
**WSFFD14 - Development of Agile Robots, Part IV (Workshop)**

Chair: Kashiri, Navvab Istituto Italiano Di Tecnologia

17:00-19:00 FrD9.1

*Development of Agile Robots\**.

Kashiri, Navvab	Istituto Italiano di Tecnologia
Malzahn, Jörn	Istituto Italiano di Tecnologia
Tsagarakis, Nikos	Istituto Italiano di Tecnologia

**FrD10** Room 4.L4  
**WSFPM26 - towards Intelligent Social Robots: From Naive Robots to Robot Sapiens, Part II (Workshop)**

Chair: Aly, Amir Ritsumeikan University

17:00-19:00 FrD10.1

*Towards Intelligent Social Robots: From Naive Robots to Robot Sapiens\**.

Aly, Amir Ritsumeikan University

**FrD11** Room 4.R3  
**WSFAM18 - Robot Safety: Filling the Gap between Technology Offer and Industry Needs for a Fully Deployable Human Robot Collaboration, Part II (Workshop)**

Chair: Albert, Fabien Airbus

17:00-19:00 FrD11.1

*Robot Safety: Filling the Gap between Technology Offer and Industry Needs, for a Fully Deployable Human Robot Collaboration\**.

Albert, Fabien	Airbus
Cristalli, Cristina	Loccioni Group - AEA

**FrD12** Room 4.R5  
**WSFFD07 - Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction, Part IV (Workshop)**

Chair: Ishiguro, Hiroshi Osaka University

17:00-19:00 FrD12.1

*Autonomous Dialogue Technologies in Symbiotic Human-Robot Interaction\**.

Ishiguro, Hiroshi	Osaka University
Kawahara, Tatsuya	Kyoto Univ.
Nakamura, Yutaka	Osaka university

**FrD13** Room 2.L5 KUKA

**WSFFD01 - 2nd Workshop on Multi-Robot Perception-Driven Control and Planning, Part IV (Workshop)**

Chair: Alonso-Mora, Javier Delft University of Technology

17:00-19:00 FrD13.1

**Second Workshop on Multi-Robot Perception-Driven Control and Planning\***Alonso-Mora, Javier Delft University of Technology  
Montijano, Eduardo Universidad de Zaragoza  
Rus, Daniela MIT  
Schwager, Mac Stanford University

FrD14 Room 1.R4

**TUFFD01 - Aerial Robotic Manipulation, Part IV (Tutorial)**

Chair: Heredia, Guillermo University of Seville

17:00-19:00 FrD14.1

**Aerial Robotic Manipulation\***

Heredia, Guillermo University of Seville

FrD15 Room 2.R4

**WSFFD11 - Continuum and Soft Robots (CSR) for Medical Interventions: Modelling, Fabrication, and Control, Part IV (Workshop)**

Chair: Rabenorosa, Kanty Univ. Bourgogne Franche-Comté, CNRS

17:00-19:00 FrD15.1

**Continuum and Soft Robots (CSR) for Medical Interventions: Modeling, Fabrication, and Control\***Rabenorosa, Kanty Univ. Bourgogne Franche-Comté, CNRS  
Burgner-Kahrs, Jessica Leibniz Universität Hannover  
Cianchetti, Matteo Scuola Superiore Sant'Anna  
Rucker, Caleb University of Tennessee

FrD16 Room 1.R5

**WSFFD06 - Collaboratively Working towards Ontology-Based Standards for Robotics and Automation, Part IV (Workshop)**

Chair: Bermejo, Julita Universidad Politecnica De Madrid

17:00-19:00 FrD16.1

**Collaboratively Working towards Ontology-Based Standards for Robotics and Automation\***Bermejo, Julita Universidad Politecnica de Madrid  
Chibani, Abdelghani Lissi Lab Paris EST University  
Gonçalves, Paulo Instituto Politecnico de Castelo Branco  
Li, Howard University of New Brunswick  
Jordan, Sara Rene Virginia Tech  
Olivares, Alberto Universidad de Castilla-La Mancha  
Olszewska, Joanna Isabelle University of Gloucestershire, United Kingdom  
Prestes, Edson UFRGS  
Rama Fiorini, Sandro Université Paris-Est Creteil  
Sanz, Ricardo Universidad Politecnica de Madrid

FrD17 Room 1.L1

**WSFPM27 - RoboCup Humanoid League, Part II (Workshop)**

Chair: Hofer, Ludovic LaBRI, Bordeaux University

17:00-19:00 FrD17.1

**RoboCup Humanoid League\***Hofer, Ludovic LaBRI, Bordeaux University  
Gerndt, Reinhard Ostfalia University of Applied Sciences

FrD18 Room 2.L3

**WSFFD05 - Robots for Assisted Living, Part IV (Workshop)**

Chair: Calinon, Sylvain Idiap Research Institute

17:00-19:00 FrD18.1

**Robots for Assisted Living\***Calinon, Sylvain Idiap Research Institute  
Dogramadzi, Sanja University of the West of England  
Torras, Carme CSIC - UPC  
Shibata, Tomohiro Kyushu institute of technology  
Demiris, Yiannis Imperial College London

FrD19 Room 4.R4

**WSFFD03 - ImPACT Tough Robotics Challenge: A National Project of Disaster Robotics Aiming at Social Innovation in Safety and Security, Part IV (Workshop)**

Chair: Tadokoro, Satoshi Tohoku University

17:00-19:00 FrD19.1

**ImPACT Tough Robotics Challenge - a National Project of Disaster Robotics Aiming at Social Innovation in Safety and Security\***Tadokoro, Satoshi Tohoku University  
Matsuno, Fumitoshi Kyoto University

FrD20 Room 2.R3

**WSFPM22 - Robots That Learn and Reason: Towards Learning Logic Rules from Noisy Data, Part II (Workshop)**

Chair: Moreno, Plinio IST-ID

17:00-19:00 FrD20.1

**Robots That Learn and Reason: Towards Learning Logic Rules from Noisy Data\***Moreno, Plinio IST-ID  
Kersting, Kristian Fraunhofer IAIS and University of Bonn  
Santos-Victor, José Instituto Superior Técnico - Lisbon  
Bernardino, Alexandre IST - Técnico Lisboa  
Ventura, Rodrigo Instituto Superior Técnico

FrD21 Room 4.R2

**WSFPM16 - Human-Aiding Robotics: Open Issues and Future Direction, Part II (Workshop)**

Chair: Faragasso, Angela The University of Tokyo

17:00-19:00 FrD21.1

**Human-Aiding Robotics: Open Issues and Future Direction\***Faragasso, Angela The University of Tokyo  
Murphy, Robin Texas A&M  
Asama, Hajime The University of Tokyo

FrD22 Room 2.R2

**TUFFD02 - Collaborative Robotics Toolkit (CRTK) and Open Platforms for Medical Robotics Research, Part IV (Tutorial)**

Chair: Kazanzides, Peter Johns Hopkins University

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17:00-19:00

FrD22.1

*Collaborative Robotics Toolkit (CRTK) and Open Platforms for Medical Robotics Research\**.

Kazanides, Peter	Johns Hopkins University
Hannaford, Blake	University of Washington
Fischer, Gregory Scott	Worcester Polytechnic Institute, WPI

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**FrD23**

Room 4.L1

**WSFFD08 - Semantic Policy and Action Representations for Autonomous Robots, Part IV (Workshop)**

Chair: Aksoy, Eren Erdal                      Halmstad University

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17:00-19:00

FrD23.1

*Semantic Policy and Action Representations for Autonomous Robots\**.

Aksoy, Eren Erdal	Halmstad University
Yang, Yezhou	Arizona State University
Ramirez-Amaro, Karinne	Institute for Cognitive Systems, Technische Universität München.
Dantam, Neil	Colorado School of Mines
Cheng, Gordon	Technical University of Munich