

## **New Faculty Orientation**

### Welcome and Overview

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August 2020



# **New Faculty Orientation Agenda**



- **8:45 a.m. 9:00 a.m. Orientation Overview** by Timothy M. Pinkston, Vice Dean for Faculty Affairs and Professor of Electrical and Computer Engineering
- **9:00 a.m. 9:30 a.m. Welcome** by Yannis C. Yortsos, Dean and Professor of Chemical Engineering and Materials Science
- 9:30 a.m. 10:15 a.m. Faculty Affairs by Timothy M. Pinkston
- 10:15 a.m. 11:30 a.m. Research by Assad Oberai, Interim Vice Dean for Research and Professor of Aerospace and Mechanical Engineering; Mahta Moghaddam, Director of New Research Initiatives and Professor of Electrical and Computer Engineering; and Nichole Phillips, Director of Research Administration
- **10:30 a.m. 12:00 p.m. Teaching Faculty Workshop** (runs concurrently with Research workshop (<a href="https://usc.zoom.us/j/98536430649">https://usc.zoom.us/j/98536430649</a>)

All content is available at https://drive.google.com/drive/folders/0AEFGjIrsX\_jyUk9PVA



### **New and Recent Faculty Hires**



#### **Assistant Professors**

- Somil Bansal, ECE\*\*\*\*
- Robin Jia, CS\*\*\*\*\*
- Ananya Renuka Balakrishna, AME\*\*
- Vatsal Sharan, CS\*\*\*\*\*
- Jesse Thomason, CS\*\*\*\*\*
- Renyuan Xu, ISE\*\*\*\*
- Wade Zeno, MFD\*\*\*
- Jiapeng Zhang, CS\*\*\*

#### **Associate Professor**

Victoria Stodden, ISE\*\*\*

#### **Professor**

J. Joshua Yang, ECE-EP\*\*\*

#### Lecturers

Kristof Aldenderfer, ITP\*\*\*

#### **Senior Lecturer**

- Brandon Franzke, ECE\*
- Gregg Ibbotson, ITP\*\*\*\*

#### **Research Assistant Professors**

- Jonathan Habif, ECE\*\*
- Akhilesh Jaiswal, ECE\*\*
- lacopo Masi, CS\*\*
- Anita Penkova, AME\*
- David Pynadath, CS\*\*

### **Research Associate Professors**

Wael Abd-Almageed, ECE\*



Joined in Spring 2020
Joined in Summer 2020
Joins in Fall 2020
Joins in Spring 2021
Joins in Fall 2021

#### **Assistant Professors**

- Paul Plucinsky, AME\*
- Feifei Qian, ECE \*
- Ananya Renuka Balakrishna, AME\*\*
- Renyuan Xu, ISE\*\*\*\*
- Wade Zeno, MFD\*\*\*
- Jiapeng Zhang, CS\*\*\*
- Hangbo Zhao, AME\*



Victoria Stodden, ISE\*\*\*

#### **Professor**

J. Joshua Yang, ECE-EP\*\*\*



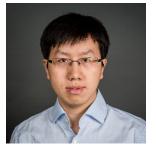


















#### Lecturer

Kristof Aldenderfer, ITP\*\*\*

#### **Senior Lecturers**

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- Gregg Ibbotson, ITP\*\*\*\*

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- Akhilesh Jaiswal, ECE\*\*
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#### **Research Associate Professor**

Wael Abd-Almageed, ECE\*





















### USC at a Glance\*



### **USC Academic Units (20)**

USC Dornsife College, Bovard College, USC Libraries, 17 Professional Schools

### **USC Faculty (6,411 total)**

- Approximately 4,532 full-time faculty: 1,500 T/TT faculty and 3,032 Research, Teaching,
   Practice and Clinical faculty; approximately 1,807 part-time faculty
- Over 150 elected fellows of prestigious societies (AAAS, AAAL, APS, ALI...)
- Over 50 affiliated faculty in National Academies (NAS, NAE, IOM)
- 10 National Medal award winners and 6 Nobel Laureates (current & past)

### **USC Students (48,500 total)**

- Approximately 20,500 undergrads; 28,000 grad & professional students
- Degrees awarded June 2019: 5,337 Bachelor's; 11,075 advanced
- More than 375,000 living alumni

### **Annual Research Expenditures (FY'17-18) and Endowment (June 2018)**

Approximately \$891 million in sponsored research; \$5.5 billion in endowment



### Viterbi School at a Glance\*



#### Viterbi Academic Units

- Dept's: AME, ASTE, BME, CEE (Astani), CHEMS (Mork), CS, ECE (Hsieh), ISE (Epstein)
- Academic Program Units (non-degree granting): EWP, ITP

### Viterbi Faculty

- Approximately 310 full-time faculty: ~191 T/TT; ~119 Research and Teaching
- Over 90 elected fellows of prestigious societies (AAAI, ASME, ACM, BMES, IEEE, ...)
- Over 80 NSF Career, Presidential Young Investigator, and/or PECASE Awardees\*\*
- Over 90 endowed early-mid career chairs, senior career chairs and professorships
- Over 20 full-time (and 35 affiliated) faculty who are National Academy members

#### **Viterbi Students**

- Approximately 9,000 total: ~2,800 undergrad; ~6,200 grad students
- Over 78,000 alumni
- Ranked in Top 10 Graduate Engineering Schools (U.S. News & World Report)

### Viterbi Annual Research Expenditures (~ 1/4<sup>th</sup> of USC's)

• Typically over ~\$208 million; more than 46 Research Centers and Institutes



## Viterbi Academic Programs\*



### **Academic Programs**

- 15 BS programs
- 17 active minors
  - 64 Master's programs
    - 40 Master's programs and 5 grad certificates on-line via DEN@Viterbi
- 13 Doctoral programs

#### **Education and Outside-the-Curriculum Efforts**

- KIUEL (Klein Institute for Undergraduate Engineering Life)
- VAST (Viterbi Adopt-a-School, Adopt-a-Teacher) K-12 STEM Outreach
- Maseeh Entrepreneurship Prize Competition (MEPC)
- Min Family Engineering Social Entrepreneurship Challenge
- USC Viterbi Student Innovation Institute (VSI2) and Viterbi Startup Garage
- Student-led efforts (Rocket Propulsion Lab, USC Racing Team, ...)



### **Useful USC Resources**



### **Policies and Faculty Portals**

- Policies, Faculty Handbook, UCAPT Manual, strategic vision, & core doc's <a href="http://policy.usc.edu">http://policy.usc.edu</a>
- Faculty resources, governance, support, guides, calendars, news, events <a href="http://faculty.usc.edu">http://faculty.usc.edu</a>
- Useful links and information (e.g., for new faculty (T/TT & RTPC), chairs, mentors)
   https://employees.usc.edu/

### **Center for Work and Family Life (CWFL)**

https://employees.usc.edu/work-family-life/

### **Center for Excellence in Research (CER)**

Proposal writing workshops, proposal review, funding opportunities, ...
 <a href="https://research.usc.edu/proposal-preparation/">https://research.usc.edu/proposal-preparation/</a>

### **Center for Excellence in Teaching (CET)**

- Workshops, seminars, programs, and resources for teaching innovation <a href="http://cet.usc.edu/online-teaching/">http://cet.usc.edu/online-teaching/</a>
- See the CET New Faculty Institute: <a href="http://cet.usc.edu/new-faculty-institute">http://cet.usc.edu/new-faculty-institute</a>



### **Useful Viterbi Resources**



#### Viterbi Research Portal

 Funding opportunities, research centers/labs, other info for faculty <u>http://viterbischool.usc.edu/faculty/faculty-research-resources/</u>

### **Viterbi Faculty Portal**

 School policies, academic integrity, useful links, and other resources <a href="https://viterbischool.usc.edu/faculty/">https://viterbischool.usc.edu/faculty/</a>

### Viterbi Mentoring Program

- Mentorship of junior faculty
- WiSE Program
- Mentor-mentee and peer-mentoring luncheons sponsored by School
- Annual group mentoring sessions (Vice Dean for Faculty Affairs)
- NSF Career proposal internal review (Vice Dean for Research)
- Understand mentoring roles, responsibilities, benefits and expectations—identify your needs and set attainable goals https://viterbischool.usc.edu/faculty/#Mentoring



### **Graduate Recruitment**



### **USC and Viterbi Ph.D. Fellowships and Awards**

- Provost, Annenberg, Viterbi, Mork, Alfred Mann, Ming Hsieh, Chevron Fellowships
- Viterbi Supplemental, Merit Top-off, WiSE Top-off, GEM, Diversity Top-off Awards https://viterbigradadmission.usc.edu/doctoral/phddegrees/

### **On-Campus Recruitment Events**

- Master's Student Preview Day <a href="https://viterbigradadmission.usc.edu/events/mspreview/">https://viterbigradadmission.usc.edu/events/mspreview/</a>
- REACH (<u>Recruitment of Engineering Achievers</u>) PhD Preview https://viterbigradadmission.usc.edu/reach/
- Conversion Visitation Days each Spring (coordinated by departments)





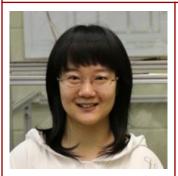
#### **Assistant Professors**

#### Paul Plucinsky\*, Assistant Professor of Aerospace and Mechanical Engineering



Paul Plucinsky joined the faculty in the USC Department of Aerospace and Mechanical Engineering as an Assistant Professor in January of 2020. Prior to USC, Paul was a Postdoctoral Scholar in Aerospace Engineering and Mechanics at the University of Minnesota. He received his Ph.D. in Mechanical Engineering at Caltech in 2017. During his graduate studies, Paul was a NASA Space Technology Research Fellow and was awarded the Centennial Prize for Best Thesis in Mechanical and Civil Engineering. Prior to joining Caltech, Paul attended the University of Michigan, where he graduated with a B.S. in Civil Engineering and M.S. in Structural engineering (both in 2011). His research interests lie at the interface of solid mechanics, materials science and mathematics. Broadly, Paul would like to develop theories that capture the interplay between geometry and complex (active and architectured) material behavior, and use these theories to make predictions relevant to the design of new materials, structures and devices.

#### Feifei Qian\*, Gabilan Assistant Professor of Electrical and Computer Engineering



Feifei Qian joined the USC Ming Hsieh Department of Electrical and Computer Engineering as an Assistant Professor in January 2020. She received her Ph.D. in Electrical Engineering and M.S. in Physics from Georgia Institute of Technology, in 2015 and 2011, respectively. Prior to her appointment at USC, she worked in the GRASP lab at University of Pennsylvania as a postdoctoral fellow. Her expertise is in analyzing and modeling the complex interactions between robots and environments, and developing innovative control and sensing strategies to improve robot mobility on challenging terrains. In current research she is developing robots that can exploit obstacle disturbances to navigate cluttered environment, and robots that can use their leg as soil strength sensors to generate erodibility map in desert environments. Qian's work has been covered by BBC News and R&D Magazine, and was awarded the best student paper in top robotics conference (Robotics: Science & Systems 2012).



\* Joined in Spring 2020

\*\* Joined in Summer 2020

\*\*\* Joins in Fall 2020

\*\*\*\* Joins in Spring 2021

\*\*\*\* Joins in Fall 2021



#### **Assistant Professors**

Ananya Renuka Balakrishna\*\*\*\*, Gabilan Assistant Professor and Assistant Professor of Aerospace and Mechanical Engineering



Ananya Renuka Balakrishna joins the Department of Aerospace and Mechanical Engineering at USC as an Assistant Professor in Fall 2020. Prior to joining USC, she pursued postdoctoral research as a Lindemann Postdoctoral Fellow at MIT (Department of Materials Science), and at the University of Minnesota (Aerospace Engineering and Mechanics). Ananya received her PhD in Solid Mechanics and Materials Engineering from the University of Oxford. Broadly, her research focuses on developing mathematical models to investigate the links between material instabilities, microstructures and properties in energy-storage and functional materials.

#### Renyuan Xu\*\*\*\*, Gabilan Assistant Professor and Assistant Professor of Industrial and Systems Engineering



Renyuan Xu is currently a Hooke Research Fellow in the Mathematical Institute at the University of Oxford. Before that, she completed her Ph.D. degree in Operations Research from UC Berkeley in 2019. She will join the Daniel J. Epstein Department of Industrial and Systems Engineering at the University of Southern California as a Gabilan Assistant Professor in 2021. Her research interests lie at the intersection of stochastic control, machine learning, and game theory.





#### **Assistant Professors**

#### Wade Zeno \*\*\*, Assistant Professor of Chemical Engineering and Materials Science



Wade Zeno joins the Mork Family Department of Chemical Engineering and Materials Science as assistant professor in Fall 2020. He received his Ph.D. in Chemical Engineering from the University of California, Davis in 2016. Afterward, he was a postdoctoral fellow in the Biomedical Engineering Department at the University of Texas at Austin until 2020. His research expertise is in biological membrane engineering. Specifically, he examines the molecules that comprise cellular membranes (i.e. proteins and lipids) to understand (i) how they function at a fundamental level and (ii) how they can be exploited to make functional biomaterials. The broader impacts of his work are far-reaching, ranging from understanding viral infection and disease to developing and delivering therapeutics. He has been recognized with a USC Provost's Assistant Professor Fellowship (2020-21), NIH F32 Ruth L. Kirschstein Postdoctoral Fellowship (2018-2020), and NIH T32 Biomolecular Fellowship (2011-2014).

#### Jiapeng Zhang\*\*\*, Assistant Professor of Computer Science



Jiapeng Zhang joins the Department of Computer Science in Fall 2020. He received his Ph.D. degree at UC San Diego in August, 2019. Before joining USC, he was a postdoc at Harvard. His research focus on theoretical computer science. In specific, he is interested in boolean function analysis, computation complexity, and foundations of cryptography. He interested to teach theory related courses, including complexity theory, algorithms, data structures, theory of computing.



#### **Assistant Professors**

#### Hangbo Zhao\*, Assistant Professor of Aerospace and Mechanical Engineering



Hangbo Zhao joined the Department of Aerospace and Mechanical Engineering at USC as an assistant professor in Spring 2020. He received his Ph.D. and M.S. degrees in the Department of Mechanical Engineering at MIT in 2017 and 2014, respectively. He received his bachelor's degree in precision instruments at Tsinghua University in China in 2011. Since 2017 he has been a postdoctoral fellow in the Center for Bio-Integrated Electronics at Northwestern University. Dr. Zhao's research interests are at the intersection of advanced manufacturing, functional materials, and bio-inspired engineering. His awards include the Materials Research Society Best Poster Award.



#### **Associate Professor**

Victoria Stodden\*\*\*, Visiting Associate Professor of Industrial and Systems Engineering



Victoria Stodden will be Visiting Associate Professor of Industrial and Systems Engineering (starting Fall 2020). She is Associate Professor in the School of Information Sciences at the University of Illinois at Urbana Champaign, with affiliate appointments in the School of Law, the National Center for Supercomputer Applications, and the Departments of Computer Science and Statistics. She received a Ph.D. in Statistics and J.D. from Stanford University and Stanford Law School, respectively. She graduated magna cum laude with her Bachelor's in Economics from the University of Ottawa and holds a master's degree in Economics from the University of British Columbia. She held the Kauffman Innovation fellowship at Yale Law School and was a Berkman Klein fellow at Harvard Law School. Stodden is an internationally recognized leader in improving the reliability of scientific results in the face of increasingly sophisticated computational approaches to research: understanding when and how inferences from data are valid and reproducible, what it means to have replicated a result, the design and implementation of scientific validation systems, standards of openness and transparency for data and code sharing, and resolving legal and policy barriers to disseminating reproducible research. In 2009 she won the Access to Knowledge Kaltura prize for her publication on legal issues in reproducible research and scientific innovation. She has served on the National Academies of Science, Engineering, and Medicine committees: "Reproducibility and Replication in Science" and "Fostering Research Integrity." She is a former co-chair of the National Science Foundation Advisory Committee for Cyberinfrastructure and was a member of the National Science Foundation Directorate for Computer and Information Science and Engineering (CISE) Advisory Committee. She testified on scientific reproducibility before the Congressional House Committee on Science, Space and Technology for the March 5, 2013 hearing on Scientific Integrity & Transparency.



\* Joined in Spring 2020

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\*\*\* Joins in Fall 2020

\*\*\*\* Joins in Spring 2021

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#### **Professor**

#### J. Joshua Yang\*\*\*, Professor of Electrical and Computer Engineering-Electrophysics



Dr. J. Joshua Yang is a professor in the Ming Hsieh Department of Electrical and Computer Engineering at University of Southern California. He was a professor at the University of Massachusetts, Amherst between 2015-2020 and a team leader of memristive devices for memory and computing applications at HP Labs between 2007-2015. His current research interests are emerging materials and devices for neuromorphic computing and artificial intelligence, where he published a number of field-defining papers and holds >100 granted patents. He obtained his Ph.D. from the University of Wisconsin – Madison in the Material Science Program in 2007. He was named as the Spotlight Scholar of UMass Amherst in 2017. He was also a recipient of UMass distinguished faculty lecturer and UMass Chancellor's Medal, the highest honor of UMass.





#### Lecturer

#### Kristof Aldenderfer\*\*\*, Lecturer of Information Technology



Kristof Aldenderfer joined USC as Lecturer of Information Technology in Fall 2020. Previously, he served as Director of a rapid prototyping facility at American University called the Design and Build Lab, and taught in both the Physics and Computer Science programs, focusing on courses which involve practical problem solving. Prior to working full-time at American University, Kristof was an electrical and firmware engineer and educator in the San Francisco Bay area: he realized prototypes for tech startups, helped students to understand and utilize engineering, and built exhibits for science museums.





#### **Senior Lecturers**

#### Brandon Franzke\*, Senior Lecturer of Electrical and Computer Engineering



Brandon Franzke joined USC in Spring 2020 as Senior Lecturer in the Ming Hsieh Department of Electrical and Computer Engineering. He earned his B.S. in electrical engineering and biomedical engineering and Ph.D. in electrical engineering from USC.

#### **Gregg Ibbotson\*\*\*\***, Senior Lecturer of Information Technology



Gregg Ibbotson is scheduled to join USC in 2021 as a senior lecturer within the Viterbi School's Information Technology Program. He has previously worked across the computing industry in the United Kingdom for over 8 years and gained a wealth of experience in cyber security training and security management. He is a qualified BSI 27001 Lead Auditor trainer. He has a passion for teaching and a proven track record in providing students with the business and communication skills they need in order to best apply their technical abilities. Since transitioning in to lecturing, Gregg has continued to specialize in information security management, risk assessment and communication skills. He holds a Bachelor's degree in Human Biology, and a Master's Degree in Information Systems Security from Sheffield Hallam University.





#### **Research Assistant Professors**

Jonathan Habif\*\*, Research Assistant Professor of Electrical and Computer Engineering



Dr. Jonathan Habif is a Research Assistant Professor in the Viterbi School of Engineering at USC. Dr. Habif completed his Ph.D. at the University of Rochester in 2004 with research focused on the monolithic integration of control circuits with superconducting quantum processors. He was a postdoctoral associate at the Research Laboratory for Electronics at MIT from 2004 – 2005 demonstrating superconducting quantum bits controlled by active analog superconducting circuits. Dr. Habif was a research staff member and lead scientist at BBN Technologies in Cambridge, MA from 2005 – 2017. At BBN he led research teams on projects in quantum communications, quantum sensing and quantum computation in the fields of quantum optics and superconducting circuit technology. At USC Dr. Habif leads the Laboratory for Quantum-Limited Information (QLIlab). The QLIlab is a quantum optics laboratory dedicated to understanding and demonstrating the fundamental physical limits for extracting information from physical signals. We use fundamental quantum theory to calculate information-theoretic bounds for communications and sensing applications, and build laboratory experiments to demonstrate our ability to achieve these fundamental limits. Our work results in revolutionary designs for information processing systems that allow us to communicate and sense at the fundamental limits of nature and deliver capabilities in computing, communications and sensing that are not possible using classical physics.





#### **Research Assistant Professors**

Akhilesh Jaiswal\*\*, Research Assistant Professor of Electrical and Computer Engineering



Akhilesh Jaiswal is a Research Assistant Professor of Electrical and Computer Engineering at USC Viterbi School of Engineering. He is also associated with Application Specific Intelligent Computing (ASIC) lab at Viterbi's Information Sciences Institute. His research interest includes device-circuit co-design using existing and alternate state variables for future electronic systems targeted towards in-memory computing, Al acceleration, neuromorphic computing, photonic computing etc. Prior to USC, Dr. Jaiswal has served as a Senior Research Engineer at GLOBALFOUNDRIES and as summer intern with GLOBALFOUNDRIES Differentiating Research Technology Lab, Malta, and with ARM Devices-Circuits-Systems Research Group, Austin. Akhilesh received his Ph.D. degree in Nano-electronics from Purdue University in May 2019 under supervision of Prof. Kaushik Roy and Master's degree from University of Minnesota in May 2014. He has authored over 30 articles in peer reviewed journals and conferences and has 10 issued and over 12 pending patents.



#### **Research Assistant Professors**

#### lacopo Masi\*\*, Research Assistant Professor of Computer Science



Dr. Iacopo Masi is a Research Assistant Professor in the Computer Science Department of the Viterbi School of Engineering at the University of Southern California (USC). He is also a Research Computer Scientist at the USC Information Sciences Institute (ISI). Dr. Masi earned his Ph.D. degree in Computer Engineering from the University of Firenze, Italy in March 2014. Immediately after, he moved to California and joined USC, where he was a postdoctoral scholar. Dr. Masi has been Area-Chair of several WACVs and currently serves as Associate Editor for The Visual Computer - International Journal of Computer Graphics. He organized an International Workshop on Human Identification at ICCV'17 and was Workshop Chair at SIBGRAPI'18. Dr. Masi has been nominated several times as an outstanding reviewer in top computer vision conferences. His main research interest lies in solving the computer vision problem: specifically, the subjects of face analysis, modeling, and recognition.

#### Anita Penkova\*, Research Assistant Professor of Aerospace and Mechanical Engineering



Anita Penkova is a Research Assistant Professor at the Aerospace and Mechanical Engineering department since 2020. She received her Ph.D. from the Institute of Physical Chemistry, Bulgarian Academy of Sciences, followed by postdoctoral work at the University Zurich, Switzerland. Her recent research interests adjacent to her NIH R01 have involved several projects such as oxygen transport processes in the eye, experimental investigations and mathematical modeling, acoustic streaming, effect of shear flow on clustering and aggregation, glaucoma related fluid transport experiments and mathematical modeling, and engineering strategies to COVID-19 and finger tracking systems. She regularly teaches Engineering Thermodynamics at USC, and is interested in developing engineering courses where students can get hands-on project experience working in various engineering areas and biotransport phenomena field.



#### **Research Assistant Professors**

#### **David Pynadath\*\***, Research Assistant Professor of Computer Science



David Pynadath is an ICT computer scientist whose research interest is in decision-making in multi-agent systems, with a specific focus on how agents model others. He has developed multi-agent systems for applications in social simulation, virtual training environments, automated personal assistants and Unmanned Aerial Vehicle (UAV) coordination and has published papers on social simulation, teamwork, plan recognition, and adjustable autonomy. He received his Ph.D. from the University of Michigan, Ann Arbor in 1999.





#### **Research Associate Professor**

#### Wael Abd-Almageed\*, Research Associate Professor of Electrical and Computer Engineering



Dr. AbdAlmageed is a Research Associate Professor at Department of Electrical and Computer Engineering, and a research Team Leader and Supervising Computer Scientist with Information Sciences Institute, both are units of USC Viterbi School of Engineering. His research interests include representation learning, debiasing and fair representations, multimedia forensics and visual misinformation (including deepfake and image manipulation detection) and biometrics. Prior to joining ISI, Dr. AbdAlmageed was a research scientist with the University of Maryland at College Park, where he lead several research efforts for various NSF, DARPA and IARPA programs. He obtained his Ph.D. with Distinction from the University of New Mexico in 2003 where he was also awarded the Outstanding Graduate Student award. He has two patents and over 70 publications in top computer vision and high performance computing conferences and journals. Dr. AbdAlmageed is the recipient of 2019 USC Information Sciences Institute Achievement Award.

