



**NJIT President's Forum
and
2017 Innovation Day**

Monday, April 10, 2017



NJIT President's Forum and 2017 Innovation Day Monday, April 10, 2017

Agenda

Atrium, Campus Center

9:00 a.m.-9:20 a.m.

Welcome Remarks and Introductions

Atam Dhawan, *Vice Provost for Research*

Joel Bloom, *President*

Vince DeCaprio, *Vice Chair, Board of Trustees*

Fadi Deek, *Provost and Senior Executive VP*

9:20 a.m.-9:25 a.m.

Speaker Introduction

Atam Dhawan, *Vice Provost for Research*

9:25 a.m.-10:25 a.m.

President's Forum: Keynote Lecture

William (Bill) Huffnagle

President, Reconstructive Division, Stryker Orthopaedics

10:25 a.m.-10:30 a.m.

Introduction to Innovation Day

Announcement of Winners of TechQuest Competition

Jim Stevenson

Ballroom A, Campus Center

10:30 a.m.-12:30 p.m.

Student e-Poster and Networking Session

This President's Forum is a featured event in the Albert Dorman Honors College Colloquium Series and is made possible in part by the generous support of the DeCaprio Family.

Innovation Day is sponsored by the James Stevenson Foundation, the Ronald E. McNair Post-baccalaureate Achievement Program, the National Science Foundation, PSEG, The Hearst Foundation, the Needham Foundation, Peggy McHale, the NJIT Office of the Provost, and the NJIT Office of Research.

Keynote Speaker



William Huffnagle

President, Reconstructive Division at Stryker Orthopaedics

William (Bill) Huffnagle is president of the Joint Replacement Division. He is responsible for Stryker's transatlantic joint replacement business including hips, knees, robotics and Performance Solutions. Beginning in April 2016, Bill also assumed responsibility for Stryker's Trauson business, a leading implant manufacturer in the Chinese market.

Bill started his Stryker career in 1988 as a Howmedica sales representative for the Delaware Valley Branch, and over the next 19 years demonstrated an outstanding track record for growth, building his market share to over 72 percent. In 2007, he was promoted to the Delaware Valley Branch manager role, where he led his team to exceed quota with over \$8 million growth each year. In May 2009, Bill was promoted to vice president and general manager, Hip Reconstruction for the Orthopaedics Division. Under Bill's leadership, the division launched several exciting new products, including Stryker's ADM X3, the first anatomic mobile bearing hip system, the Modular Dual Mobility system and Accolade II. In May 2011, he was appointed as the first president for the newly formed Reconstructive Division.

Bill brings exceptional customer relationship skills, strategic thinking and drive for results to the division. He has demonstrated the ability to build and develop strong teams and for challenging the status quo to bring new, innovative approaches to drive business growth.

2017 TECHQUEST INNOVATION COMPETITION WINNERS

FIRST PLACE

Sruti Rachapudi (BME)

Project: *Ocular Drug Delivery*

Faculty Adviser: Vivek Kumar, Department of Biomedical Engineering

FIRST PLACE (1ST TIME)

John Palmieri (BME), Dhara Rana (BME), Jennifer Rochette (BME), Neha Syal (BME)

Project: *AudIQ: Never Say What Again*

Faculty Adviser: Antje Ihlefeld, Department of Biomedical Engineering

SECOND PLACE

Matthew Reda (ME), Kevin O'Connor (CE)

Project: *SnoBot: Autonomous Snow Removal*

Faculty Adviser: Cesar Bandera, Martin Tuchman School of Management

THIRD PLACE

Richard Ching (IT), Timothy Dijamco (CS), Daniel H. Wang (Bio)

Project: *Integrated Intelligence Modeling: A Smart Course Scheduling Application*

Faculty Adviser: Songhua Xu, Department of Information Systems

TECHQUEST PROTOTYPE WINNERS

FIRST PLACE (1ST TIME)

John Palmieri (BME), Dhara Rana (BME), Jennifer Rochette (BME), Neha Syal (BME)

Project: *AudIQ: Never Say What Again*

Faculty Adviser: Antje Ihlefeld, Department of Biomedical Engineering

SECOND PLACE

Richard Ching (IT), Timothy Dijamco (CS), Daniel H. Wang (Bio)

Project: *Integrated Intelligence Modeling: A Smart Course Scheduling Application*

Faculty Adviser: Songhua Xu, Department of Information Systems

TECHQUEST FINALISTS

Ayesha Ali (BME)

Project: *The Fabrication of a Novel Carbon Fiber Microelectrode for Interfacing With the Brain*

Faculty Adviser: Mesut Sahin, Department of Biomedical Engineering

Ryan Archer (Chem)

Project: *Inexpensive Flexible Glucose Bio-Sensor*

Faculty Adviser: Zafar Iqbal, Department of Chemistry

Olivia Hadlaw (EE), Matthew Shpiruk (EE), Sergio Hernandez (ME), Iain Morrison (ME)

Project: *PiezoElectric Energy Harvesting Tires for Bots*

Faculty Advisers: Vivek Kumar, Department of Biomedical Engineering, Kyle Dobiszewski, Albert Dorman Honors College

Mohamed Hassan (CE)

Project: *Development of Reactive Nanobubble Technology for Green and Sustainable Water Pollution Mitigation Processes*

Faculty Advisers: Wen Zhang and Taha Marhaba, Department of Civil and Environmental Engineering

Shawn Huynh (ChE) and Tej Patel (ChE)

Project: *Hybrid 3-D Printer for Fabrication of Scaffolds with Multiscale Complexity*

Faculty Adviser: Murat Guvendiren, Department of Biomedical Engineering

MCNAIR 2017 SCHOLARS

Krzysztof Andres (EE), Jimmy Lu (CS), Alan Romano (CS)

Project: *Building a Flexible and Collaborative Online Learning System*

Faculty Adviser: Michael Bieber, Department of Information Systems

Kevin Enrique (ME)

Project: *Design Well™-Database for Animations of Mechanism Simulations (designwell.me/)*

Faculty Adviser: Balraj Subra Mani, Department of Mechanical and Industrial Engineering

John Gonzales (ChE)

Project: *Removal of Hydrated Oxide Layers From Boron Powder*

Faculty Advisers: Edward Dreizin, Xinhang Liu, Department of Chemical, Biological and Pharmaceutical Engineering

Ivan Mitevski (EE)

Project: *Frequency and Area Dependence of High-K/Ge MOS Capacitors*

Faculty Advisers: Durgamadhab Misra, Yiming Ding, Department of Electrical and Computer Engineering

Sara Mustafa (ChE)

Project: *Modeling Chemotaxis of Stem Cells in Microfluidic Maze: The Formation of Chemoattractant Concentration Gradient*

Faculty Advisers: Roman Voronov, Long Quang, Vishnu Deep Chandran, Department of Chemical, Biological and Pharmaceutical Engineering

Indiana Suriel (ChE)

Project: *Nanoextrusion: A Platform Enabling Comparative Assessment of Nanocomposites vs. Amorphous Solid Dispersions for Drug Dissolution Enhancement*

Faculty Adviser: Ecevit Bilgili, Department of Chemical, Biological and Pharmaceutical Engineering

FALL 2016 (ROUND 1) URI PHASE-1 STUDENT SEED GRANT WINNERS

Ayesha Ali (BME)

Project: *The Fabrication of a Novel Carbon Fiber Microelectrode for Interfacing With the Brain*

Faculty Adviser: Mesut Sahin, Department of Biomedical Engineering

Ryan Archer (Chem)

Project: *Inexpensive, Flexible Glucose Bio-Sensor*

Faculty Adviser: Zafar Iqbal, Department of Chemistry

Timothy Bott (LTC), Hasan Intisar (CS), Vraj Patel (Comp. Eng.)

Project: *EduTrac App*

Faculty Adviser: Bhavani Balasubramanian, Department of Chemistry

Jasmin Elsagr (BME), Ribal Al Assafin (BME), Kevin Levano (BME), Jacqueline Tanis (BME)

Project: *Arm Motion Tracker*

Faculty Adviser: Richard Foulds, Department of Biomedical Engineering

Victoria Harbour (ChE)

Project: *Neuron-on-Chip: Modulation of Cell-Cell and Cell-Substrate Adhesion*

Faculty Adviser: Sagnik Basuray, Department of Chemical, Biological and Pharmaceutical Engineering

Yigiter Izgordu (ECET), Richie Maj (ECET)

Project: *Multisensor Environmental Scanner*

Faculty Adviser: Daniel Brateris, Department of Electrical and Computer Engineering Technology

Joe Khoneisser (BME)

Project: *Bone Defect Repair and Regeneration With Hydrogel System Incorporated With Growth Factors*

Faculty Adviser: Xiaoyang Xu, Department of Chemical, Biological and Pharmaceutical Engineering

Gopal Ravindhran (Bio)

Project: *A Comparative Study of Dimensionally Reduced Multivariate Gene Set Enrichment Analysis Methods*

Faculty Adviser: Jason Wang, Department of Computer Science

Dushyant Singh (CS)

Project: *Sensor Commun: A New Way of Data Transfer Between IoT Sensors*

Faculty Adviser: Osama Eljabiri, Department of Computer Science

FALL 2016 (ROUND 1) URI PHASE-2 STUDENT SEED GRANT WINNERS

Akinlolu Aguda (CET)

Project: *Investigating the Use of Recycled Concrete Aggregate as Prime Ingredient in Mortar Mix Design*

Faculty Adviser: Mohamed Mahgoub, Department of Engineering Technology

Apoorva Bhupathi (Bio), Salam Hashmi (Bio), Raghav Patel (CS), Mehnaz Moon (ChE)

Project: *Microwave-assisted Antifouling Membrane Filtration Technology*

Faculty Adviser: Wen Zhang, Department of Civil and Environmental Engineering

Henry Cabral (BME)

Project: *Novel Approach to Stimulating Potent Broadly Neutralizing Antibodies Using Glycopeptide Loaded*

Multidomain Hydrogels Against HIV-1 (MDPv; anti-HIV-1)
Faculty Adviser: Vivek Kumar, Department of Biomedical Engineering

Anthony Chirayath (BME)

Project: *The Development of Cytocompatible, Injectable Hydrogels for Soft Tissue Repair*

Faculty Adviser: Vivek Kumar, Department of Biomedical Engineering

William Gao (BME)

Project: *Dental Pulp Regeneration Using Novel Self-assembling Peptide Scaffolds*

Faculty Adviser: Vivek Kumar, Department of Biomedical Engineering

Karen Mandarina (BME)

Project: *Peptide Hydrogels for Hemostasis*

Faculty Adviser: Vivek Kumar, Department of Biomedical Engineering

Charmi Patel (BME), Henry Cabral (BME), Romany Botros (BME), Pamela Rivera (BME), Daniel Yea (BME)

Project: *HydraPulse Massager 2.0*

Faculty Adviser: Joel Schesser, Department of Biomedical Engineering

Rohit Premkumar (Bio)

Project: *Optimizing Decellularized Vascular Grafts Through the Use of Multi-Domain Peptides*

Faculty Adviser: Vivek Kumar, Department of Biomedical Engineering

Sruti Rachapudi (BME)

Project: *Ocular Drug Delivery*

Faculty Adviser: Vivek Kumar, Department of Biomedical Engineering

FALL 2016 (ROUND 2) URI PHASE-1 STUDENT SEED GRANT WINNERS

Andrew Bartz (ME)

Project: *Membrane Distillation With Integrated New Vacuum Technology for Improved Energy Efficiency*

Faculty Adviser: Zhiming Ji, Department of Mechanical and Industrial Engineering

Ayaa Belal (ChE)

Project: *Lab-on-a-Chip Device to Study Biofilms Under Shear Flow*

Faculty Adviser: Sagnik Basuray, Department of Chemical, Biological and Pharmaceutical Engineering

Natalija Tasovac (ChE)

Project: *Sensitive Detection of Pathogens Using a Lab-on-a-Chip Biosensor*

Faculty Adviser: Sagnik Basuray, Department of Chemical, Biological and Pharmaceutical Engineering

Daniel H. Wang (Bio)

Project: *Marsh Plants-Derived Biochar for Sediment Decontamination in the Passaic River*

Faculty Adviser: Mengyan Li, Department of Chemical, Biological and Pharmaceutical Engineering

Jonathan Ziner (BME), Pamela Rivera (BME), Christopher Morris (BME), Artin Mohammadish (BME)

Project: *Acoustic Manipulation of Near Field Electrospinning (NFES) as a Novel Method of Manufacturing 3-D Organic Scaffolds*

Faculty Adviser: Treena Arinzeh, Department of Biomedical Engineering

FALL 2016 (ROUND 2) URI PHASE-2 STUDENT SEED GRANT WINNERS

Nipun Patel (BME)

Project: *Design of Hand Exoskeleton for Neuromuscular Rehabilitation*

Faculty Adviser: Sergei Adamovich, Department of Biomedical Engineering

Sahla Sayed (ChE)

Project: *Oral Delivery of Insulin Using Nanoparticles*

Faculty Adviser: Xiaoyang Xu, Department of Chemical Engineering

Hazal Yalcin (BME)

Project: *3-D Bioprinted Grafts – A Comprehensive Solution for Osteochondral Defects*

Faculty Adviser: Murat Guvendiren, Department of Biomedical Engineering

SPRING 2017 URI PHASE-1 STUDENT SEED GRANT WINNERS

Lauren Hutnik (Bio), Ayushi Sangoi (BME)

Project: *Applying Acoustophoresis Via Novel Surface Textures to Separate Mixtures*

Faculty Advisers: Camelia Prodan, Department of Physics, and Kyle Dobiszewski, Albert Dorman Honors College

Luiz Leao III (Theater)

Project: *Virtual Reality Filmmaking*

Faculty Adviser: Louis Wells, Theatre Arts Program

Niyam Shah (CE), Hollins Justin Jose (ME)

Project: *Can We Use Spiky Sweet Gum Seeds as Bio Adsorbents for the Removal of Water Contaminants?*

Faculty Adviser: Wen Zhang, Department of Civil and Environmental Engineering

Jaasrini Reddy Vellore (BME)

Project: *The Effect of Rate on Emotionality Perception With Cochlear Implants*

Faculty Adviser: Antje Ihlefeld, Department of Biomedical Engineering

SPRING 2017 URI PHASE-2 STUDENT SEED GRANT WINNERS

Ayesha Ali (BME)

Project: *The Fabrication of a Novel Carbon Fiber Microelectrode For Interfacing With the Brain*

Faculty Adviser: Mesut Sahin, Department of Biomedical Engineering

Richard Ching (IT), Timothy Dijamco (CS), Daniel H. Wang (Bio)

Project: *Integrated Intelligence Modeling: A Smart Course Scheduling Application*

Faculty Adviser: Songhua Xu, Department of Information Systems

Olivia Hadlaw (EE), Matthew Shpiruk (EE), Sergio Hernandez (ME), Iain Morrison (ME)

Project: *PiezoElectric Energy Harvesting Tires for Bots*

Faculty Advisers: Vivek Kumar, Department of Biomedical Engineering, and Kyle Dobiszewski, Albert Dorman Honors College

Shawn Huynh (ChE), Tej Patel (ChE)

Project: *Hybrid 3-D Printer for Fabrication of Scaffolds With Multiscale Complexity*

Faculty Adviser: Murat Guvendiren, Department of Biomedical Engineering

Patricia Iglesias-Montoro (BME)

Project: *Peptide Hydrogels for Neural Regeneration*

Faculty Adviser: Vivek Kumar, Department of Biomedical Engineering

Mariana Kelliny (ChE), Joe Khoneisser (BME)

Project: *Bone Defect Repair With Injectable Hydrogel System Incorporated With Growth Factors*

Faculty Adviser: Xiaoyang Xu, Department of Chemical, Biological and Pharmaceutical Engineering

Faizur Piuli (BME)

Project: *Engineered Human Myocardium Tissue Models*

Faculty Advisers: Murat Guvendiren, Department of Chemical, Biological and Pharmaceutical Engineering, and Eun Jung Lee, Department of Biomedical Engineering

Matthew Reda (ME), Kevin O'Connor (CE)

Project: *SnoBot: Autonomous Snow Removal*

Faculty Adviser: Cesar Bandera, Martin Tuchman School of Management

NEWARK INNOVATION ACCELERATION CHALLENGE (NIAC)

Christina De Ramos (IE)

Project: *The Thermo Spoon*

Faculty Adviser: Michael Ehrlich, Martin Tuchman School of Management

Rempee Kalia (IT)

Project: *Metier*

Faculty Adviser: Fran Sears, Murray Center for Women in Technology

Mansha Kohli (Finance)

Project: *UnLoad: Time Budgeting App*

Faculty Adviser: Michael Ehrlich, Martin Tuchman School of Management

INNOVATION ACCELERATION CLUB

Alejandro Del Valle (ME), Thomas Reardon (ChE), Jaemin Lim (EE), Patrick Gavin (ME)

Project: *Omnimist*

Faculty Adviser: Michael Ehrlich, Martin Tuchman School of Management

FALL 2016 NSF I-CORP TEAMS

Omar Abouelkhair (ChE)

Project: *Antibiotic-Encapsulated Hydrogel for Wound Treatment*

Faculty Adviser: Xiaoyang Xu, Department of Chemical, Biological and Pharmaceutical Engineering

Ariel Aranda (CE)

Project: *An Innovative Test Method for Estimating Fines Content of Soils in Subsurface Investigations*

Faculty Adviser: Mohamed Mahgoub, Department of Engineering Technology

El Mostafa Benchafia

Project: *Crystalline PN Synthesis With Plasma*

Faculty Adviser: Xianqin Wang, Department of Chemical, Biological and Pharmaceutical Engineering

William Busarello (Digital Art)

Project: *Interactive Content Generations Using UAV Photogrammetry and Gaming Technologies*

Faculty Adviser: Taro Narahara, College of Architecture and Design

Kuang Du (CS)

Project: *Financial Robo-Adviser (Artificial Intelligence for Investment)*

Faculty Adviser: Zhipeng Yan, Martin Tuchman School of Management

Maocong Hu (ChE)

Project: *Selective Acetylene Hydrogenation Over a Novel Catalytic System*

Faculty Adviser: Xianqin Wang, Department of Chemical, Biological and Pharmaceutical Engineering

Haodi Jiang (CS)

Project: *LearnNet: Reverse Engineering Gene Regulatory Networks Using Machine Learning*

Faculty Adviser: Jason Wang, Department of Computer Science

Zhengqi Jiang

Project: *Electrical Power Controller for Smart Homes*

Faculty Adviser: Roberto Rojas-Cessa, Department of Electrical and Computer Engineering

Yagiz Kaymak

Project: *Free-Space Optical Network Access for All*

Faculty Adviser: Roberto Rojas-Cessa, Department of Electrical and Computer Engineering

Qian Lei

Project: *Commercialization of Method and Device Developed by NJIT and the U.S. Bureau of Reclamation for Testing and Assessment of the Effectiveness of Commercially Available Electro-magnetic Water Softeners*

Faculty Adviser: Boris Khusid, Department of Chemical, Biological and Pharmaceutical Engineering

Xiaoyuan Liang (CS)

Project: *A Collaborating Mobile Indoor Localization System Using Ambient Sound*

Faculty Adviser: Guiling Wang, Department of Computer Science

Yan Liu

Project: *Magnetic Field Assisted Assembly Machine*

Faculty Adviser: Nuggehalli Ravindra, Department of Physics

Jorge Murgueytio (ME)

Project: *Innovative Energy-efficient Vacuum Generation Technology*

Faculty Adviser: Zhiming Ji, Department of Mechanical and Industrial Engineering

Lisa O'Bryan

Project: *Development of Next-gen Activity Tracker for Monitoring of Animal Movement*

Faculty Adviser: Simon Garnier, Department of Biological Science

Chris Ochs (CS)

Project: *Famous Name Database*

Faculty Adviser: James Geller, Department of Computer Science

Bansri Patel (Bio)

Project: *Blocking Diabetic Complications*

Faculty Adviser: Mike Jaffe, Department of Biomedical Engineering

Moab Philip

Project: *Phosphor-free Nanowire White Light-emitting Diodes for Solid-State Lighting and Displays*

Faculty Adviser: Hieu Nguyen, Department of Electrical and Computer Engineering

Rohit Premkumar (Bio)

Project: *Optimizing Vascular Grafts for Guiding Neointimal and Nonhyperplastic Responses in Decellularized Vascular Grafts*

Faculty Adviser: Vivek Kumar, Department of Biomedical Engineering

Sruti Rachapudi (BME)

Project: *IntraOcular Drug Delivery*

Faculty Adviser: Vivek Kumar, Department of Biomedical Engineering

Kristen Scotti (ChE)

Project: *Engineering Polymeric Nanoparticles With Targeting Ligands for Brain Drug Delivery*

Faculty Adviser: Xiaoyang Xu, Department of Chemical, Biological and Pharmaceutical Engineering

Ragini Sharma (Enviro Sci)

Project: *Marketing and Commercialization Analysis for*

Microwave-assisted Antifouling Membrane Filtration Technology

Faculty Adviser: Wen Zhang, Department of Civil and Environmental Engineering

Michelle Vollo (IE)

Project: *Visual Management Dashboard of KPIs*

Faculty Adviser: Paul Ranky, Department of Mechanical and Industrial Engineering

Yalin Zhu (Statistics)

Project: *Generalized Inverse Sampling Scheme-Based GLM Package*

Faculty Adviser: Sunil Dhar, Department of Mathematical Sciences
