

8:00 - 8:30 AM

Breakfast (Pfizer Auditorium Foyer)

8:30 - 9:00 AM

Welcome Remarks

Sunil Kumar, Vice Provost of Graduate and Postdoctoral Programs, NYU Abu Dhabi
Katepalli Sreenivasan, Dean of NYU Tandon School of Engineering

9:00 - 9:30 AM

Lead Talk: Microfluidic Models of Disease
Shuichi Takayama, Georgia Institute of Technology

9:30 - 10:00 AM

Lead Talk: Expanding the Synthetic Capabilities of Yeast
Virginia Cornish, Columbia University

10:00 - 10:15 AM

Coffee Break & Refreshments (Pfizer Auditorium Foyer)

10:15 - 12:00 PM

SESSION 1: Biomolecular Engineering

Chairs: Jin Montclare (NYU Tandon) and Jef Boeke (NYU Medicine)

10:15 - 10:30 The Potential Role of Extracellular Vesicles Released from Chondrocytes in Cartilage Repair and Osteoarthritis
Thorsten Kirsch, NYU Medicine

11:15 - 11:30 Designer Binding Proteins for Cancer Therapy
Shohei Koide, NYU Medicine

10:30 - 10:45 Engineering Genomes
Jef Boeke, NYU Medicine

11:30 - 11:45 A Study of Altered Corneal Extracellular Matrix in Keratoconus
Shukti Chakravarti, NYU Medicine

10:45 - 11:00 Using Synthetic Biology to Understand the Mechanisms of Natural Binding Proteins
Marcus Noyes, NYU Medicine

11:45 - 12:00 Engineering Artificial Protein Materials
Jin Montclare, NYU Tandon

11:00 - 11:15 Designed Cell-Penetrating Peptide Inhibitors of Amyloid-beta Aggregation and Cytotoxicity
Mazin Magzoub, NYU Abu Dhabi

12:00 - 1:00 PM

Lunch (Maker Space, Rogers Hall)

1:00 - 1:30 PM

Lead Talk: Advances in Brain-Controlled Powered Exoskeletons for Assistance and Rehabilitation
Jose L Contreras-Vidal, University of Houston

1:30 - 2:00 PM

Lead Talk: Bioanalytical Microdevices for the Next Generation of Cell-Based Assays
Nancy L. Allbritton, University of North Carolina at Chapel Hill

2:00 - 2:15 PM

Coffee Break & Refreshments (Pfizer Auditorium Foyer)

2:15 - 3:30 PM

SESSION 2: Biomaterials I

Chairs: Nikhil Gupta (NYU Tandon), Paulo Coelho (NYU Dentistry)

2:15 - 2:30 Shared Resources by the Numbers
Andras Gyortgy, NYU Abu Dhabi

3:00 - 3:15 Craniomaxillofacial Skeletal Regeneration Using 3D Printed Bio-ceramic Scaffolds and Adenosine Receptor Activation
Paulo Coelho, NYU Dentistry

2:30 - 2:45 Controlling Biology: From Single Cell Networks to Emergent Population Level Dynamics
Marcella Gomez, UC Santa Cruz

3:15 - 3:30 Magnesium: Next Generation Material for Resorbable and Permanent Implants
Nikhil Gupta, NYU Tandon

2:45 - 3:00 Control of Biomolecular Adsorption at Surfaces using Molecular and Polymeric Films: Relationships with Surface Energetics
Paul Edward Laibinis, Vanderbilt University

3:30 - 4:00 PM

Coffee Break & Refreshments (Pfizer Auditorium Foyer)

4:00 - 5:30 PM

SESSION 3: Biomaterials II

Chairs: Nikhil Gupta (NYU Tandon) and Mohammad A. Qasaimeh (NYU Abu Dhabi)

4:00 - 4:15 Novel TNFR2 Anabolic Signaling in Cartilage and Bone Regeneration
Chuanju Liu, NYU Medicine

4:45 - 5:00 Conditional Molecular Design with Deep Generative Models
Seokho Kang and Kyunghyun Cho, NYU Courant

4:15 - 4:30 From Discovery of Sweat Gland Stem Cells to Future Skin Regeneration with Functional Sweat Glands
Catherine Lu, NYU Medicine

5:00 - 5:15 The UAE Healthy Future Study — Opportunities for Collaborative Research
Raghib Ali, NYU Abu Dhabi

4:30 - 4:45 3D-Printed Bi-phasic Calcium Phosphate Scaffolds for Bone Regeneration
Lukasz Witek, NYU Dentistry

5:15 - 5:30 Microfluidic Systems for Cell manipulation and Separation
Mohammad A. Qasaimeh, NYU Abu Dhabi

8:00 - 9:00 AM

Breakfast (*Pfizer Auditorium Foyer*)

9:00 - 9:30 AM

Lead Talk: Synthetic Biology: Life Redesigned
 James J. Collins, Massachusetts Institute of Technology

9:30 - 10:00 AM

Lead Talk: Pre-Hospital Applications of Computer-Augmented Point-of-Care Ultrasound
 Stephen R. Aylward, Kitware, Inc.

10:00 - 10:15 AM

Coffee Break & Refreshments (*Pfizer Auditorium Foyer*)

10:15 - 12:00 PM

SESSION 4: Bio-imaging

Chairs: Ivan Selesnick and James Fishbaugh (NYU Tandon)

10:15 - 10:30 From the Artisanal to the Defined
 Joel S. Schuman, NYU Medicine

11:15 - 11:30 Learning MR Image Reconstruction
 Florian Knoll, NYU Medicine

10:30 - 10:45 Development of Biomaterials for Diagnostic, Therapeutic and
 Theranostic Applications: Recent Progress at NYU
 Youssef Wadgiri, NYU Medicine

11:30 - 11:45 Retinotopic Mapping of White Matter in the Human Brain
 Osama Abdullah, NYU Abu Dhabi

10:45 - 11:00 Intraocular and Intracranial Pressures and Eye Gaze Contribute to
 Deformation of the Optic Nerve Head
 Gadi Wollstein, NYU Medicine

11:45 - 12:00 Spatiotemporal Modeling of Medical Images and Anatomical
 Shapes
 James Fishbaugh, NYU Tandon

11:00 - 11:15 Optical Coherence Tomography Imaging
 Hiroshi Ishikawa, NYU Medicine

12:00 - 1:00 PM

Lunch (*Maker Space, Rogers Hall*)

1:00 - 2:00 PM

POSTER SESSION (*Pfizer Auditorium Foyer*)

2:00 - 2:30 PM

Lead Talk: Mechanogenetics for the Remote and Non-Invasive Control of Cancer Immunotherapy
 Peter Yingxiao Wang, UC San Diego

2:30 - 3:30 PM

SESSION 5: Mechanobiology

Chairs: Alesha B. Castillo and Weiqiang Chen (NYU Tandon)

2:30 - 2:45 The Involvement of Actin in Mechanogenomics
 Piergiorgio Percipalle, NYU Abu Dhabi

3:00 - 3:15 Mechanical Regulation of Skeletal Homeostasis and Repair
 Alesha B. Castillo, NYU Tandon

2:45 - 3:00 Biomechanical Assessment of Human Antigen Presenting Cells
 Using Live-Imaging Datasets
 Jeremy Teo, NYU Abu Dhabi

3:15 - 3:30 Ultrasound Tweezers Trigger Single-Cell Mechanical Allostasis
 Weiqiang Chen, NYU Tandon

3:30 - 4:00 PM

Coffee Break & Refreshments (*Pfizer Auditorium Foyer*)

4:00 - 5:30 PM

SESSION 6: Microsystems I

Chairs: Rafael Song and Mohammad A. Qasaimeh (NYU Abu Dhabi)

4:00 - 4:15 Sort 'N Merge: Deterministic Droplet-Based Bioparticle Co-
 Encapsulation for Single-Cell Sequencing
 Katsuo Kurabayashi, University of Michigan

4:45 - 5:00 Digital Microfluidics: Cell-Based Assays and Analysis
 Betty Li, University of Toronto

4:15 - 4:30 Opto-Mechanical Multiplexing of a Single-Molecule Sensitive
 Whispering Gallery Mode Biosensor
 Stephen Arnold, NYU Tandon

5:00 - 5:15 Modulation of NF- κ B-Induced Transcriptional Bursting as a
 Driver of Phenotypic Diversity
 Suzanne Gaudet, Harvard Medical School

4:30 - 4:45 An Accessible Microfluidic Platform to Probe the Capabilities of
 Single Cells
 Robin E.C. Lee, University of Pittsburgh

5:15 - 5:30 Biomedical Applications of Mechanochromic Polymers
 Sachin Khalpi, NYU Abu Dhabi

8:00 - 9:00 AM

Breakfast (*Pfizer Auditorium Foyer*)

9:00 - 9:30 AM

Lead Talk: Microfluidics, Automation, and Big-Data for Systems Biology
Hang Lu, Georgia Institute of Technology

9:30 - 10:00 AM

Lead Talk: A Platform to Digitize Biological Signatures: A Potential Pathway to Exponential Medicine
John T. McDevitt, New York University

10:00 - 10:15 AM

Coffee Break & Refreshments (*Pfizer Auditorium Foyer*)

10:15 - 11:45 PM

SESSION 7: Microsystems II

Chairs: Rafael Song and Mohammad A. Qasaimeh (NYU Abu Dhabi)

10:15 - 10:30 Fundamental Building Blocks for Efficient Power and Wideband Data Transmission to mm-Sized Implantable Microelectronic Devices
Maysam Ghovanloo, Georgia Institute of Technology

11:00 - 11:15 Microphysiological Systems for Emulating Human Tissues and Diseases
Y. Shrike Zhang, Harvard University

10:30 - 10:45 Ultrafast Single-Cell Level Enzymatic Tumor Profiling via Continuous Flow Microfluidics
Chen Chia-Hung, National University of Singapore

11:15 - 11:30 Enhancing the Detection Sensitivity and Speed of Silicon Microring Resonator with an Electrokinetic Concentrator on Microfluidic Chip
Rafael Song, NYU Abu Dhabi

10:45 - 11:00 Microfluidics with in situ Raman Spectroscopy for the Discovery of Reaction Mechanisms in Fine Chemicals and Pharmaceutical Chemistry
Ryan L. Hartman, NYU Tandon

11:30 - 11:45 Improving T Cell Production with a Soft Touch
Lance Kam, Columbia University

11:45 - 12:00 PM

Group Photo (*Stairs of the Wunsch Hall*)

12:00 - 1:00 PM

Lunch (*Maker Space, Rogers Hall*)

1:00 - 1:30 PM

Lead Talk: Robotics to Restore and Retrain Human Movements
Sunil K. Agrawal, Columbia University

1:30 - 1:45 PM

Coffee Break & Refreshments (*Pfizer Auditorium Foyer*)

1:45 - 3:30 PM

SESSION 8: Robotics for Assistance and Rehabilitation

Chairs: Joo H. Kim (NYU Tandon) and John Ross Rizzo (NYU Medicine)

1:45 - 2:00 RoboCane: A Portable Co-Robotic Navigation Aid for the Visually Impaired
Cang Ye, Virginia Commonwealth University

2:45 - 3:00 Stability of Robot-Assisted Balance and Locomotion
Joo H. Kim, NYU Tandon

2:00 - 2:15 Human-Machine Perception and Assistive Technology
Zhigang Zhu, City University of New York

3:00 - 3:15 Low-Vision Aware' Urban Planning: Building an integrated Ecosystem through Connected Wearables for Visually Impaired Citizens
John Ross Rizzo, NYU Medicine

2:15 - 2:30 Engineering Human Movement Towards Human Like Robots
Kinda Khalaf, Khalifa University

3:15 - 3:30 Holographic Neural Interfaces with the Central Nervous System
Shy Shoham, NYU Medicine

2:30 - 2:45 Rehabilitation Robotics Meets Citizen Science to Enhance Patients' Motivation
Maurizio Porfiri, NYU Tandon

3:30 - 4:00 PM

Coffee Break & Refreshments (*Pfizer Auditorium Foyer*)

4:00 - 5:30 PM

Panel Discussion: Bioengineering for the Future

Moderator: Katepalli Sreenivasan, NYU Tandon

Hang Lu, Georgia Institute of Technology

Kinda Khalaf, Khalifa University

Joel S. Schuman, NYU Medicine

Sunil Agrawal, Columbia University

John T. McDevitt, NYU Dentistry

Kastu Kurabayashi, University of Michigan