BIOINFORMATICS, COMPUTATIONAL AND SYSTEMS BIOLOGY
Track Chair: Shayan Peirce-Cottler – University of Virginia - smp6p@virginia.edu
Track Chair: Tara Deans – University of Utah - tara.deans@utah.edu
- Analysis of Cell Signaling
- Analysis of Multi-Cellular Systems
- Computational Modeling of Cancer
- Computational Modeling of Cell Motility and Proliferation
- Machine Learning for Biomedical Applications
- Models of Metabolism
- Novel Methods for Systems Biology
- Omics Data: Methods, Modeling and Analysis
- Single-Cell Measurements and Models
- Stem Cell Systems Biology & Bioinformatics
- Systems Approaches to Therapy, Therapeutics, and Precision Medicine
- Systems Biology of Infectious Disease
- Theory and Practice of Synthetic Biology
- Other / Non-specified

BIOMANUFACTURING
Track Chair: Tracy Hookway - Binghamton Univ - thookway@binghamton.edu
Track Chair: Yi Hong – University of Texas at Arlington - yihong@uta.edu
- Molecular Biomanufacturing
- Cellular Biomanufacturing
- Tissue and Organ Biomanufacturing
- 3D Printing Advances for Biofabrication
- Biomaterials for Cell Manufacturing and Tissue Biofabrication
- Microphysiological Systems (MPS) Manufacturing
- Multiscale Computation Modeling
- Biomanufacturing Process Integration and Scale-up/out
- Bioprocess Monitoring and In-Line Sensing
- Enabling Technologies for Cell and Tissue Biomanufacturing
- Cryopreservation in Biomanufacturing
- Other / Non-specified

BIOMATERIALS
Track Chair: Lakiesha Williams – University of Florida - lwilliams@bme.ufl.edu
Track Chair: Hao Cheng – Drexel University - hc468@drexel.edu
- 3D Printing and Advanced Biomaterial Manufacturing
- Advanced Characterization and Imaging of Biomaterial Environments
- Advances in Biomaterials Integration with Chips and Devices
- Biomaterials for Immunoenengineering
- Biomaterials for Regenerative Medicine
- Biomaterials Scaffolds
- Biomechanics of Biomaterials
- Drug Delivering Biomaterials
- Engineering the Stem Cell Microenvironment
- Hydrogel Biomaterials
- Natural and Bioinspired Biomaterials
- Other / Non-specified

BIOMEDICAL ENGINEERING EDUCATION (BME)
Track Chair: Cheryl Gomillion – University of Georgia - ctpgollion@uga.edu
Track Chair: Aileen Huang-Saad – Univ of Michigan - aileenhs@umich.edu
- Design and Curriculum
- ABET Program Criteria, Student Outcomes
- Industry and Biomedical Engineering
- Teaching, Learning, and Pedagogy
- Experiential Learning (Curricular and Co-Curricular)
- Multidisciplinary and Interdisciplinary Curriculum
- Diversity, Equity, and Inclusion
- Mentorship
- K-12 Outreach
- Other/Non-Specified

BIOMECHANICS
Track Chair: Josephine Allen - University of Florida - jallen@mse.ufl.edu
Track Chair: Ed Guo – Columbia University - eng1@columbia.edu
- Advances in Biomechanical Testing of Medical Devices
- Biofluid Mechanics
- Biomechanics in Cell and Tissue Engineering
- Biomechanics of Biomaterials
- Biomechanics of Rehabilitation/Injury
- Cancer Mechanobiology
- Cardiovascular Biomechanics
- Cellular and Molecular Biomechanics: Mechanobiology
- Computational and Multiscale Modeling in Biomechanics
- Hemodynamics and Vascular Mechanics
- Human Performance/Sports Biomechanics
- Imaging Techniques in Biomechanics
- Injury Biomechanics
- Matrix Effects in Mechanobiology
- Mechanics of the Respiratory System
- Mechanobiology of Cardiac and Smooth Muscle
- Mechanobiology of Cell Adhesion
- Mechanobiology of the Vascular and Nervous System
- Molecular Bioengineering
- Neuromuscular and Brain Biomechanics
- Orthopedic: Mechanobiology and Mechanotransduction
- Topics in Mechanobiology
- Other / Non-specified

BIOMEDICAL IMAGING AND INSTRUMENTATION
Track Chair: Alvin Yeh – Texas A&M - ayeh@tamu.edu
Track Chair: Allen Liu – University of Michigan - allenliu@umich.edu
- Cardiac, Cardiovascular, and Blood Flow Imaging
- Imaging in Neuroscience, Brain and Spine
- Imaging Applications in Reproductive Health
- Imaging Cells, Molecules, and Genome
- Imaging Technologies and Molecular Profiling in Cancer
- Imaging the Respiratory System
- Imaging Technologies in Clinical Translation
- Imaging in Tissue Engineering
- Optical and Spectroscopic Imaging, Microscopy, and Spectroscopy (Optics)
- Contrast-Enhanced Ultrasound and Therapeutic Ultrasound (US)
- Photoacoustic Imaging (PA)
- Endoscopy and Optical Coherence Tomography (OCT)
- Magnetic Resonance Imaging and Applications (MRI)
- Imaging of Structural and Mechanical Properties
- Deep Learning and Artificial Intelligence in Microstructural Imaging
- Imaging System Development & Emerging Imaging Technologies
- Nuclear Medicine Imaging (PET/SPECT)
- X-ray and Computed Tomographic Imaging (CT)
- Other / Non-specified

CANCER TECHNOLOGIES
Track Chair: Jan Lammersing – Cornell Univ - jan.lammersing@cornell.edu
Track Chair: Kimberly Kelly – University of Virginia - kak3x@virginia.edu
- Cancer Cell Motility and Migration
- Cancer Drug Delivery
- Cancer Immunoenengineering, Immunomodulation and Immunotheraphy
- Cancer Mechanobiology
- Circulating Biomarkers: CTCs, Extracellular Vesicles and DNA
- Computational Modeling of Cancer
- Engineered Cancer Models for In Vitro Studies
- Imaging Strategies in Cancer Detection, Diagnosis, and Prognosis
- Metastasis, Dormancy & Treatment Response
- Nanotechnologies in Cancer
- Precision Medicine, Biomarkers and Molecular Profiling
- Tumor Microenvironment
- Other / Non-specified

To submit an abstract go to: http://submissions.mirasmart.com/bmes2020
ANNUAL MEETING
CO-CHAIRS: Debra Augustine, Northeastern Univ - d.auguste@northeastern.edu
Kent Leach, Univ of CA Davis - jkleach@ucdavis.edu
Tannay Lele, University of Florida - ttle@che.ufl.edu

To submit an abstract go to: http://submissions.mirasmart.com/bmes2020

CARDIOVASCULAR ENGINEERING
Track Chair: Nenad Bursac - Duke University - nbursac@duke.edu
Track Chair: Karen May-Newman – SD State University - kmaynewm@sdsu.edu
• Angiogenesis and Engineered Vascularization
• Cardiac Electrophysiology
• Cardiovascular Biomechanics
• Cardiovascular Devices
• Cardiovascular Organ-on-Chip Technologies
• Cardiovascular Regeneration and Stem Cells
• Cardiovascular Tissue Engineering
• Computational Modeling in Cardiovascular Systems
• Heart Valve Structure, Function, and Disease
• Hemodynamics and Vascular Mechanics
• Imaging in Cardiovascular Systems
• Mechanical Circulatory Support
• Mechanobiology of Cardiac and Smooth Muscle
• Thrombosis and Hemostasis
• Other / Non-specified

CELLULAR AND MOLECULAR BIOENGINEERING
Track Chair: Eno Epong – Northeastern University - e.epong@northeastern.edu
Track Chair: Yingxiao Wang – Univ of CA San Diego - yiw015@eng.ucsd.edu
• Analysis of Cell Signaling
• Cancer Cell Motility and Migration
• Cell Migration
• Cellular and Molecular Biomechanics: Mechanobiology
• Engineering and the Microbiome
• Engineering Multi-Cellular Systems
• Epigenetics and Chromatin Regulation
• Gene Delivery and Genome Bioengineering
• Immunoengineering
• Ligand, Receptor, and Effector Signaling Systems
• Micro/Nano Tools in Molecular Biology (Genomics, Proteomics)
• Molecular and Cellular Engineering for Functional Materials and Sensors
• Molecular and Cellular ImmunoEngineering
• Molecular Bioengineering
• Molecular Imaging in Live Cells
• Reprogramming/Directed Differentiation in Stem Cell Engineering
• Single-Cell Measurements and Models
• Other / Non-specified

DEVICE TECHNOLOGIES AND BIOMEDICAL ROBOTICS
Track Chair: Jae-Woong Jeong – KAIST - jjeong1@kaist.ac.kr
Track Chair: Rebecca Wachs – University of Nebraska - rebecca.wachs@unl.edu
• Affordable Health Devices and Frugal Innovation
• Assistive Technology
• Biosensors
• Cardiovascular Devices
• Design and Control of Prostheses and Exoskeletons
• Implantable Sensors and Devices
• Interventional Devices and Robotics
• Musculoskeletal Robotics and Biomechatronics in Rehabilitation
• Neural Devices and Electronics
• Point of Care / Mobile Devices
• Surgical Robotics
• Translation of Devices from the Lab to the Clinic/Market
• Wearable Sensors and Devices
• Other / Non-specified

DRUG DELIVERY
Track Chair: Seungpyo Hong – Univ of Wisconsin - seungpyo.hong@wisc.edu
Track Chair: Juiane Nguyen – Univ of North Carolina - julianen@email.unc.edu
• Bioinspired Materials and Self Assembly
• Cancer Drug Delivery
• Delivery Systems for Proteins and Vaccines
• Drug Delivering Biomaterials
• Drug Delivery for Immunomodulation and Immunotherapy
• Drug Delivery in Tissue Engineering & Medicine
• Nanotechnologies for Drug and Nucleic Acid Delivery
• Nucleic Acid Delivery
• Respiratory Drug Delivery
• Targeted or Responsive Delivery Systems
• Translational Aspects of Drug Delivery
• Other / Non-specified

NANO AND MICRO TECHNOLOGIES
Track Chair: Erkin Seker – University of CA Davis - eseker@ucdavis.edu
Track Chair: Akhilesh Gaharwar – Texas A&M - gaharwar@tamu.edu
• 3D Printing and Bioprinting Micro/Nano Methods and Approaches
• Advances in Micro/Nano Biomaterials and Biosystems
• Biomaterials Integration with Micro/Nano Chips and Devices
• Bioinspired/Biomimetic Micro/Nano Devices and Systems
• In Situ Tissue Regeneration via Micro/Nano Engineered Technologies
• Micro/Nano Fluidic Engineering, Lab-on-Chip and Organ-on-Chip Systems
• Micro/Nano Technologies for Cancer Detection, Diagnosis, or Therapy
• Micro/Nano Tools for Immune Engineering and Immune Modulation
• Micro/Nano Tools for Precision Medicine
• Micro/Nano Technologies in Molecular and Cellular Bioengineering, Medicine and Biology (Genomics, Proteomics)
• Micro/Nano Tools for Neuroscience Research and Neuroengineering
• Molecular Sensors and Nanodevices for Diagnostics and Biomedical Imaging
• Microporous and Mesoporous Biomaterials for Regenerative Medicine and Therapeutic Delivery
• Nanoengineered Biomaterials for Regenerative Medicine and Therapeutic Delivery
• Nanotechnologies for Global Health Technologies and Systems
• Nanotechnologies for Drug, Protein and Gene Delivery
• Other / Non-specified (Implantable systems, flexible/wearable systems, 3D printing/bioprinting, tools to study and manipulate the microbiome, courses and training approaches, etc.)

NEURAL ENGINEERING
Track Chair: Aysegul Gunduz – University of Florida - agunduz@bme.ufl.edu
Track Chair: Kyle Lampe – University of Virginia - kjl2n@virginia.edu
• Computational Neural Modeling
• Delivery of Molecules in the Central Nervous System
• Giall Cell Engineering
• Micro/Nano Tools in Neurosciences
• Neural Decoding and Control
• Neural Device Interfaces
• Neural Disease and Injury: Modeling and Therapeutics
• Neural Stem/Progenitor Cell Engineering
• Neuroimaging
• Neuromodulation: Brain and Spinal Cord Stimulation
• Neuromodulation: Peripheral Nerve Stimulation
• Neurorehabilitation
• Neuromuscular Biomechanics and Biomechanics of Brain Disorders
• Neuro-regenerative Engineering
• Other / Non-specified
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<thead>
<tr>
<th>Track Chair</th>
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<tr>
<td>Lin Han</td>
<td>Keith Cook</td>
<td>Debra Auguste</td>
<td>Colin Drummond</td>
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<tr>
<td>Drexel Univ</td>
<td>Carnegie Melon Univ</td>
<td>Northeastern Univ</td>
<td>Case Western Reserve Univ</td>
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<tr>
<td><a href="mailto:robby.bowles@utah.edu">robby.bowles@utah.edu</a></td>
<td><a href="mailto:keicook@andrew.cmu.edu">keicook@andrew.cmu.edu</a></td>
<td><a href="mailto:d.auguste@northeastern.edu">d.auguste@northeastern.edu</a></td>
<td><a href="mailto:cxd@case.edu">cxd@case.edu</a></td>
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**ORTHOPAEDIC AND REHABILITATION ENGINEERING**

- Articular Cartilage, Meniscus and Joints
- Bone
- Imaging Techniques for Musculoskeletal System
- Musculoskeletal Robotics and Biomechatronics in Rehabilitation
- Musculoskeletal Stem Cell Engineering
- Musculoskeletal Tissue Engineering
- Orthopedic and Rehabilitation Engineering: Implant and Prosthetic Biomechanics
- Orthopedic: Mechanobiology and Mechanotransduction
- Rehabilitation Engineering: Implantable Devices
- Rehabilitation: Blunt Injury and Spinal Cord Injury
- Spine and Intervertebral Disc
- Other / Non-specified

**RESPIRATORY BIOENGINEERING**

- Bioengineering Approaches to Lung Development, Regeneration, Repair and Replacement
- Imaging the Respiratory System
- Mechanics of the Respiratory System
- Modeling of the Respiratory System
- Respiratory Devices
- Respiratory Drug Delivery
- Respiratory Mechanobiology
- Translational Respiratory Engineering
- Other / Non-specified

**STEM CELL ENGINEERING**

- Advanced Biomanufacturing and Translation of Stem Cell-Derived Therapies and Tissues
- Cardiovascular Regeneration and Stem Cells
- Engineering Organoid Development & Morphogenesis
- Engineering the Stem Cell Microenvironment
- Gastrointestinal Stem Cell Engineering
- Hematopoietic Stem Cell Engineering
- Mechanobiology of Stem Cell Engineering
- Musculoskeletal Stem Cell Engineering
- Neural Stem/Progenitor Cell Engineering
- Reprogramming/Directed Differentiation in Stem Cell Engineering
- Respiratory Stem Cell Engineering
- Stem Cells and Disease Modeling
- Stem Cell Systems Biology & Bioinformatics
- Stem Cells in Tissue Engineering
- Other / Non-specified

**TISSUE ENGINEERING**

- Advanced Biomanufacturing in Tissue Engineering
- Biomechanics of Engineered Tissues
- Cardiovascular Tissue Engineering
- Gene and Drug Delivery to Engineered Tissues
- Engineering Multi-cellular Systems
- Engineering Replacement Tissues
- Engineering Tissue Interfaces
- Imaging Techniques in Tissue Engineering
- Immunomunengineering of Engineered Tissues
- Developmental Biology and Morphogenesis of Engineered Tissues
- Mechanobiology of Engineered Tissues
- Musculoskeletal Tissue Engineering
- Naturally-Derived and Extracellular Matrix Biomaterials in Tissue Engineering
- Neural and Neurovascular Tissue Engineering
- Organ-on-Chip for Regenerative Medicine
- 3D Bioprinting and Patterning of Tissues
- Stem Cells in Tissue Engineering
- Other / Non-specified

**TRANSLATIONAL BIOMEDICAL ENGINEERING**

- Cell Therapeutics Biomanufacturing
- Imaging Technologies in Clinical Translation
- Interventional devices and robotics
- Implantable and wearable sensors
- Micro/Nano Tools in Medicine
- Preclinical Models, GMP, GLP, FDA, and Unexpected Challenges
- Prototype clinical evaluation
- Tissue/Organoid Biofabrication
- Other / Non-specified

**UNDERGRADUATE RESEARCH & DESIGN**

- Summer research submissions open - July 15, 2020
- Submission deadline – July 30, 2020
- Undergraduates are welcome to submit for consideration in both the general program in addition to the special undergraduate (REU) program

To submit an abstract go to: http://submissions.mirasmart.com/bmes2020