PROGRAM AT A GLANCE				
Thursday, April 16 2026				
8:00 AM- 4:00 PM	**Registration (2nd Floor Hallway)**			
All Day	**Exhibits (Room 200)**			
9:00 – 9:30 AM	**Opening Remarks (Room HGSC Underground)**			
Room	**217 A**	**217 B**	**217 C**	**217 D**
9:45 – 10:45 AM	Biomaterials Session I	Emerging Session I	Biomechanics Session I	Panel Session 1: Engineering Education
11:15 AM - 12:15 PM	**Keynote Speaker: Dr. Treena Arinzeh, Columbia Univ. (Room HGSC Underground)**			
12:15 – 1:00 PM	**Lunch (Room 200)**			
Room	**217 A**	**217 B**	**217 C**	**217 D**
1:15 – 2:15 PM	Biomaterials Session II	Biomaterials Session III	Emerging Session II	Biomechanics Session II
2:30 – 3:30 PM	Biomaterials Session IV	Biomaterials Session V	Imaging Session	Biomechanics Session III
3:45 – 4:45 PM	Biomaterials Session VI	Biomechanics Session IV	Emerging Session III	Biomechanics Session V
5:00 – 6:00 PM	**POSTER SESSION I (Room 200)**			
6:00 - 8:00 PM	**Reception (Room HGSC Underground)**			

Thursday, April 16, 2026

Podium Sessions

Track: Biomaterials and Tissue Engineering

Session 1:Biomaterial Design for Regeneration
9:45 - 10:45 AM

9:45 - 10:00 AM	Piezoelectric Barium Titanate (BTO) Coating to Enhance Titanium Surface Bioactivity *Chinmaya Agarwal, Carolina Montoya, Dmitriy Dikin, Santiago Orrego*
10:00 - 10:15 AM	Optimization of Skeletal Muscle Scaffolds Using Gelatin Molding Technique *Noor Haque, Sydnee Sicherer, Jonathan Grasman*
10:15 - 10:30 AM	Dual-Crosslinked Composite Hydrogels for 3D Printing of Bone Tissue Scaffolds *Betelhem S Abay, Hang Truong, and Murat Guvendiren*
10:30 - 10:45 AM	Spatially Controlled Stem Cell Differentiation in 3D-Printed Scaffolds for Osteochondral Tissue Engineering *Hang Truong and Murat Guvendiren*

Session 2: Mechanobiology and Cell-Matrix Interactions
1:15 - 2:15 PM

1:15 - 1:30 PM	Role of Cell-Matrix Mechanical Communication During Lumen and Tubule Morphogenesis *Sergio E. Garcia-Hernandez, Liam O'Donell, Banaue Mendoza, Maria Camila Ferrucho Calle, Laura Galeano Tirado, Marisol Herrera-Perez*
1:30 - 1:45 PM	Liquid-Metal–Integrated Elastomeric Micropillar Platform for Force Sensing of Engineered Skeletal Muscle *David Berger, Zoe Smith, Kento Yamagishi, Amir Vahabikashi*
1:45 - 2:00 PM	Biomechanical Recovery in GAG-Depleted Cartilage ex vivo with a Synthetic Polyelectrolyte, Polystyrene Sulfonate

	Qurat-Ul-Ain Bhatti, Shalini Sundar, Allison Koopman, Zoe A. Fields, Kyla F. Ortved, David L. Burris, Justin Parreno, Laure V. Kayser, and Charles B. Dhong
2:00 - 2:15 PM	Response of Human Aortic Endothelial Cell Glycocalyx to Fluid Shear Stress and Substrate Stiffness *Jacqueline O'Donnell, Zoe Vittum, Dr. Solomon Mensah*

Session 3: Precision Genome Engineering and Cellular Reprogramming
1:15 - 2:15 PM

1:15 - 1:30 PM	CRISPR-EpiGEM: Deep Learning CRISPR Screens for Data-Driven Epigenetic Editing *Alexander Arteaga, Josh Graham, Tomas Gonzalez-Fernandez*
1:30 - 1:45 PM	Nonviral Gene Editing in Primary Human Osteoarthritic Chondrocytes *Savannah K. Pender, Alexander V. Arteaga, Josh Graham, Dhairya Shukla, Chiebuka Okpara, Gregory Carolan, Tomas Gonzalez-Fernandez*
1:45 - 2:00 PM	Programmable Co-induction of Human iPSCs Enables Tunable, Multi-lineage Neural Spheroid Assembly *Susanna Jaramillo, Shean Fu Phen, Jing Hu, Federico Jimenez, David M. Truong*
2:00 - 2:15 PM	Development of a Senescence-Based Liver Aging Model Using Doxorubicin *Kohlen Kpuyuf, Kaila Barnes, Aylin Acun*

Session 4: Engineered Musculoskeletal and Vascular Repair
2:30 - 3:30 PM

2:30 - 2:45 PM	Localized β-Glycerophosphate Delivery from Chitosan–Polystyrene Sulfonate Polyelectrolyte Scaffolds Improves Spatial Mineral Organization in Centimeter-Scale Channeled Constructs *Rana Ibrahim, Nicole Petrocelli, Matangi P.R., Maya Lapinski, Erfan Sarhaadei, Hongjun Wang*
2:45 - 3:00 PM	Amphiregulin-releasing Alginate Hydrogels Enhance Ischemic Muscle Repair *Brennagh R. Shields, Lauren G. Mottel, Caroline LaSalle, Lindsay M. Gallagher Brian J. Kwee*
3:00 - 3:15 PM	Towards leveraging the interplay of TGF-β1 Inhibition and TGF-β2 Stimulation for Elastic Matrix Regenerative Repair in Abdominal Aortic Aneurysms *Sree Vyasa Anbazhagan, Ali Mutah, Anand Ramamurthi*
3:15 - 3:30 PM	Emerging Investigator Award Talk: Partial epigenetic reprogramming of cardiac myocytes in vivo induces their molecular rejuvenation and ameliorates age-associated cardiac failure *Irene de Lázaro*

Session 5: Infection, Immunity, and Host–Pathogen Modeling
3:45 - 4:45 pm

2:30 - 2:45 PM Immunogenic Receptor Depletion for Allogeneic Membrane-Wrapped Particles
Bahar Bahramimeimandi, Jason P. Gleghorn

2:45 - 3:00 PM Chemoselective Characterization of New Extracellular Matrix Deposition in Bioengineered Tumor Tissues
Zihan Ling, Burke Niego, Qingyang Li, Dhruv Bhattaram, Vanessa Serna Villa, Michael Hu, Zhuowei Gong, Lloyd M. Smith, Brian L. Frey, Xi Ren

3:00 - 3:15 PM Bacterial Motion Profiling in Nanocultures for Rapid Pathogen Identification
Ann Badia, Eesha Kulkarni, Huda Usman, Tagbo H.R. Niepa

3:15 - 3:30 PM Microfluidics For Monitoring of Babesia microti Infection Dynamics and Motility in Whole Blood
Amy L Apgar, Chao Li, Emily G Bache, Danielle M Tufts, Tagbo HR Niepa

Session 6: Translational Bioengineering, Biomanufacturing & Therapeutic Screening
3:45 - 4:45 pm

3:45 - 4:00 PM Development of a Parametric Framework for the Optimized 3D Printing of Integrated Microfluidic using Commercial Printer and Resins
Huu Anh Minh Nguyen, Mark Volosov, Dae Jung Martins Cruz, Abigail Goz, Maanit Khanna, Sergey Chapek, Roman Voronov

4:00 - 4:15 PM Micropatterned Fibrin Film-Based Composites: Towards the Treatment of Volumetric Muscle
Bryanna L. Samolyk, Bianca R. Trope, Bridgette M. Bowyer, and George D. Pins

4:15 - 4:30 PM Machine Vision-Assisted Synthesis and Evaluation of a Dual-Layer Lung Sealant
Shadi Sarami, Mohammad Mir, Jinho Kim

4:30 - 4:45 PM Assessing Antidepressant Permeability in an in Vitro Transwell Model to Support PBPK-Based Assessment of Transfer into Breast Milk
Lauren Carnevale, Bofang Yi, Tao Zhang

Track: Biomechanics and Physiological Systems

Session 1: Exoskeletons, Musculoskeletal Modeling and Devices
9:45 - 10:45 AM

9:45 - 10:00 AM	Cross-Dataset Transfer Learning for Deployment of Human Activity Recognition in Exoskeletons *Zihang You, Yifei Yuan, Mariya Tohfafarosh, and Xianlian Zhou*
10:00 - 10:15 AM	Anterior Vertebral Body Tethering Outcome Prediction with Patient-Specific Finite Element Models: Preliminary Retrospective Validation with 20 AIS Patients *Christian D'Andrea, Girish Viraraghavan, Patrick J. Cahill, Sriram Balasubramanian*
10:15 - 10:30 AM	Clinical Effects of a Myoelectric Wearable Powered Orthosis on Upper Extremity Function in Chronic Spinal Cord Injury: A Pilot Study *Mohammed Huzien, Brett R. Gordon, Guang Yue, Steven Kirshblum, Ghaith J. Androwis*
10:30 - 10:45 AM	Influence of Elastic Bushing Stiffness and Damping at the Human-Exoskeleton Interface on Human Joint Kinetics during Gait Simulation *Jakob Wolf, Xianlian Zhou*

Session 2: Motor Control, Neural Dynamics, and Rehabilitation
1:15 - 2:15 PM

1:15 - 1:30 PM	EEG-Based Classification of Proactive and Reactive Motor Control Demands: A Case Study *Karina Berberian, Sophie Dewil, Zachary Marvin, Raviraj Nataraj*
1:30 - 1:45 PM	The Role of the Lateral Reticular Nucleus in Forelimb Motor Control, Learning and Rehabilitation *Joshua D. Ross, Thomas J. Campion, Gavin T. Koma, Andrew J. Spence, & George M. Smith*
1:45 - 2:00 PM	Kinematic-Based Assessment of Reaching and Grasping Movements in LRN-Ablated Animals *Gavin Thomas Koma, Joshua D. Ross, Thomas C. Campion, Jacquelynn Rajavong, Yuanchao Zhang, George M. Smith, Andrew J. Spence*
2:00 - 2:15 PM	Effects of Task Difficulty and Visual Feedback on Motor Performance in VR-Based Upper-Limb Trajectory Training *Yu Shi, Sophie Dewil, Zachary Marvin, Raviraj Nataraj*

Session 3: Mechanobiology and Cellular Responses to Stimuli

2:30 - 3:30 PM

2:30 - 2:45 PM — Loss of the Novel Mechanosensitive Ion Channel TMEM63A Impairs Osteoblast Differentiation and Mechanotransduction
Meghana Davuluri, Anna Cho, Yi-xian Qin

2:45 - 3:00 PM — Fluid Shear Stress Influences Astrocytes Function through Calcium Permeable Membrane Channels
Bridgit Foss, Chase Cornelison

3:00 - 3:15 PM — Salivary Exosomes Modulate Clot Polymerization and Mechanical Stability
Edith Chen; Cole Stelter; Oleg V. Kim

3:15 - 3:30 PM — In-Vitro Stress Relaxation Response of Human Neonatal Peripheral Nerves
Kalyani Ghuge, Scott Kozin, Sriram Balasubramanian, Anita Singh

Session 4: Injury and Tissue Degeneration

3:45 - 4:45 pm

3:45 - 4:00 PM — Examining Chronic Neuronal Degeneration Following Blast and Blunt Traumatic Brain Injuries
James Daniel M. John, Tulika Das, Juan Pablo Bautista, Ying Li, Bryan Pfister

4:00 - 4:15 PM — Morphological and Activity Changes Following Medial Meniscus Destabilization in Mice
Alexander J. Broadhurst, Ethan J. Stoecker, Olivia L. Dyer, Stephanie G. Cone

4:15 - 4:30 PM — Finite Element Modeling of the Maternal Pelvis and Pelvic Floor
Rena Mathew, Harineesri Saravanan, Dr. Sriram Balasubramanian

4:30 - 4:45 PM — Magnetic Resonance Imaging Differences in Triceps Surae due to Achilles Tendon Rupture and Achilles Tendinopathy
Meghna Raj Annasagaram, Olivia L. Dyer, Karin Grävare Silbernagel, Stephanie G. Cone

Session 5: Human Movement Biomechanics and Modeling

3:45 - 4:45 pm

3:45 - 4:00 PM — Surface EMG Analysis of Pace Bowling Mechanics Across Varying Levels of Cricket Bowling Experience

Suruthikha Vijay, Pooja Arvind, Andrew Spence

4:00 - 4:15 PM	Magnitude and Timing of Trunk Lean and Leg Angle During Turns Performed by Older Adults *Erin Kreis, Zahava Hirsch, Dr. Mitchell Tillman, Dr. Sam Liu, Dr. Antonia Zaferiou*
4:15 - 4:30 PM	Motion Synthesis and Kinetic Data Extraction from Monocular Video: A Physics-Informed Simulation Approach for Biomechanical Analysis *Christopher M. Rodriguez, Xianlian Zhou*
4:30 - 4:45 PM	Beyond Subject-Level Validation: A Leave-One-Dataset-Out Framework for Generalizable Learning *Jian Kim*

Track: Emerging Technologies

Session 1: Next-Gen Neuroscience: Mapping, Modulating, and Healing
9:45 - 10:45 AM

9:45 - 10:00 AM	Atypical Social Brain Activation in Young Children with Autism Spectrum Disorder Candida Barreto, Adrian Curtin, Yigit Topoglu, Jessica Day-Watkins, Brigid Garvin, Grant *Foster, Zuhal Ormanoglu, Elisabeth Sheridan, James Connell, David Bennett, Karen Heffler, Hasan Ayaz*
10:00 - 10:15 AM	Engineering Temperature Sensitive Proteins for Precise Remote Control of Mammalian Cells *Saket P. Ram, Zikang (Dennis) Huang, Lukasz J. Bugaj*
10:15 - 10:30 AM	Task-sensitivity and Subcortical Propagation of Patterned Spatiotemporal Neural Activity *Archana Sathiyamoorthy, Matthew Wang, Linnea Hoheisel, Nan Xu*
10:30 - 10:45 AM	Cognitive Effects of Robotic Exoskeleton Gait Training in Multiple Sclerosis *Brett R. Gordon, Brian M. Sandroff, Guang Yue, Glenn R. Wylie, John DeLuca, Ghaith J. Androwis*

Session 2: Advances in AI for Medical Imaging and Digital Pathology
1:15 - 2:15 PM

1:15 - 1:30 PM	Comparative Evaluation of Deep Learning Approaches for Automated Vertebral Landmark Detection from Chest Radiographs

Vishnu Prakash Sekar, Ashik Sarker Lifat, Srikamakshi Mahesh, Anush Agarwal, Tedi Strati, Sriram Balasubramanian

1:30 - 1:45 PM Voxel-wise Conformal Risk Control for Brain Tumor Segmentation
Mohammad Peivandi, Reana Raen, Tareq Aldirawi, Wenge Guo, Zhifeng Kou

1:45 - 2:00 PM Hierarchical Deep Learning Approach for Automated Vertebral Landmark Detection in Frontal and Lateral Chest Radiographs
Ashik Sarker Lifat, Christian D'Andrea, Sriram Balasubramanian

2:00 - 2:15 PM Automated Interpretation and Visualization in Digital Pathology
M.A. Al Mamun, S. Purba, I. Obeid J. Picone

Session 3: Advances in Immunoengineering and Infectious Disease Analytics
3:45 - 4:45 pm

3:45 - 4:00 PM Retracted

4:00 - 4:15 PM Boosting Cancer Vaccine Potency by Programming Long-lived Memory T Cells
Mahdi Hasani, Song Li, Negin Majedi

4:15 - 4:30 PM Quantifying the Predictability of Epidemic Dynamics: An Entropy-Aware Evaluation of Forecasting Models
Rishik Reddy Yesgari, John Acosta, Lijing Wang

4:30 - 4:45 PM Membrane-Wrapped Particles for Targeted Co-Delivery of Biologics and Small Molecules to Lymph Nodes
Luisa Fink, Michael Donzanti, Ryann Chatfield, Jason Gleghorn

Track: Imaging across Scales

Session 1: Mechanobiology and Cellular Responses to Stimuli
2:30 - 3:30 PM

2:30 - 2:45 PM	SiMView Light Sheet Microscopy Reveals Dynamics of Leader and Follower Cells During 3D Spheroid Invasion *Elizaveta Belova, Bojana Gligorijevic*
2:45 - 3:00 PM	Using FRET to Investigate Vinculin Tension in Neurons *Leah Kaup, Bonnie L. Firestein, Nada N. Boustany*
3:00 - 3:15 PM	Spatial Immune-Tumor Architecture Predicts Survival in Pancreatic Ductal Adenocarcinoma *Miracle Goin*
3:15 - 3:30 PM	Application of Metamaterials for Improvement of in vivo 7T Magnetic Resonance Imaging of the Brain *Paul S. Jacobs, Neil Wilson, Wyger Brink, John Detre, Mark Elliott, Ravinder Reddy*

Poster Session I

Thursday, April 16, 2026
5:00 – 6:00 PM

Track: Biomaterials and Tissue Engineering

P1	Release Study of Macromolecules and Nanoparticles from Chitosan-Polygalacturonic Acid Polyelectrolyte Complex (PEC) Films *Siddhi Patil, Nura Suria, Ankitha Ungarala, Suneel Kumar, Rene Schloss, Noshir Langrana, Francois Berthiaume*
P2	Optimization of Macrophage Membrane Coating Strategies for Targeted Nanoparticles *Alex Sawyers, Emily Day*
P3	Exploratory Studies on the Effect of Substrate Stiffness and Tumor Necrosis Factor Alpha on Mechanosensitive Proteins in Adipocytes *Alyson Fornes, Kayleigh Armstrong, LiKang Chin*

P4	Gelatin-PLGA Injectable for Sustained Drug Release in Brain Injury Treatments *Ann Austin, Leila Donyaparastlivari, Kathleen McEnnis, Ying Li, Bryan Pfister, Amir Miri*
P5	The Role of pH in Modulating Fibronectin Conformations: Implications on Chronic and Acute Wounds *Armando Ortez, Karin Wang*
P6	Rhodamine B Loaded Poly(Ethylene Glycol) Diacrylate Microneedles for Ocular Drug Release *Ashley Muliawan, Yongdeok Jo, Jennifer J. Kang-Mieler*
P7	Adaptation of the CORALINA Method to Produce CRISPR-Cas13 gRNA Libraries Targeting HPV *Ayush Dasgupta, Merna Melad, Eric Josephs*
P8	A Novel Assessment of Ultra-high Molecular Weight Polyethylene Oxidation for Orthopedic Applications *Azita HassanMazandarani, Ananya Mathews, William Querido, Timothy Wright, Nancy Pleshko, Aarti Shenoy*
P9	Aligned Electrospun Piezoelectric Scaffolds for Enhancing Cardiomyocyte Maturation and Myocardial Repair *John Ryan Zimmerman, Beena Baruwal, Patrick Hwang*
P10	Size Modulation of Oxygen-Generating PDMS-CaO2 Microbeads for Mitigating Hypoxia in Tissue-Engineered Implants *L. Jiang, H. Rosenhagen, C. Crouse, M. Bhattacharjee, E. Korkmaz, B. Ozdoganlar, C. Stabler, R. Abbott*
P11	Physiological Temperature Affects the Viscoelastic Properties of the Mouse Achilles Tendon *Jonathan A. Largoza, Louis J. Soslowsky, Jeremy D. Eekhoff*
P12	Modulating Inflammatory Response in Wound Healing *Maeve Ryan, Justin Cross, Abraham Joy*
P13	Strain-Stiffening Injectable Hydrogels for Modulating Cell Behavior *Maria Afonkina, Biplab Sarkar, Christopher B. Rodell*
P14	Graphene-polymer Nanocomposite Bone Plate *Michael Vasconcellos, Tanisha Gupta, Matthew Morvillo*
P15	Effect of Thermomechanical Loading on Nanofiber Diameter *Mohamad Keblawi, Vince Beachley*
P16	Studying Cardiac Innervation Using iPSC Derived Neurocardiac Assembloids *Muhammad Arslan Tayyab and Tracy Hookway*
P17	Developing Lab-on-a-Filter immunoassays for Microplastic Detection

Nardos Bisrat

P18 Design and Optimization of a Lentiviral Platform for Controlled CYP3A4 Overexpression in HepG2 Cells
Nick Sanchez, Morgan Antisell, Hoi Yan Yu, Sophia Orbach

P19 Effect of Hypoxia and Estrogen in 3D Microphysiological Model of Lipedema on Lymphatic Vessel Permeability and Adipose Tissue Function
Nicole Estephan, Evangelia Bellas

P20 Microfluidic Fabrication of Janus Base Nanoparticles for RNA Delivery
Qianyu Chen, Jin Zhai, Thaonguyen Nguyen, Yupeng Chen

P21 Validation of Papain-Degenerated Bovine Caudal Discs for an Ex Vivo Testing Model
Raphael Rivera, Stefan Simon, Jason Abraham, Antonio Abbondandolo, Erik Brewer

P22 Development of a Senescence-Based Liver Aging Model Using Doxorubicin
Kohlen Kpuyuf, Kaila Barnes, Aylin Acun

P23 Synthesis of RNA-Containing Polymeric Nanoparticles for the Dissolution of NETs
Emily Barnett, Adam Akerman, Baisong Lu, Nathalie Pinkerton, Keith Gagnon, Sophie Maiocchi

Track: Biomechanics and Physiological Systems

P24 Finite Element Modeling of a Neonate for Simulating Pelvic Floor Deformation during Childbirth
Rena Mathew, Sriram Balasubramanian

P25 Omni-Directional Actuated Spinal Mobility Assist System for Controlled Trunk Movement
Alexander Hamza, Bayonel Ventura

P26 Alpha-Band EEG Activity as a Neurophysiologic Marker of Hypoxic-Ischemic Encephalopathy
Alexia Badoiu, Danielle Shoshany, Shadi Malaeb, Kurtulus Izzetoglu

P27 Patient-Specific Biomechanical Stress Predicts Growth of Cerebral Aneurysms
Alireza Chitsaz, Lucia Dominguez, Juan Raul Cebral

P28 Extent of Impaired Axons at Varying Degrees of Stretch of Neonatal Brachial Plexus
Sriram Balasubramanian, Anita Singh

P29 Mechanical Energy Harvesting for Long-Term Power Sustainability in Implantable Pacemakers

	Anjali Shukla, Ella Nevo, Andrea Perez Pizarro, Cesar Ruiz de Castilla, Nico Manuto
P30	Axon Stretching Bioreactor for Peripheral Nerve Regeneration *Ann Austin, Rishika Jindal, Kimberly Martinez, Aayushi Patel*
P31	Bayesian Optimization for Navigated Transcranial Magnetic Stimulation *Isabella Arias, Negar Namdar, Elisa Kallioniemi*
P32	Evidence of Spinal Cord Damage in Avulsed Neonatal Brachial Plexus *Arushi Jhunjhunwala and Anita Singh*
P33	High Glucose Induces Retromer Core Dysfunction, Endothelial Activation, and Blood-Brain Barrier Impairment in Human Brain Endothelial Cells *Chafika Moussaoui and Domenico Praticò*
P34	Extracting Non-Observable Kinetic Data from Monocular Video: A Physics-Informed Simulation Ap-proach for Biomechanical Analysis *Christopher M. Rodriguez, Yifei Yuan, Xianlian Zhou*
P35	Motor Unit Tracking Using STA-derived MUAP: Filter Affects *Fabliha Chowdhury, Jongsang Son*
P36	Effects of applying band-pass filter on STA-derived MUAP amplitudes *Fabliha Chowdhury, Nathan Wages, Jongsang Son*
P37	Hemolytic Evaluation of a Magnetically Levitated Centrifugal Blood Pump of the Dragon Heart: a Pediatric Total Artificial Heart *Giselle C. Matlis, Jonathan E. M. Lawley, Emily Woodland, Thomas C. Palazzolo, Vakhtang Tchantchaleishvili, Randy M. Stevens, Steven W. Day, Amy L. Throckmorton*
P38	Experimental Study of Minimally Invasive Needle Insertion Forces in Viscoelastic Tissue-Mimicking Gels *Hamidreza Ghasempoor, Parsaoran Hutapea*
P39	Augmented Versus Virtual Reality for Motor Training of Reach Function *Hruthik Lokesh Puppala, Sophie Dewil, Raviraj Nataraj*
P40	Microglial Response to Blast Injury in Ferret Model *Isha Rai, Juan Zuñiga*
P41	HoxA11 and HoxD11 Expression During Early Stress Fracture Healing in a Murine Fatigue Loading Model *Jennifer Alaska, Anthony Zuo, Danielle Rux, Benjamin Sinder*
P42	Histological Evaluation of Structural Integrity in Neonatal Brachial Plexus Nerves Following Tensile Failure

Jeremy Tom, Kalyani Ghuge, Anita Singh

P43 Neuronal Loss and Behavioral Deficits in the Blast-Induced Traumatic Brain Injury Ferret Model
Juan Zuniga, Isha Rai, Bryan Pfister

P44 Characterization of Microglial Changes in the Hippocampus After a Traumatic Brain Injury Using a Novel Voice-coil Driven Fluid Percussion Injury Device
Juan P Bautista, Tulika Das, Bryan J Pfister

P45 A Reinforcement Learning Approach to Squat Assistance Using a Modular Hip–Knee Exoskeleton
Mariya Tohfafarosh, Neethan Ratnakumar, Saanya Jauhri, Xianlian Zhou

P46 Behavioral Strategies for Odor Source Localization in Complex Odor Landscapes
Menglin Niu, Md Ibrahim Ibne Alam, Koushik Kar, Vikas Bhandawat

P47 Evaluation of Fatigue Performance of Endovascular Stent-Graft Fenestrations
Nikolaos Farfaras, Robert Gregory Conway, Parsaoran Hutapea

P48 Unilateral Muscle Weakness Induces Progressive Gait Asymmetry: A Reinforcement Learning Based Simulation Study
Yifei Yuan, and Xianlian Zhou

P49 FXR1-Dependent Regulation of Aortic Mechanics in a Smooth Muscle Conditional Knockout Mouse
Mehrdad Swizi, Dominic Openko, Xinji Gao, Amanda M Peluzzo, Kurosh Darvish, Michael V. Autieri.

P50 Pre-test Polariscopy Prediction of Burst-Line Direction in Mylar (BOPET) Rupture Diaphragms Used in Blast TBI Shock Tubes
Tahmineh Aghabarari, Mehrdad Swizi, Kurosh Darvish

Track: Cancer Engineering

P51 LIV Induces T-Cell Functional Priming and Tumor Actin Remodeling
Ankur Sikder, Christopher Ashdown, Andreas Kaimis, Clint Rubin, M. Ete Chan

P52 Influence of Hydrogel Adhesivity, Degradability and Cell Seeding Density on Metastatic Prostate Cancer Growth, Dormancy and Reactivation
Biswarup Goswami, John H. Slater

P53 Novel Pressure TOC System to Study Tumor Metastasis and Invasion
Diana Saad, Swaprakash Yogeshwaran, Ayda Pourmostafa, Anant Bhusal, Amir K Miri

P54 Investigating the Role of TGF-β1 Signaling and Extracellular Matrix Stiffness Driving Human Mammary Fibroblast Activation in Triple-Negative Breast Cancer.
Elizabeth Bakare, Ghazal Bashiri, Karin Wang

P55 Extra Domain-A Fibronectin Matrix-mediated Immunomodulation in the Tumor Microenvironment
Ghazal Bashiri, Elizabeth Bakare, Jessica Longstreth, Marshall S. Padilla, Michael J. Mitchell, Karin Wang

P56 Microfluidic Electrochemical Platform for Early Detection of Pancreatic Cancer
Jasmin Enriquez, Peyton Mize, Dr. Colleen Krause

P57 Mimicking the Breast Tumor Stroma to Investigate Oncofetal Fibronectin Microarchitecture
Jessica Longstreth, Ghazal Bashiri, Karin Wang

Track: Education & Workforce Development

P58 How Teamwork Impacts Engineering Students' Dynamic Identity Development During Design
Shaylyn H Westmoreland and Jennifer Patten, Sihua Han, Avi Kaplan PhD, Ruth Ochia

P59 Preparing Engineering Students for AI Enabled Workflows: A Structured Integration of Copilot in a Biomedical Engineering Laboratory Course
Peyton Mize, Katrina Baran, and Takafumi Asaki

P60 Tracing Engineering Students' Identity Development Through Linguistic Change in Design Thinking
Sihua Han and Shaylyn H Westmoreland, Jennifer Patten, Avi Kaplan, Ruth Ochia

Track: Emerging Technologies

P61 No Pain with AutoVein: Addressing the Success Gap of Peripheral Intravenous Catheter Insertion

	A. Gautam, S. Goryachev, M. Leacoma, A. Towfigh, A. Howard, D. Yee, R. Udompornwirat, T. Nanda, M. Suginathan Yamini, B. Goldblatt
P62	Bridging the Gap: Societal and Systemic Challenges of Sickle Cell Disease in Sierra Leone *Will Lukman, River Knoblauch, Sarah Lee, Vedanth Vivek, Prashant Kafle, Dr. Xuanhong Cheng, Khanjan Mehta*
P63	Enhancing Anatomical Accuracy in Medical LLM's: Finetuning MedGemma for Brain MRI Region Identification *Angie Santillan, Mohammad Peivandi, Zhifeng Kou*
P64	On-Device Large Language Model Integration of a P300 Brain-Computer Interface for Communication in ALS *Bartu Atabek, Saqer Alshehri, Akshay Bharath, Joshua Miller, Terry Heiman-Patterson, Hasan Ayaz*
P65	Investigating Executive Function in Down Syndrome Using Wearable fNIRS and Tablet-Based Assessment *Candida Barreto, Zuhal Ormanoglu, Kelsey Csumitta, Altona Tufanoglu, Adrian Curtin, Yigit Topoglu, Rebecca LaQuaglia, Hannah Grosman, Meghan O'Brien, Jessica McNulty, Jamie Edgin, Nancy Raitano Lee, Hasan Ayaz*
P66	Towards Comprehensive Transcriptomes Using Nanopore Direct RNA Sequencing *Connor Powell, Stuart Akeson, Jackson Mingle, Kimberley Billingsley, Miten Jain*
P67	CallaCare: A Redesign of The Speculum *Caroline Gerety, Diya Asawa, Aryan Kulkarni, Serena Hunter Black, Emily Eggers, Kirthana Karunanithi*
P68	Artificial Intelligence for Mechanical Circulatory Support: Review of Outcome Prediction, Personalization, and Adoption Challenges *E.R. Woodland, G.C. Matlis, P. Chatterjee, T.C. Palazzolo, V. Tchantchaleishvili, M.J. Slepian, and A.L. Throckmorton*
P69	Artificial Intelligence in Healthcare Using Biomedical Sensors and Machine Learning *Ezgi Dagtekin, Shadi Ghiasi, Xin Du*
P70	Machine Learning Approaches to Predict Liver Toxicity in Breast Cancer Patients *Hoi Yan Yu, Charalampos Papachristou, Sophia Orbach*
P71	Resilient, Resumable File Upload Protocol for Low Internet Bandwidth Digital Health Applications *Jiaming Shen, Thomas Tseng, Aryaman Shodhan, Sunny Patel, Marina Rincon Torroella, Peter Waiswa, Soumyadipta Acharya*
P72	Design of a Closed-System Three-Way Stopcock for Safer Manual Bladder Irrigation

Lizna Ali, Andres Diaz, William Morgan

P73 Transcriptomic Regulation of Interindividual CYP2C9 and CYP3A4 Expression
Morgan Antisell, Sophia Orbach

P74 Deep Learning Pipeline for Automated Mosquito Abdomen State Classification
Sai Lohitaksh Reddy Devireddy, Atul Zacharias, Sunny Patel, Aryaman Shodhan, Ana Paula Perez, Marina Rincon Torroella, Soumyadipta Acharya, Peter Waiswa

P75 Hand Joint Angle Regression Using Transfer Learning Between FMG and sEMG Modalities
Sai Sriparna Thulluri, Jongsang Son

P76 A Scalable Surveillance Data Architecture for AI-Powered Malaria Vector Monitoring
Ju Suk Yoon, Vincent Chi, Aryaman Shodhan, Sunny Patel, Miguel Rincon Torroella, Peter Waiswa, Soumyadipta Acharya

Track: Imaging across Scales

P77 Axonal Transport of Nanoplastics by Kinesin
Antara Verma, William Hancock

P78 Longitudinal Assessment of Retinal Vascular Permeability using Dynamic Tracer Kinetic Modeling
Chaimae Gouya, Sarah Vavrek, Amani A. Fawzi, William F. Mieler, Kenneth M. Tichauer, Jennifer J. Kang-Mieler

P79 Cortical Modulation Following Active-Assisted Orthotic Device Training in Chronic SCI: An EEG Investigation
Juan Ramirez, Easter Selvan, Steven Kirshblum, Guang Yue, Ghaith J Androwis, Brett R Gordon

P80 Voxel-Level 3D Brain Tumor Segmentation Using a MATLAB-Based Deep Learning Framework
Kaiya Baker-Adell, Max Denis

P81 Ultrasound-Guided Cricothyrotomy Trainer
Mitrophan Ganson, Ronny Munoz-Acuna MD, Susan Freudzon

P82 A Novel Spectroscopic Approach for Compositional Assessment of Human Osteochondral Tissues
Amanda Spurri, Petra Baylin, Shu-Jin Kust, Binyam Fentaw, Alexandra Arnold, Leslie Barnes, Daniela Proca, Nancy Pleshko

Panel Session

Thursday, April 16, 2026

Engineering Education
9:45 - 10:45 AM
Organizer: Dr. Ruth Ochia
Panelists:

Ruth Ochia, PhD - Bioengineering , COE
Janelle Bailey, PhD - Science Education, CEHD
Benjamin Brock, PhD - Assistant Director of SoTL, CAT

You’re already doing the work—teaching, mentoring, and trying to improve how students learn. But how do you know what actually works? In this interactive workshop, we’ll explore how to turn your questions and experiences into meaningful, evidence-based insights. You’ll leave with practical strategies, new ways of thinking about your practice, and clear next steps to continue growing as an educator.

PROGRAM AT A GLANCE				
Friday, April 17 2026				
8:30 AM - 3:00 PM	**Registration (2nd Floor Hallway)**			
All Day	**Exhibits (Room 200)**			
Room	**217 C**	**217 D**	**220**	**223**
9:15 – 10:15 AM	Cancer Session	-	Panel Session 2: Industry	Biomaterials Session VII
10:30 - 11:30 AM	**Keynote Speaker: Dr. Jane Grande-Allen, Rice Univ. (Room 200)**			
11:40 AM – 1:15 PM	**SENIOR DESIGN POSTER SESSION (Rooms 217 A,B,D)**			
12:30 – 1:30 PM	**Lunch (Room 200)**			
1:00 – 4:00 PM	Career Fair (Room 200)			
1:30 – 2:30 PM	**POSTER SESSION II (Room 217 A,B)**			
Room	**217 C**	**217 D**	**220**	**223**
2:45 – 3:45 PM	Biomaterials Session VIII	Emerging Session IV	Workshop: Advancing Science alongside Engineers with Disabilities	Biomechanics Session VI
2:45 – 3:45 PM	**HIGH SCHOOL POSTER SESSION (Room 217 A,B)**			
4:00 – 5:00 PM	**Award Ceremony and Closing Remarks (Room 200)**			

Friday, April 17, 2026

Podium Sessions

Track: Biomaterials and Tissue Engineering

Session 7: Advancing Women's Health and Endocrine Regulation Through Bioengineering
9:15 - 10:15 AM

9:15 - 9:30 AM	Estrogen, Diet, and Menopausal State Regulate Adipocyte Function and Fatty Acid Uptake in Engineered Adipose Tissue *Trisha Verma, Evangelia Bellas*
9:30 - 9:45 AM	Adipocyte Dysfunction Shapes Macrophage Polarization in a 3D Model of Obese Adipose Tissue *Julieta Rios-Vergara, Evangelia Bellas*
9:45 - 10:00 AM	Impact of Estradiol-Pretreatment on Elastic Matrix Regenerative Properties of Stem Cell Extracellular Vesicles and their Biodistribution in a Rat Abdominal Aortic Aneurysm Model *Ali Mutah and Anand Ramamurthi*
10:00 - 10:15 AM	Utilization of the SECRETS Protocol to Improve CRISPR-Cas9 Specificity Using MED12 Related Uterine Fibroids as a Model Condition *Abigail Lee, Ryan McGuire Garcia, Merna Melad, Eric Josephs*

Session 8: Microphysiological Systems and Integrated Organ Models
2:45 - 3:45 PM

2:45 - 3:00 PM	Engineering a 3D Electronically Integrated Human iPSC-Derived Neuromuscular System *Samantha Mossuto, Yong-Woo Kang, Fabiana Amato, David Berger, Jamin Lee, Tatsuya Osaki, John A. Rogers, Amir Vahabikashi*
3:00 - 3:15 PM	Engineering a Multimodal Trachea Bioreactor for Dynamic Modeling and Monitoring of Cystic Fibrosis-Mimetic Airway Tissue *Aneri Patel, Mohammad Mir, Maria R. Hudock, Gordana Vunjak-Novakovic, and Jinho Kim*

3:15 - 3:30 PM	Development of Gravity-Driven Microphysiological System for Human Kidney Modeling *Zachary Krassin, Eun-Jin Lee, Longyi Chen, Sabrina Herrmann, Mandy Esch, Gretchen Mahler*
3:30 - 3:45 PM	Targeted Cardioprotection Using Xenon Microbubbles in 3D Human Cardiac Tissue Model *Jasmine Mudhar, Wafiza Julkipli, Ishaakannan Rajeshkannan, Rajarshi Chattaraj, Eun Jung Lee*

Track: Biomechanics and Physiological Systems

Session 6: Biomedical Device Innovation and Applications
2:45 - 3:45 PM

2:45 - 3:00 PM	Mouse Trachea Ventilation and Incubation System (MT-VIS) *Isaac Bunan, Dylan Neal Patel, Nicholas Thibodeau, Joseph Hall, Bela Suki*
3:00 - 3:15 PM	Influence of Bio-inspired Surface Features on Curved Needle Mechanics During Curvilinear Insertion *Doyoung Kim and Parsaoran Hutapea*
3:15 - 3:30 PM	HELIX: A Helical Microfluidic Catheter for Multiregional Intracerebral Drug Delivery. *Batoul Khlaifat, Mahmoud Elbeh, Shreya Manjrekar, Seung-Jean Kang, Yusheng Zhang, Parima Phowarasoontorn, Sadaf Usmani, Abdel-Hameed Dabbour, Heba T Naser, Hanan Mohammed, Minsoo Kim and Khalil B Ramadi*
3:30 - 3:45 PM	Step By Step: A Device to Characterize Plantar Fascia Stiffness *Bethany Brown, Kathryn Gorden, Sophia Reynolds*

Track: Cancer Engineering

Session 1: Microenvironmental Control of Tumor Fate: Dormancy, Mechanics, and Resistance
9:15 - 10:15 AM

9:15 - 9:30 AM	The Perivascular Niche Enforces Glioblastoma Stem Cell Dormancy in an In Vitro 3D Glioblastoma-Vascular Model *Nathaniel Silvia, Jenny Zou, Roland Friedel, Vivian K. Lee, Guohao Dai*

9:30 - 9:45 AM	Tumor-Associated ECM Acts as a Mechanical Cue for Sensory Neoaxonogenesis *Maria Carolina Mariano Cesar, Svetllana Kallogjerovic, Ines Velazquez-Quesada, Janusz Franco-Barraza; Tiffany Luong, Edna Cukierman, Bojana Gligorijevic*
9:45 - 10:00 AM	Evolution of Collagen Homeostasis in Stromal Fibroblasts Underlie Acquired Resistance to Cancer Malignancy Among Placental Mammals *Yamin Liu, Wenqiang Du, Yasir Suhail, Khadija Wali, Xihua Qiu, Anarghya Murthy, Yiquan Li-Zhou, Kshitiz*
10:00 - 10:15 AM	Retracted

Track: Emerging Technologies

Session 4: Emerging Technologies for Real-Time Physiological Assessment
2:45 - 3:45 PM

2:45 - 3:00 PM	Scoliosis Induction in the Juvenile Porcine Spine Using a Growth-Modulating Posterior Tether: Finite Element Model Development and Calibration *Christian R. D'Andrea, Mattan R. Orbach, Alessandra Fusco, Edward J. Vresilovic, Brian D. Snyder, Thomas P. Schaer, Patrick J. Cahill, Sriram Balasubramanian*
3:00 - 3:15 PM	A Multimodal Portable Device for Real-Time Evaluation of Donor Lungs *Yuvaraj Manchukan, Mohammad Mir, Aneri Patel, Shadi Sarami, Jinho Kim*
3:15 - 3:30 PM	Tissue Phantom-Based Evaluation of Depth Sensitivity in Transcutaneous VNIR Bone Spectroscopy *Shu-Jin Kust, William Querido, Chetan Patil, Nancy Pleshko*
3:30 - 3:45 PM	Phantodigm *Riya Mitra, Jennifer Yoo, Claire Zhang, Emily Zhang, Carly Zhao*

Undergraduate Senior Design Poster Session

Friday, April 17, 2026
11:40 AM – 1:15 PM

SD1	Optical Phantoms with Varied Skin Tones for the Improved Calibration of fNIRS Probes *Tom Donahue, Samin Latif, Kamdi Okeke, Karthik Reddy, Basil Roy, Dr. Kurtulus Izzetoglu*
SD2	Designing a Device for Measuring Joint Tenderness for Patients with Rheumatoid Arthritis *Adianne Ramos Delgado, Delina Chavez, Grace Venagro, Madeline Talbot, Melica Zekavat, Karen Troy*
SD3	Antibody-Based At-Home Urinary Tract Infection Test for Bacterial Causes *Alexander Adair, Miles Cabreza, Alexis Najmy, Francesca Regan*
SD4	Duoxalis: A Noninvasive At-home Screening Tool for Bacterial Vaginosis and Vulvovaginal Candidiasis *David Keyser, Gabrielle Moroney, Valerie Naguib, Samantha Villanueva, Alina Zaman*
SD5	Enhancing Clinician Listening Accuracy: A Universal Attachment for Reliable Stethoscope Performance *Malina Andronescu, Julia Cowen, Wen Lu Hunter, Amber Muzones, Ryan Thornton*
SD6	PCM-Based Neonatal Incubator for Low-Resource Settings - Andrea Arpastean *Andrea Arpastean, Birva Pinto, Henita Lawrence, Maria Giovanetti, Rimmo Loy Lego*
SD7	Fast-Track ED: Real-Time Pre-Triage Clinical Intake and Documentation Automation in Emergency Departments *Hailey Kim, Ansh Tandon, Arina Velieva*
SD8	Device to Measure Respiratory Movement with Ventilation in Infant Patients *D. Mozier, B. Meyer, R. Colson, I. Creamer, Adrian Shieh, Heather Brossman*
SD9	Tissue Phantom for Detecting Deep Vein Thrombosis-Related Impedance Changes *Catherine Durkin, Akweshie Fon-Ndikum, Aizhan Moore, Douglas Yung*
SD10	StepWise: An Assistive Ankle Rehabilitation Orthosis *Daniel Martire, David Lee, Umar Siddiqui, Andrew Bladek*

SD11	Torsion Testing Device *Danny Tran, Kristi Baholli, Trang T. Phung, Monica Yoo*
SD12	Hexapod: A Smart Modular Pressure-Relief Pillow for Preventing Pressure Ulcers *Dinubasri Kumariduraivan, Norah Allam, Caitlin Flannery, Darren Wang, Moravid Golam*
SD13	Uniaxial Strain Bioreactor *Elena Plazola Reyes, Smriti Nair, Deevanshi Patel, Armando Ortez, Yah-el Har-el, Peter Lelkes*
SD14	An XR Acoustophoretic Microbioreactor for Collaborative Tumor Treating Field R&D *Jacob Roy, John Bieszczad, Ethan Michaud, and Anthony English*
SD15	Sustainable Redesign of Compression Sleeves *Gloria Souza, Jacob Waskiel, Jonathan Xavier, and Devina Jaiswal*
SD16	OvuTrack: Noninvasive Menstruation Tracking Device *Rosemary O'Brien, Hayleigh Marmorato, Paige Charydczak, Vrutti Patel*
SD17	Inflatable Soft Polymer Vaginal Speculum Redesign *Kana Abe, Adam Fiorito, Henry Furey, Samuel Schradin, Kristina Szumski, Tarun Vijaykumar*
SD18	Soft Robotic Knee Brace for Post-Surgical Monitoring *Isaac Rodney*
SD19	Design of a Bioinspired Robotic Hopper *Isaiah Wynter, Joaquin Cohen, Ben Skarbek, Conner Cuddy, Andrew J. Spence*
SD20	Development of the Hand Orthopedic Motion Evaluator (H.O.M.E) *Hisham Aboelnour, Jasmine Adams, Stephanie Frolio, Jeremy Liegner*
SD21	Designing an Ergonomic Handle for Pseudocyst Stent Catheter Delivery System *Tyler Alejo, Jennifer Celi, Nina Haracz, Angel Kurian, Khyati Bhayana*
SD22	Real-Time Magnetic Localization for Pediatric Endotracheal Tube Placement *John Kim, Benjamin Nachod, Anthony Tukanowicz-Hassett, Michael North, Andy Lu, Trenton Campos*
SD23	The Autonomic Intervention Respiratory Response *Juliana Eoga, Jordan Fisse, Niki Hartman, Rebecca Hawks, Christopher Keynton, Emily Weiner*
SD24	Inspiratory Resistance Trainer Increases Respiratory Muscle Strength for Children with Neuromuscular Disorders *Isabella Mangano, Kailyn Savage, Lauren Alley, Maya Lapinski, Sophia Gonzalez*

SD25	Semi-Automatic Irrigation System for Bladder Irrigation Post-Operative Management *Kayla Guevara, Meher Mehta, Rithi Joghee, Kenneth Barbee*
SD26	Porcine Tissue Blood Pump to Assist Cardiac Function for Hypoplastic Left Heart Syndrome (HLHS) *Caroline Ries, Christina Sacca, Kylie Irvine, Puja Saha, Amy Throckmorton*
SD27	CoughComm: A COPD Cough Communicator *Laasya Seelam, Elizabeth Broderick, Gabriella Mauro*
SD28	Drawing Smiles: Tattoo Pens For Surgical Skin Marking During Pediatric Plastic Surgery *Lorelei Booth, Giselle Dickinson, Madhu Karuppiah, Eyob Kebede, Diya Patel*
SD29	Development of a Touchless Ballistocardiograph Sensor for Hospital Neonatal Monitoring *Samirah Crawford, Tova Fink, Sadie Meyer, Luiza Owuor, Pun To (Douglas) Yung*
SD30	Cable-Tension Device for Intuitive Surgical Large-Needle Driver Surgical Instrument *Luke Bornstein, Tim O'Keefe, Luis Medizibal, Isaac Macwan, Ana Estrada, Don Wilson, & Joe Orban*
SD31	Pediatric Ventriculoperitoneal Shunt Flow Monitor *Madison Wilhelm, Meghan Wilhelm, Vidhi Patel*
SD32	A Low-cost Rodent Mechanical Ventilator to Study Respiratory Mechanics under Variable Ventilation and Cough *Abigail Berg, Peter Joo, Peyton Kennedy, Ariyana Rahman, Mia Sekiguchi, Joseph Hall, Bela Suki*
SD33	Single-Handed Dragon Wing Autograft Delivery Device *Joseph DiDomenico, Jennifer Gjonaj, Michaela Nanna, Kylie Wistran, Doug Cuny, Peter Violano, CJ Westbrook, Susan Freudzon*
SD34	EsophoGuard: A Preventative Device for Aspiration Pneumonias During Upper GI Endoscopy Procedures *Mitchell Livengood, Megan Kwiatkowski, Neil Nayyar, Chandler Last, Leda Klouda*
SD35	Smart, Soft, Patient-Specific Brace for Scoliosis Curve Correction in Adolescent Idiopathic Scoliosis *Nicholas Barbi, Isabella Frattarola, Oleksiy Polishchuk, Olga Kravchenko-Surant, Sriram Balasubramanian*
SD36	Postpartum Obstetric Internal Negative-Pressure Tool (POINT) *Natalie Goyer, Niyonzima Charmantine, Ginalee Ocasio, Brendan Austin, Marie Meckel, Frank Jackson, and Michael J. Rust*
SD37	Fetal Lactic Acid Monitoring Device *Meghan Kinkade, Priyanshi Luhar, Olena Sen, Alex Valentin*
SD38	Prosthesis Design For a Chopart Amputee

	Olivia Tardibuono, Karra Lavden, Marissa Riccardi, Diamond Evans, Manish Paliwal, Brett BuSha
SD39	Failure Analysis Protocol For Endo Stitch(TM) Suturing Device.
	Rhea Coyer, Anthony Gesino, Evan Kennedy, Robert Gettens
SD40	SensiTear: A Platform Revolutionizing Disease Diagnostics
	R. Ajinkya, S. Donskoy, U. Rameshwaram, K. Tsai, S. Villanueva, J. Kim
SD41	Levara: A Temperature Sensing Pressure Ulcer Risk Monitoring Patch
	Sage Leland, Olivia Amador, Ellie MacMullan, Cassidy Schuman, Erin Berlew, Michael Siedlik
SD42	Telehub: A Multi-use Vitals Measurement, Filtration, and Communication System for Cardiac Rehabilitation
	Briley Heider, Aidan Lee, Devan Moore, Eric Romero, Sarah Wnorowski, Peter Popolo
SD43	Red Blood Cell Quality Assessment
	Madison R. Laflamme, Sarah E. McMahon, Abigail M. Powers, Hana M. Premyslovsky, Ahmet C. Sabuncu, Sakthikumar Ambady
SD44	Ms. Circe: MultiSpectral and InfraRed Cellulitis Expression
	Wuji Bi, Nahu Gebregiorgis, Suya Que, Sejal Singh, Alfredo Velazquez Vazquez
SD45	Cell Media Automatic Changer (CMAC)
	Shahem Albean, Harrison Rohe-Weiner, Nikola Rodrigue, Sameer Khan, Joel Schesser, Eun Jung Lee
SD46	AiREX: A Passive Downstream Intravenous Attachment for Prevention of Iatrogenic Air Embolisms
	Shannon McKenna, Ved Gautam, Anosuya Kundu, Abigail Lee, Ayush Dasgupta
SD47	Ultrasound Guided Needle Angle System to Improve First-Pass Lumbar Puncture Success Rate
	Shiny Shen, Connie Yang, Nathaniel Kim, Harita Trivedi, Suhani Patel
SD48	A Low-Cost, Portable Toe-Brachial Index Device for At-Home Peripheral Artery Disease Screening
	T. Ball, S. Dandu, D. Gottlieb, Y. Rajpal, S. Wissert, E. Berlew, M. Siedlik, V. Kalapatapu
SD49	ZnSe Quantum Dot Gene Delivery System for Applications in Gene Therapy
	Sophia Chen, Ruchi Kalola, Huy Pham, Xin Yang
SD50	CuNEXT: A Redesigned Copper Intrauterine Device for Controlled Ion Release and Enhanced Patient Comfort
	S. Bica, V. Campos, G. Cummins, O. Schubiger, S. Sellitto, Rachel Jones
SD51	Canio: Continuous Gait Monitoring for Fall Prevention
	Monica Cho, Kyulee Kim, Jennifer Li, Sunnie Li, Max Wang

SD52	Design and Preliminary Validation of a Roller-Fed Braille Embosser System for Card Sleeve Applications *Matthew Morello, Pooja Arvind, Suruthikha Vijay, Zachary Pacuraru, Johnathan Gerstenhaber*
SD53	PureMed: Next Gen Drug Delivery Device for Use in GLP-1s *Ashley Allen, Tomislav Curko, Thomas Gigliotti, Nate Skutnik, Emily Wohlleber*
SD54	Wearable Clothing-Embedded Physiological Monitoring System *Tu Vu, Ronita Murseli, J. Harry Blaise*
SD55	GJ - Stay: A Patient-Controlled Repositionable Nitinol Coil Stent for Prevention of J-Tube Flipping and Ischemic Complications *Xochitl Morales, Elia Ton-That, Rory Clare, Sofia Garcia, Leyla Selman*
SD56	Reel-IV *Priya Agarwal, Anushka Gandhi, Ayma Waqar, Nicole Mirzaian, Yerahm Hong*
SD57	Bioresorbale Meshes For Pelvic Organ Prolapse *Andrew Duong, Clara Hartlaub, Alice Margovskiy, Josh Thekkumthala, Hannah Spece*
SD58	Novel Biomaterial for Promotion of Wound Closure in Diabetic Foot Ulcers *Sumukh Kumar, Alex Aukamp, Ian Kratzinger, Ron Dove, Kara Spiller and Victoria Nash*

Poster Session II

Friday, April 17, 2026
1:30 – 2:30 PM

Track: Biomaterials and Tissue Engineering

P1	Exploring Fabrication, Mechanics and Antimicrobial Effects of Peptide-functionalized Nanoyarns as Sutures *Dominique Hassinger, Sean McMillan, Vince Beachley*
P2	Manipulation of CYP3A4 Expression with Transducible Vectors and 3D Modeling *Ella Pennington, Morgan Antisell, Sophia Orbach*

P3	Quantitative Elastin Network Integrity as a Structural Axis for Multi-Modal Surveillance of Abdominal Aortic An-eurysms *Francesca Morrell, Shataakshi Dahal, Anand Ramamurthi*
P4	Diffusion-Driven Threshold Rupture in Carbonate-Activated Alginate Capsules for Programmable Oral Drug Release *Roice De Castro*
P5	Differential Effects of UV-C Irradiation on Milk-Derived Extracellular Vesicles and Bacterial Viability *R. Schild, C. Beard, S. R. Marsh, L. B. Payne, R. G. Gourdie, O. V. Kim*
P6	Porosity Effects on the Mechanical Properties of 3D Printed PEEK Osteoconductive Scaffolds *Samreen Dallal, Babak Eslami, and Saeed Tiari*
P7	Multi-target Therapeutic Hydrogel for Diabetic Foot Ulcer *Shahab Edalatian Zakeri, Patrick Hwang*
P8	Rapid and Targeted De-epithelialization of Porcine Trachea Preserves Extracellular Matrix and Biomechanical Integrity *Jun Tae Huh, Qingyue Li, Ya-Wen Chen, Jinho Kim*
P9	Using Immunofluorescence to Evaluate the Anti-Inflammatory Properties of an Injectable Intervertebral Disc Augmentation Device for the Treatment of Chronic Lower Back Pain *Srithan Gayam, Jason Abraham, Antonio Abbondandolo, Renee Demarest, Erik Brewer*
P10	Macrophage Polarization Differentially Regulates Behavior of Aneurysmal Smooth Muscle Cells *Taylor Krajewski and Anand Ramamurthi*
P11	Design and Development of a Modular, High-Fidelity Physical Simulation Platform for Laparoscopic Hysterectomy Skills Training *Zaid Elnasser, Hamilton Jeong, Camden Venator, Tyler Gerst*
P12	Biomaterial Surface Cues Regulate Macrophage Polarization and Cytokine Signaling in Tissue Repair *Jian Kim, Zaid Choudhry, Junhyeong Kim, Zain Choudhry*
P13	Recapitulating Apicobasal Tissue Polarity in Extracellular Matrix-incorporated Airway Organoids *Zhuowei Gong, Dhruv Bhattaram, Laura Porritt, Kian Golestan, Amir Barati Farimani, Bin Deng, Amy L. Ryan, Daniel J. Weiss, Xi Ren*
P14	Advancing Neutrophils Cell Mediated Drug Delivery to Treat Deep Vein Thrombosis *Veronica Lisi , Emily Barnett, Nancy Buechler, Suhon Kim, Erica Burham, Rachel Pollard, Reto Asmis, Nathalie Pinkerton and Sophie Maiocchi*

Track: Biomechanics and Physiological Systems

P15 An Efficient Method for Regional 3D High-Resolution pQCT Registration & Analysis
Kristina C. MacLeod, Karen L. Troy

P16 KneeVive: At-Home Osteoarthritis Symptom Mitigation
A. Chaudhary, A. Gautam, Y. Lemus, D. Yarberry, Z. Haque, A. Kuraszkiewicz, A. Kulkarni, I. Miller, A. Lin, B. Goldblatt, B. Oberlee, C. Gerety, D. Asawa, D. Yee, J. Tao, K. Touserkani, K. Gami, L. Morrison, M. Leacoma, N. Parseghian, S. Marcovici, S. Uddin, S. Goryachev, V. Villalonga, W. Hanson, Z. Khalil

P17 Left vs. Right: Computational Insights into Neuron Asymmetries and Impact on Bladder Pain
Megan Kwiatkowski, Fatima Zhantibiyeva, Blesson Paul, Sudhuman Singh, Anisha Adke, Yarimar Carrasquillo, Benedict Kolber, Rachael Neilan

P18 Investigate the Wearable Sensors for the Effect of Visual Feedback of the Center of Pressure (CoP) During Balance Tasks
Razan Bahabri, Alessandro Vato

P19 Prosthetic Finger for Bowling: Restoring Grip, Tilt, and Rev Rate in Athletes with Digit Loss
Ryan Clarke, Connor McGarry, Maxima Herbert, Douglas Yung and Evan Drozd

P20 Neutral Network Controlled Exoskeleton Assistance Reduces Muscle Activation During Squatting
Saanya Jauhri, Neethan Ratnakumar, Mariya Tohfafarosh, and Xianlian Zhou

P21 Extent of Vascular and Fiber Damage at Varying Degrees of Stretch of Hypoxic Neonatal Brachial Plexus
Sanjna Srinivasan, Virginia Orozco, Kalyani Ghuge, Mitali Sahni, Sriram Balasubramanian, Anita Singh

P22 Auditory Feedback in a Virtual Reality Motor Training Protocol with Prescribed Dynamic Movement Shifts Maintains Cognitive Engagement and Leads to Improved Performance
Sophie Dewil, Yu Shi, Zachary Marvin, Raviraj Nataraj

Track: Cancer Engineering

P23 An Obese Microenvironment Promotes Invasion in Engineered Human Breast Tumors
Joely A. Brammer-DePuy, Yixin Gao, Alex J. Seibel, Nikhil Lahiri, Madison Tuck, Joe Tien

P24 Engineering Hypoxia-Resilient Therapeutic Cells for Solid Tumor Cancer Treatment
Raymond Nova, Khanh Tran, Trisha Tanaka, Katie Northrop, Lucia Kajganic, Mirai Kambayashi, Janice Subroto, Anthony Mui, Shardul Singh, Vibha Doddipalle, Ayden Sato, Katrina Lambey, Daniel Gonzalez

P25 Injectable MicroNiches for T Cell Programming in Cancer Immunotherapy
Mahdi Hasani, Negin Majedi

P26 HIF-1 Driven Incoherent Feed-Forward Loop Modeling of Cycling Hypoxia Specific Gene Expression in Breast Cancer
Xihua Qiu, Yasir Suhail, Kshitiz

P27 A Chemically Inducible Multimerization System for Tunable and Background-Free RTK Activation
Yuanmin Zheng, Jinyu Fei, Abhirup Chakrabarti, Ruobo Zhou

Track: Emerging Technologies

P28 InTune: Pacemaker EMI Mitigation
Shahd Alsulaim, Shadi Yadollahi Khales, Dayana Soza Soto, Avery Flores, Ian Martis

P29 Instance Segmentation for Abdomen Status Inference in Mobile Vector Surveillance
Thomas Tseng, Jiaming Shen, Aryaman Shodhan, Sai Lohitaksh Reddy Devireddy, Sunny Patel, Marina Rincon Torroella, Peter Waiswa, Soumyadipta Acharya

P30 GaitGuide: Post-Stroke Rehab System
Tyler Rocha, Francesca Rossi, Brian Tawa, Jennifer Lo, Joshita Gopalakrishnan, Brandon Ferreira, Zainab Khalil

P31 Transfer Learning Reveals an Altered Platelet-Neutrophil Aggregation Dynamic in a PEX5 Deficiency Model
Xiang Pan, Yao Zhang, Steven Ren, Jahnavi Shah, Liwu Li, Oleg Kim

P32 Nanoscale-engineered Stimulation Rewires Early CAR-T Cell Programs Governing Antigen-driven Proliferation Sustainability
Xiao Huang, Qinghe Zeng, Landon Flemming, Pratishtha Guckhool*

P33 Learning Rate Dynamics of Cognitive and Sensory Interventions for Hand Gesture Training in Virtual Reality
Zachary Marvin, Sophie Dewil, Yu Shi, Noam Y. Harel, Raviraj Nataraj

P34 Bayesian Optimization for Navigated Transcranial Magnetic Stimulation
Isabella Arias, Negar Namdar, Elisa Kallioniemi

AD1 *EEG-Based Prediction of Engagement and Learning Preferences for Motor Training in Virtual Reality: A Pilot Examination*
Vidhi Kansara, Yu Shi, Sophie Dewil, Raviraj Nataraj

Track: Imaging across Scales

P35 Mobile fNIRS and Autonomic Measures of Restoration Across Designed Natural Environments
Kevin L. Ramirez-Chavez, Adrian Curtin, Yigit Topoglu, Saqer Alshehri, Rajneesh Suri, and Hasan Ayaz

P36 MRI-Based Automated 3D Segmentation and Normalization Methods in the Application of Studying Intervertebral Disc Degeneration
Nicholas Moscardelli, Liam Murphy, Anthony Lowman, Olivier Clerk, Erik Brewer

P37 Intra- and Inter-observer Reliability Analysis of Vertebral and Rib Annotations in Adolescent Idiopathic Scoliosis Patients' Radiographs
Shravan Sekhar, Ashik Sarker Lifat, Christian D'Andrea, Shaarvi Bala, Sriram Balasubramanian

P38 Concurrent Facial Expressivity and Prefrontal Cortex Activity During Social-Cue Processing in Young Children with Autism Spectrum Disorder
Zuhal Ormanoğlu, Candida Barreto, Yigit Topoglu, Adrian Curtin, Jessica Day-Watkins, Brigid Garvin, James E Connell Jr., Elisabeth Sheridan, Karen Heffler, David Bennett, Hasan Ayaz

High School Poster Session

Friday, April 17, 2026
2:45 – 3:45 PM

HS1	Digital Solutions for Menstrual Equity in Semi-Rural India *Aditi Ramamurthi, Rupa Ravi, Dhruv Seshadri*
HS2	How do Fingerprints and Nails Affect the Hand Tactile Perception? *Adi Iyer and Diya Iyer*
HS3	Electrodermal Activity as a Unimodal Signal for Aerobic Exercise Detection in Wearable Sensors *Rena Krishna*
HS4	A Machine Learning Framework for Quantitative Detection of Neural Progenitor Commitment Timing with Applications in Regenerative Neuroengineering *Shrey Somani*
HS5	Temporal Regression Analysis of Statin Cost and Serious Adverse Event Trends from 2013 to 2023 *Tyler Ren*

Panel/Workshop Sessions

Friday, April 17, 2026

Industry
9:15 - 10:15 AM
Organizers: Dr. Ruth Ochia and Dr. Yah-el Har-el

As bioengineering continues to evolve at the intersection of healthcare, technology, and data science, there is an increasing need to align undergraduate and graduate education with the expectations of industry. This moderated panel will bring together bioengineering alumni and industry professionals representing diverse sectors, including medical devices, biotechnology, consulting, and regulatory affairs. Panelists will reflect on their transition from academic preparation to professional practice, highlighting critical skills, competencies, and mindsets that support early career success.

The discussion will focus on three key areas: (1) technical and professional skills most valued in today's bioengineering workforce, (2) gaps between academic training and industry expectations, and (3) recommendations for curriculum design, experiential learning, and assessment practices that better prepare students for evolving career pathways. Panelists will also share insights on interdisciplinary collaboration, communication with non-engineering stakeholders, and navigating emerging areas such as AI in healthcare and personalized medicine.

This session is designed for faculty, administrators, and students interested in strengthening connections between bioengineering programs and industry. Attendees will leave with actionable strategies to enhance curriculum relevance, support student career readiness, and foster sustained partnerships with industry stakeholders.

Advancing Science alongside Engineers with Disabilities
2:45 - 3:45 AM
Organizer: Dr. Sriram Balasubramanian and Dr. Anita Singh

This talk will summarize ways in which engineers with disabilities benefit the STEM community through some success stories. The talk will also discuss strategies to increase the participation of people with disabilities in STEM and provide mentorship to help them succeed in their careers. The attendees will learn about the general issues facing engineers with disabilities and also discuss tools and tangible steps for the community to promote the inclusion of people with disabilities. This workshop is an ongoing effort to overcome the underrepresentation of engineers with disabilities in the scientific community. By offering insight into challenges faced by engineers with disability and sharing tools that can help educate and create policies to help those individuals succeed in their respective careers, we will be one step closer to achieving the advancement of innovation in healthcare and education through inclusion.