

Utah Biomedical Engineering Conference

2023 Program

Saturday, September 9th University of Utah Student Union Ballroom



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Full Schedule

| Time | Activity |
|---------------------|---|
| 8:00 AM – 9:00 AM | Check-In/Poster and Exhibitor Set Up |
| 9:00 AM – 9:15 AM | Welcome and Introduction (Arches) |
| 9:20 AM – 10:30 AM | Podiums: Imaging (Arches) & Therapeutics (Bryce) |
| 10:30 AM – 10:45 AM | Break |
| 10:45 AM – 12:00 PM | Podiums: Neuroengineering (Arches) & Cardiovascular (Bryce) |
| 12:00 PM – 12:30 PM | Lunch with poster presenters and exhibitors |
| 12:30 PM – 1:15 PM | Odd Number Poster Presentations |
| 1:15 PM – 2:00 PM | Even Number Poster Presentations |
| 2:00 PM – 3:00 PM | Industry Panel (Arches) and "Beginning Graduate School" Workshop (Canyons) |
| 3:00 PM – 3:10 PM | Break |
| 3:10 PM – 4:40 PM | Podiums: Biomechanics (Arches) & Biomaterials (Bryce) |
| 4:45 PM – 5:30 PM | Keynote Presentation – Mark Paul (Arches) |
| 5:30 PM – 6:00 PM | Closing Remarks, Awards, Group Photo (Arches) |
| 6:00 PM – 8:00 PM | Dinner and Reception (Crimson View) |







Arches Podium Schedule

| Session | Time | # Author - Title |
|------------------|------------------------|---|
| Medical Imaging | 9:20 AM – 10:30 AM | <u>#101 Nicholas Richards</u> - In vivo simultaneous proton resonance frequency shift thermometry and single reference variable flip angle T1 measurements <u>#102 Michael Malmberg</u> - Validation of Single Reference Variable Flip Angle (SR-VFA) dynamic T1 mapping with T2* correction using an innovative rotating phantom <u>#103 Henry Crandall</u> - Cuffless blood pressure monitoring from noninvasive bioimpedance signals <u>#104 Gia-Bao Ha</u> - Peripheral vascular impedance imaging in the finger can detect changes in blood conductivity <u>#105 Sam Clinard</u> - Visualizing Surrogate Optimization of III-Posed Skull Bone Acoustic Parameter Space <u>#106 Qi Huang</u> – Quantitative Myocardial Perfusion with MRI |
| Neuroengineering | 10:45 AM – 12:00 PM | <u>#113 Liam Sullivan</u> - Adaptive Ambulation Speed and Incline Controller for Powered Knee and Ankle Prosthesis <u>#114 Marissa Cowan</u> - A Unified Controller for Natural Ambulation on Stairs and Level Ground with a Powered Robotic Knee Prosthesis <u>#115 Suzi Creveling</u> - Volitional EMG Controlled Robotic Leg Prosthesis for Individuals with Above/Knee Amputations <u>#116 Carena Cornelssen</u> - Focused Ultrasound (FUS) Neuromodulation in awake, head-fixed mice with temporal lobe epilepsy <u>#117 Matthew Wilson</u> - Remotely controlled drug release in deep brain regions of non-human primates <u>#118 Brian Philip</u> - Bipolar stimulation elicits more widespread evoked potentials than monopolar stimulation |
| Biomechanics | 3:15 PM – 4:45 PM | #125 Rachel Klink – Genipin Crosslinking Increases Tendon Fascicular and Fibrillar Mechanical Properties#126 Grace R. Hunt- Stand-up and Sit-down with Powered Knee-Ankle Prosthesis: Better, but not Perfect - Why?#127 Julia Dunn- The effect of unilateral transhumeral prosthesis use and disuse on gait kinematics and kinetics#128 Luke Hudson- The Effect of Labrum Size on Cartilage Mechanics in Hips with Cam Femoroacetabular Impingement Syndrome#129 Brittany Percin- The influence of scapular orientation on the Medial Scapula Corpus Angle in Snapping Scapula Syndrome#130 Farhan Muhib- Effect of Rehabilitation Strategy on Strain Field and Mineralization Rate in Healing Long Bone Defects#131 Andrew Gunnell- Powered Knee Exoskeleton Improves Symmetry and Reduces Muscle Effort During Sit-to-Stand Transitions in Individuals Post- Stroke: A Case Series |





Bryce Podium Schedule

| Session | Time | # Author - Title |
|----------------|------------|--|
| Therapeutics | 9:20 AM – | #107 Shwan B Javdan - Engineering Receptors to Control Platelet Activation and |
| | 10:30 AM | their Therapeutic Release |
| | | <u>#108 Nataly Mier</u> - Effect of an indole derivative in post-transcriptional regulation |
| | | and production processes of lentiviral vectors in transiently co-transfected HEK293T |
| | | cells |
| | | <u>#109 Oliver Hubbard</u> - Micellar Encapsulation of Propofol Reduces its Adsorption to |
| | | Extracorporeal Membrane Oxygenator (ECMO) Circuit |
| | | #110 Tanya Chhibber - Ultradeformable Cationic Liposomes (UCL)-mediated |
| | | Transdermal Delivery of miR211-5p as a Potential Chemopreventive Therapy for |
| | | Melanoma |
| | | <u>#111 David Tafur</u> - Novel kinetic description of real-time polymerase chain reaction |
| | | characterizes interrelated effects of sample, master mix, and cycle time |
| | | <u>#112 Matthew Trone</u> - CRISPR Epigenome Editing of TNFR1 and IL6ST Reduces |
| | | Behavioral Pain Sensitivity from Disc Degeneration |
| Cardiovascular | 10:45 AM – | <u>#119 Jiawei Dong</u> - Ablation Induced Left Atrial Mechanical Dysfunction Recovers in |
| | 12:00 PM | Weeks after Ablation |
| | | <u>#120 Bram Hunt</u> - Are Drivers Recurring or Ephemeral? Observations from Serial |
| | | Mapping of Persistent Atrial Fibrillation |
| | | <u>#121 Caleb Berggren</u> – Establishment of a Validated Finite Element Framework to |
| | | Predict the 3D, Patient-Specific Arterial Mechanical Environment |
| | | <u>#122 Eugene Kwan</u> - Conduction Changes as AF Develops |
| | | <u>#123 Ben Orkild</u> - A Grid Search of Fibrosis Thresholds for Uncertainty Quantification |
| | | in Atrial Flutter Simulations |
| | | <u>#124 Andrea Corbin</u> - Role for PP2A in obesity-linked atrial electrical remodeling |
| Biomaterials | 3:15 PM – | <u>#132 Samantha Steyl</u> - Fluorapatite Surface Drives Keratinocyte Differentiation and |
| | 4:45 PM | Promotes Hemidesmosome Expression |
| | | #133 Hannah Duffy - The battle for skin sterility: uncovering bacterial survivors |
| | | despite prolonged chemical antisepsis |
| | | <u>#134 Matt Nelson</u> - A 3D-printed Breathing Lung-on-a-Chip with an Integrated |
| | | Extracellular Matrix Membrane |
| | | <u>#135 Hunter Levis</u> - CRISPRa of Novel Gene, BLST, Amplifies Cartilage Deposition in |
| | | Engineered Disc |
| | | <u>#136 Annika Hylen</u> – Tobramycin eluted from a lipid-based formulation manages |
| | | biofilm infection in a large animal model of traumatic long bone injury |
| | | #13/ Molly Major - A Novel Assay to Monitor the Mechanism of Antibody-Drug |
| | | Conjugates |
| | | #138 Clark Nielson - Fluoridated Apatite as Bone Scattold for Critical-Sized Bone |
| | | Defects |





Poster List

| # | Author | Title |
|-----|-----------------|--|
| | | BioInnovate |
| 201 | Amanda LeMatty | Anemia Detection Device Feasibility Study in Mota Fofaliya, India |
| 202 | Trey Blackwell | Digital Feedback Control of Mask Pressure using a Venturi Flow Generator |
| 203 | Lars Lofgren | Urine oxygen partial pressure as a tool to monitor risk of cardiac surgery assocated acute kidney injury |
| 204 | Nichoals Witham | Helical Geometry's Effect on the Energy Conversion Efficiency of Twisted Coiled Polymer Artificial Muscles |

| Biomaterials and Therapeutics | | |
|-------------------------------|--------------------------|--|
| 205 | Abbey Blair | A new antiseptic technique to mitigate bioburden in the skin. |
| 206 | Amanda Wood | Coronavirus Indirect Contact Transmission Reduced via Mucin Glycans |
| 207 | Andrei Liclican | Fault Diagnosis in the Human Urine Metabolome |
| 208 | Cameron Miller | Combinatorial Failure Modes of Suture Anchors in Osteoporotic Bone |
| 209 | Christopher Young | Synthesis and Characterization of Fab-CHPs for Local Injection in Osteoarthritis |
| 210 | Farhana Islam | High-throughput protein-loaded PLPs production in MEG-01s cell line for potential delivery applications |
| 211 | Hassan Sher | Natural Product Biosynthesis Through Biotechnological and Fermentation Approaches |
| 212 | Kiersten Thompson | Transdermal antiseptic products may increase the skin's bioburden increasing the risk of infection. |
| 213 | Mitchell Lewis | Platelet Production Through Guided Differentiation of Mouse Embryonic Stem Cells |
| 214 | Nicholas Witham | Helical Geometry's Effect on the Energy Conversion Efficiency of Twisted Coiled Polymer Artificial Muscles |
| 215 | Peter Kutuzov | Determining the Synergistic Effects of ECM Coating on Axonal Growth in Collagen Gel 3D-Model |
| 216 | Porter Stulce | The Relationship of Antiseptic Elution to Overall Reduction in Bioburden |
| 217 | Tian Morrison | Probing Collagen Degradation Using Dual PET and Near-Infrared Fluorescent Collagen Hybridizing Peptides |
| 218 | Tsumugi Miyashita | Tunable Chiral Plasmonic Nanostructures Resonant in the Visible/ NIR via Circularly Polarized Light |
| 219 | Andrew Miller | Stem cells within the Stromal Vascular Fraction Differentiate Towards an Osteogenic Lineage on Apatite-Based Materials |
| 220 | Sushanto Kumar Saha | Saturation of RAW 264.7 Macrophages by Silica Nanoparticles as a Function of their Physicochemical Properties |
| 221 | Reza Kolasangiani | Molecular Mechanisms underlying force-dependent bending and unbending of allBβ3 and aVβ3integrins |
| 222 | Reefka Fabliha Tulona | Investigating the Role of NELL1 and CTDSPL in Fibrosis |
| 223 | Sierra Erickson | An injectable oleogel for prolonged postoperative analgesia |

| 224 | Tyler Page | A Neuropeptide recruits CAB-1 to form mature dense core vesicles |
|-----|--------------|---|
| 225 | Nico Metzler | Scaffold-free engineered hyaline-like cartilage for treatment of focal chondral |
| | | defects |
| 226 | Priyanka | Downstream immune effects of PEGylation of silica nanoparticles for |
| | Arunachalam | applications in drug delivery |

| Biomaterials and Therapeutics Continued | | |
|---|------------------|--|
| 227 | John Michael | Treating hepatocellular carcinoma using silk-elastinlike protein polymer for |
| | Thomas | embolization and drug delivery |
| 228 | Hillman Katrina | Ganciclovir and Quercetin P-188 Ameliorate Cytomegalovirus Induced Hearing |
| | | Loss |
| 229 | Onkar Joshi | Intrinsic Dynamics of α IIb β 3 Integrin Activation from Molecular Modelling of |
| | | Functional Domains. |
| 230 | Remi Sondaz | Investigating the effects of substrate stiffness on cell spreading through |
| | | Brownian Dynamic Simulations. |
| 231 | Bhuvanesh | Systemic Administration of Budesonide in Pegylated Liposomes for Improved |
| | Yathavan | Efficacy in Chronic Rhinosinusitis |
| 232 | Christian Lewis | CRISPR Regulation of a Novel Gene, BLST, to Modulate Cellular Activity and |
| | | Senescence |
| 233 | Debika Ghatak | Drug Encapsulation for Optimal Dosing of Patients on Extracorporeal Membrane |
| | | Oxygenation Systems |
| 234 | Nate Hooper | Bacterial survivors become opportunistic pathogens following presurgical skin |
| | | preparation due to a blind spot in an FDA standard |
| 235 | Helena Vu | Infection Model for a Traumatic Long Bone Injury |
| 236 | Kyle Jackson | Exploring the In Vitro Anticancer Potential of Glycosylated Hydroxyflavanone |
| 237 | Mahima Choudhury | Using synthetic biology to regulate Runx2 gene expression patterns to enhance |
| | | osteogenesis |
| 238 | Robert Falconer | Targeting Polymicrobial Infection with Local Release Technology |
| 239 | Cansu Tunc | Gold Nanoparticle-Based Combination Gene and Drug Delivery for Breast Cancer |
| | | Treatment |
| 240 | Alexandra Richey | Investigation of Factors Influencing Estrogen Receptor-Alpha Binding Site |
| | | Selection in Endometrial and Breast Cancer Cells |
| 241 | Taylor Falk | Timing Matters: Pluronic F68 Cell Membrane Healing and Cryogenic Stress |
| 242 | Kyle Jackson | Nano-encapsulation of Indigoidine: Potentilizing Antioxidative Remedies for |
| | | Space Missions. |
| 243 | Anagha Wankhade | Microbial Antagonism: Lessons from Rhizosphere |
| 244 | Daniel Zhang | Cancer-on-Chip Model as an Efficient Glioblastoma Tumor Migration Testbed |
| 245 | Ethan Edwards | Embedding Micropores in 3D-Printed Hagfish Protein Scaffolds via Lyophilization |

| Biomechanics | | |
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| 246 | Melissa Requist | Statistical Shape Modeling of Foot Modeling in Charcot Marie Tooth |
| 247 | Amanda Stevens | Increasing Student Access to Powered Prosthetics: An Open Source Solution |
| 248 | Brendon Ortolano | First Demonstration of a Powered Knee Exoskeleton with Torque Sensitive |
| | | Actuation |
| 249 | Dante Archangeli | A Powered Hip Exoskeleton Modifies Step Width: A Case Study |
| 250 | Madelyn Stout | A Preliminary Finite Element Model of Observed Acromion Deflection in Patients |
| | | After rTSA |
| 251 | Breydon Hardy | Muscle moment arms during internal rotation of the glenohumeral joint |
| | | following reverse total shoulder arthroplasty |

| 252 | Kai Pruyn | Powered Hip Exoskeleton Improves Walking Economy in Individuals with |
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| | | Hemiparesis |
| 253 | Nastaran (Nas) | A Simple Model for Mechanical Activation and Compound Action Potential |
| | Gholami | Generation in Response to Sound and Vibration |
| 254 | Peyton King | Evaluating Longitudinal Scapulothoracic, Humerothoracic, and Glenohumeral |
| | | Motion Following Reverse Total Shoulder Arthroplasty |
| 255 | Rosemarie Murray | Prediction of Transfemoral Amputee Prosthesis Kinematics using A-mode |
| | | Ultrasound |

| Biomechanics Continued | | |
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| 256 | Anthony Le | Windlass Mechanism Engagement Influences Hindfoot Kinematics Within a |
| | | Robot-Driven Tibial Movement Envelope |
| 257 | Elana Renae Lapins | Morphological Analysis of Isolated Subtalar Osteoarthritisvia Multidomain |
| | | Statistical Shape Modeling of the Foot |
| 258 | Katee Perez | A Cadaveric Validation Of Weightbearing Ct Imaging Techniques For Improved |
| | | Foot And Ankle Image Analysis And Diagnostics |
| 259 | Meghan Carter | Planovalgus Deformities Across Varying Body Mass Indexes: Two-dimensional |
| | | Analysis from WBCT |

| Cardiovascular | | |
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| 260 | Aksel Anderson | Three-Dimensional Mapping of Coronary Vasculature Geometries |
| 261 | Anna Busatto | Unexpected Errors in the Electrocardiographic Forward Problem |
| 262 | Rui Jin | Signal Processor for Electrogram and Electroanatomic Data (SPEED) |
| 263 | Vu Nguyen | GJA1-20k Promotes Formation of Actin Envelopes around Mitochondria |
| 264 | Brian Cottle | Anatomical Variations of the Cardiac Conduction System in Healthy Neonatal |
| | | Human Hearts |
| 265 | Emmanuel Offei | Antitachycardia Pacing is More Effective when Delivered to the Left Bundle |
| | | Branch Compared to the Right Ventricle in a Canine Ischemic Ventricular |
| | | Tachycardia Model |
| 266 | Eric Paccione | Effects of Biventricular Pacing Locations on Anti-Tachycardia Pacing Success in a |
| | | Patient-Specific Model |
| 260 | Aksel Anderson | Three-Dimensional Mapping of Coronary Vasculature Geometries |

| Imaging | | | | |
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| 267 | Nate Hansen | Tongue Electrical Impedance Myography Correlates with Clinical Outcomes in | | |
| | | Oropharyngeal Cancer | | |
| 268 | Samuel Adams-Tew | Quantitative magnetic resonance parameter mapping using physics-informed | | |
| | | machine learning | | |
| 269 | Alex Schmeltzer | Simultaneous Multipass Resistive Pulse Sensing and Fluorescence Imaging of | | |
| | | Liposomes | | |
| 270 | Seth Kussow | A Radiation Reducing Approach to Study in-vivo 3D Kinematics of the Hip using | | |
| | | Dual Fluoroscopy through using MRI and an alternative to CT | | |
| 271 | Johnathan Le | Free Breathing and Ungated Radial Simultaneous Multi-Slice Cardiac T1 Mapping | | |

| Neuroengineering | | | | |
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| 272 | Fredi Mino | Co-Adaptive Myoelectric Control: A Framework that Equalizes Human | | |
| | | Computer-Interaction for Stroke Survivors | | |
| 273 | Abigail Harrison | Transcutaneous Wrist Stimulation Provides Sensory Feedback for Augmented | | |

| | | and Virtual Reality | |
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| 274 | Alex Beaver | Targeted Drug Delivery for Treatment-Resistant Patients with Depression | |
| 275 | Connor Olsen | Wrist EMG Improves Gesture Classification for Stroke Patients | |
| 276 | Jared Zollinger | Development of a Surface Electromyography Integrated Low-Cost Control | |
| | | System for Assistive Robotic Devices | |
| 277 | Michael Adkins | Automated Quantifiable Assessments of Sensorimotor Function Using an | |
| | | Instrumented Fragile Object | |
| 278 | Spencer Roberts | Development of an Automated, High Throughput Reactive Accelerated Aging | |
| | | Setup | |
| 279 | W. Mitchel Thomas | Pilot Performance of a Chronic Intraneural Auditory Neuroprosthesis in Felines | |
| 280 | Geyu Weng | Characterizing the Neuronal Correlates of Perisaccadic Mislocalization | |
| 281 | Bret Mecham | MAV of Peripheral Nerve Activity Has More Predictive Power than Firing Rate for | |
| | | Neuroprostheses | |
| 282 | Caleb Thomson | Proportional Myoelectric Control of a Bionic Arm in Participants with Chronic | |
| | | Hemiparesis, Muscle Spasticity, and Impaired Range of Motion | |
| 283 | Monika Buczak | Intuitive, Myoelectric Control of Adaptive Sports Equipment for Individuals with | |
| | | Tetraplegia | |
| 284 | Phillip Comeaux | Oscillation Gates Efficacy of Optogenetically-Induced V4 Inputs to FEF | |
| 285 | Kyle O'Sullivan | Electrical Rejuvenation of Chronically Implanted Neural Macroelectrodes in | |
| | | Nonhuman Primates | |
| 286 | Bailey McFarland | Human Cerebral Organoids: Probing Micro-Architecture Responses to Simulated | |
| | | Microgravity | |
| 287 | Juan Pablo Botero | Design and Evaluation of a Four-point Bend Testing Setup for the Flexural | |
| | | Characterization of Novel Flexible Subdural Electrode Arrays | |
| 288 | Cheng Chen | Shaping Brain Organoids through Magnetic Assembly | |
| 289 | Cheng Chen | Precise Assembly of GBM-Cerebral Organoids using 3D-Printed Microchips | |
| 290 | James Craig | Creating Patient-Specific Computational Brain Models For Deep Brain | |
| | | Stimulation For Epilepsy | |

HOW TO JUDGE @ BEC

The Rules:

- No self-judging (you can't judge yourself).
- No double-judging (you can't judge other presentations more than once).
- To win 1st, 2nd, or 3rd place, you must receive at least 15 scores.
- Be courteous and kind (no rude comments allowed).
- The top 5 judges who score the most presentations (either poster or podium) will be eligible for a U of U BME GSAC sponsored prize.

What to do:

- 1. Attend a podium or poster presentation and note the presentation number (this information is available on pages 4-9 of this document).
- 2. Visit <u>https://ubec.bme.utah.edu/</u> (accessible through your phone using the QR code on your name tag).
- 3. Select the heading "Podium & Poster Judging."



4. Enter the presentation number you are currently attending (a numerical 3-digit number in the 100s range for podiums and 200s range for posters). Enter your Reviewer Code which can be found on your nametag (a unique 3-letter code).

| Presentation Number("121")* | |
|-----------------------------|--|
| Your answer | |
| Reviewer Code ("AAB") * | |
| Your answer | |

- 5. Judge the presentation in the following categories:
 - Approach (what they did and how they did it)
 - Scientific Content and Impact (was it impactful)
 - Quality of Presentation Materials (Logical, clean, and attractive format)
 - Competence of Presentation/Discussion (Clear/understandable message)

6. Enter your numerical feedback using the NIH 9-point rating scale:

| NIH 9-point rating scale (1 = exceptional; 9 = poor) | | | | |
|--|--|--|--|--|
| Exceptional = 1 (Best presentation you have ever seen in this category) | | | | |
| Excellent = 2 (Best presentation you see at UBEC in this category) | | | | |
| Very Good = 3 (Presentation wildly exceeds your expectations in this category) | | | | |
| Good = 4 (Presentation achieves in this category) | | | | |
| Good = 5 (Presentation is adequate in this category) | | | | |
| Fair = 6 (Presentation is lacking in this category) | | | | |
| Fair = 7 (Presentation is lacking in more than a few areas in this category) | | | | |
| Below Expectations = 8 (Presentation significantly lacks in this category) | | | | |
| Poor = 9 (Category absent) | | | | |

7. (Optional) Enter any additional feedback you may have:

Overall Feedback

Thank you for judging at UBEC 2023!





MARK PAUL

Mark Paul is the new Executive Director of the University of Utah Health Center for Medical Innovation (CMI). With a passion for device innovation ignited by witnessing the emergency caesarean delivery of his first child, Mark brings 32+ years of experience in the medical device industry to the CMI. In addition to roles at Proctor & Gamble and Boston Scientific, Mark previously served as the President of global medical device manufacturer Stryker's neurovascular division. In his time, the division grew from \$230M to \$1.3B+ in annual sales in 70 countries worldwide. Mark's career brought landmark devices with clinical data for the treatment of Hemorrhagic and Ischemic Stroke. Born and raised in SLC, Utah, he is a fourth-generation graduate of the U. His great-grandfather was in the university's first class in 1850. Both his grandfather and father followed that tradition. His mother was a U of U cheerleader. Mark was ASUU Student Body President, His wife, Jana (Nursing '87), is also a University of Utah alumna. The tradition continues for a fifth generation, as three of their four children have graduated from the U, while the fourth enters his sophomore year on campus.

BEC INDUSTRY PANELISTS



Victor Garcia Global Vice President Regulatory Affairs @ Varex Imaging Corporation



Brenda Mann Founder and President @ Marinda Therapeutics



Jessica Smith Corporate Vice President and Chief Regulatory Officer @ Integra LifeSciences

As an industry expert and key opinion leader in the area of product classification, Victor Garcia has worked with governmental agencies and industry experts to advance regulatory science and its importance to influence new standards of care to adopt novel or convergent technologies to meet safety & efficacy paradigms of the 21st century. Victor is a previous chair of the Utah Regulatory Affairs Professional Society, a University of California SD graduate program advisor, a University of Utah graduate advisor & guest lecturer, a life sciences industry expert for the Office of the SLC Mayor and has provided supporting mentorship of STEM programs. Recently, Victor has focused on the increased use of artificial intelligence and machine learning within the diagnostics imaging ecosystem to address real world workflows and data types of segmentation within the patient imaging event, i.e. software as a medical device.

Brenda K. Mann, PhD, is Founder and President of Marinda Therapeutics, LLC. Marinda is developing biomaterials for vaginal applications, including vaginitis and wound healing. She is adjunct faculty in Biomedical Engineering at the University of Utah and a registered patent agent. Dr. Mann was previously Senior VP for R&D at EyeGate Pharmaceuticals, and a Co-Founder and VP for R&D at SentrX Animal Care. She was also founding faculty of Keck Graduate Institute and serves on its Corporate Relations Board. Dr. Mann was elected to the *American Institute for Medical and Biological Engineering (AIMBE)* College of Fellows in 2022. She is a strong proponent of youth science education and has served as the Director of the University of Utah Science and Engineering Fair since 2006.

Jessica Smith, PhD, is the Corporate Vice President and Chief Regulatory Officer at Integra LifeSciences (Princeton, NJ), a \$1.5B revenue multinational company and global provider of neurosurgical solutions, regenerative technologies, and surgical instrumentation. She oversees all global regulatory activities and serves as a member of the Executive Leadership Team. Prior to joining Integra, Jessica led corporate and business unit regulatory organizations for Hillrom, Becton Dickinson and CR Bard. In these roles, Jessica has served on both the Senior Leadership and Executive Leadership Teams and has had global regulatory responsibilities for a broad range of product families and classifications. Jessica has also served as an elected leader for the Bard Women's Leadership Forum and BD's Women's Initiative Network (WIN), serves on the board of the University of Utah Board of Governors and Engineering Alumni Association, and has been a guest speaker at various MedTech forums and education platforms. Jessica holds a BSc in Civil Engineering, and a Masters of Engineering (bioengineering), and PhD in Bioengineering, all from the University of Utah. She has also authored several peer-reviewed publications, was previously a licensed professional engineer, and holds a U.S. Regulatory Affairs Certification.

BEC INDUSTRY PANELISTS



Kim Dobaj Sr. R&D Engineering Manager, PMO @ Stryker Neurovascular



Lynne Shwed Sr Director, Engineering @Edwards Lifesciences



Amarinder (Sunny) Gill Director of Quality, Post-Market @ ICU Medical

Kim Dobaj is a leader with 25+ Years in the Medical Device industry with various leadership roles in R&D, Operations, Manufacturing Engineering, Project Management and Supply Chain. She has enjoyed learning and contributing to a variety of medical device industries and companies. Most recently, she has worked at Stryker Neurovascular where devices to treat stroke are designed, manufactured, and distributed. Kim is a practitioner of Lean and Six Sigma methodologies and has been instrumental in transforming several manufacturing sites, resulting in significant efficiency gains. She is passionate about learning, developing people and delivering results and has also been an active leader in the Stryker Women's Network. Kim served as an adjunct professor at the University of Colorado, Denver where she developed and taught a practical course on New Product Development. She earned a M.S. in Material Science and Engineering from the University of Utah and a B.S. in Premedicine from the University of Nevada, Reno. She and her family love to be outdoors and have found an ideal home in the Salt Lake City Valley.

Lynne Shwed is a Senior Director of Engineering in New Product Development for Edwards Lifesciences currently focused on transcatheter heart valve replacement. Lynne has 20 years of medical device industry experience in new product, process, and technology development for disposable and implantable medical devices. Lynne is motivated by projects and products that have the potential to make a significant, positive impact in others' lives and is passionate about teaching and mentoring young engineers and driving teams to do things better tomorrow than we do today. Lynne holds a B.S. in Chemical Engineering from Penn State University and a M.S. in Material Science and Engineering from the University of Delaware.

Amarinder "Sunny" Gill is a proven quality leader of product realization, sustaining engineering, and risk management for high-growth organizations. Sunny has over 20 years of medical device and biotech experience in progressive leadership positions at companies including Kimberly-Clark Healthcare (Ballard Medical), Moog Medical Devices Group, Polarity TE, Attwill Medical Solutions, and Scientia Vascular. Currently, Sunny is the Director of Global Complaints Management and Device Safety Regulatory Reporting at ICU Medical. Sunny holds degrees in both Chemical Engineering and Material Science from the University of Utah (GO UTES) and a Masters of Science in Regulatory Affairs from San Diego State University. Sunny is a Certified Quality Engineer and Six Sigma Green Belt from American Society for Quality (ASQ), part of the Regulatory Affairs Professional Society leadership team for the Utah chapter, and guest lectures in the University of Utah Biomedical Engineering program.



SPONSORS

We would like to extend a deserving thank you to the following individuals and organizations who made this year's UBEC possible.

Dean Brown's office, Price College of Engineering

Erin Rothwell's office, Health Sciences Research

Rachel Hess' office, Vice President for Research

Patrick Tresco, Department of Biomedical Engineering

Department of Biomedical Engineering