Welcome to the 19th Annual University of Minnesota Design of Medical Devices Conference

The Design of Medical Devices Conference was created in 2001 to enhance collaboration between academia and industry, promote policy, research and educational initiatives as they relate to medical device design and to support medical devices education at the University of Minnesota.

This forum, uniquely positioned in the middle of one of the most significant medical device communities in the world, has provided invaluable insight and leadership to promote the future of this evolving industry. Conference attendance has more than tripled since its inception and we look forward to continued growth.

The success of this conference is due in large part to the continued support from our industry sponsors and University of Minnesota partners. On behalf of the DMD Executive Planning Committee, we want to thank you for your support and hope you enjoy this year’s conference!

Sincerely,
2020 Design of Medical Devices Conference Executive Planning Committee

The Design of Medical Devices Conference is presented by the University of Minnesota’s Earl E. Bakken Medical Devices Center (part of the Institute for Engineering in Medicine), the College of Science & Engineering and the Department of Mechanical Engineering.
Session Organizer:
Will Durfee, University of Minnesota

Teams:

Grand Prize: “At Your Cervix: A Universal Obturator for Brachytherapy of Cervical Cancer”
Elisa Arango, Susannah Dittmar, Krithika Kumar, Lauren Payne and Sanika Rane
Rice University

2nd Place: “Prototype for Non-Invasive Diagnosis of Compartment Syndrome of the Lower Leg”
Mitchell Gross, Eesha Irfanullah, Furva Rizvi, Devin Smith and Gunnar Wallinga
University of Minnesota

3rd Place: “Closing the Gap: Burn Treatment for Low-Middle Income Countries”
Yassine Filali, Jonathan Gonzalez, Alexis Hansen, Ethan Osuch and Jordon Turner
University of Iowa

“Dynamic Roadmap for Interventional Vascular Applications”
Rosa Araiza, Chirag Gyani, Yuhan Liu and Craig Warlen
Duke University

“Palate Pal”
Ally Carey, Taylor Deutsch, Hannah Drkulec, Jennifer Mount and Jason Zych
University of Iowa

“Assisting the Transition to Complete Dentures”
Zekiel Branstad, Benjamin Cassaidy, Katherine Karjalahti, Kimberly Schroeder and Rohit Nair
University of Iowa

“Rescue Innovations- Visual CPR Simulator”
Katelyn Hillson, Craig Jibben and Brooklyn VanDerWolde
South Dakota State University

“Alignment Device for Capturing Geometry of Lower Limb”
Casey Blaylock, Molly Corlett, Nicole Koenigsman, Nick Slavik and Jocelyn Zenner
University of Iowa

“An integrated system for remote monitoring and real-time communication of the treatment in adolescents with idiopathic scoliosis”
Pierre Guillermo Padilla Huamantinco, Victor Manuel Ticllacuri Esteban, Jose Alfredo Zapana Garcia, Cesar Sebastian Carrillo Ramirez, Yhanira Selene Medina Amaro and Alexandra Juneth Cordero Donaire
Universidad Peruana Cayetano Heredia

“TiMMulex Central Venous Cannulation Training Phantom”
Si Yen Ng, Kuan Chung Wang, I Ching Tsai, Peng Ting Chen and Chi Lun Lin
National Cheng Kung University

“A Catheterizable Urinary Channel for Pediatric Neurogenic Bladder Patients with”
Akshaya Santhanaraj, Andres Martinez Murillo, James Suffoletta and Maria Salazar
Rice University

Judges:
Daniel Mooradian, University of Minnesota
Sanjay Dhawan, University of Minnesota
David Nedrelow, University of Minnesota
Marc Horner, ANSYS, Inc.
Dawn Bardot, Abiomed
Carl Nelson, University of Nebraska-Lincoln
Steven Saliterman, University of Minnesota
Joan Bechtold, University of Minnesota

Paul Rothweiler, University of Minnesota
Leza Besemann, University of Minnesota
John Stavig, University of Minnesota
Yaling Liu, Lehigh University
Matthew Cooper, 3M
Dianne Goodwin, Bluesky Designs
Mike Finch, Children’s Hospitals & Clinics
Vaughn Schmid, University of Minnesota

All sessions were recorded and are available for free on the DMD YouTube Channel.
**Session Organizers:**
Randy Schiestl, Boston Scientific Corporation and Paul Rothweiler, University of Minnesota

**Speakers:**

**Grand Prize:** “Selectively Compliant Annuloplasty Ring to Enable Annular Dynamics in Mitral Valve Repair Evaluated by In-Vitro Stereovision”
- Samuel Frishman
- Stanford University
- Ali Kight
- Stanford University
- Ileana Pirozzi
- Stanford University

**2nd Place:** “An Untethered Electro-Pneumatic Exosuit for Gait Assistance of People With Foot Drop”
- Hao Su
- The City College of New York

**3rd Place:** “A Novel Tool for Improved Control and Maneuverability in Pediatric Cardiac Catheter Ablation Procedures”
- Paige Mass
- Children’s National Hospital

**3rd Place:** “Improving Footwear Options for Persons With Lower Limb Amputations”
- Eric Nickel
- Minneapolis VA Health Care System

**3rd Place:** “A Smartphone Enabled Phototherapy Irradiance Meter for the Care of the Jaundiced Neonates in Low-Resource Regions”
- Patrick Powell
- Arbor Grace, Inc.

**3rd Place:** “Novel Method and Device for Delivery and Retention of Intrauterine Devices in the Immediate Postpartum Period: Pilot Baboon Feasibility Study”
- Etse Campbell
- University of Texas

**3rd Place:** “Design and Fabrication of Patient-Specific Pediatric Laryngoscopes at the Point-of-Care”
- Madelene Habib
- University of Central Florida

**3rd Place:** “Respiratory Arrest Monitoring; a Non-Invasive Approach for Early Detection of Breathing Complexities in Psychiatric Patients”
- Moein Enayati
- Mayo Clinic
  *(Co-author Marjorie Skubic was on Zoom for the Q&A)*

**3rd Place:** “A New System to Objectively Measure Ankle Proprioception”
- Arash Mahnan
- University of Minnesota

**3rd Place:** “Design of a Portable Venomanometer System for Episceral Venous Pressure Measurement”
- Carl Nelson
- University of Nebraska-Lincoln

**Judges:**
- Dawn Bardot, Abiomed
- Ingrid Bowman, BD
- Jayant Parthasarathy, UHG
- Joe Alkhatiib, Abbott
- John Deedrick, CHIP Solutions
- Stephanie Board, Boston Scientific
- Mark Wehde, Mayo
- Mike Hess, Medtronic

*All sessions were recorded and are available for free on the DMD YouTube Channel*
**Cybersecurity: Hacking the Future of Healthcare**

**Tuesday, May 26**

*Session Organizer:*
Team from Archimedes Center for Medical Device Security

*Speakers:*
- “Reimagine, Reinvent, Recover”
  - Nina Alli
  - Biohacking Village
- “Future of Healthcare Cybersecurity”
  - Beau Woods
  - The Atlantic Council

---

**COVID-19 Innovations at the UMN**

**Tuesday, June 9**

*Session Organizer:*
William Durfee, University of Minnesota

*Speakers:*
- “Cervical Stabilization Device (CSD)”
  - John Bischof
  - University of Minnesota
- “MNmask: PPE Innovation for Covid-19 Crisis Supply”
  - Linsey Griffin
  - University of Minnesota
- “Storage System for Re-use and Extended use of N95 Filtering Facepiece Respirators”
  - Ehsan Naderi
  - University of Minnesota
- “Combating Nosocomial Aerosol Transmission of COVID-19”
  - Chris Hogan
  - University of Minnesota
- “Emergency Design and Production of Level 1 Isolation Gowns”
  - Steven Saliterman
  - University of Minnesota
- “Development of the Coventor Ventilator System”
  - Aaron Tucker
  - University of Minnesota

---

**Emerging Medical Innovation Valuation Competition**

**Tuesday, June 2**

*Session Organizers:*
Mike Finch, Children’s of Minnesota Hospitals and Clinics
Randy Nelson, Evergreen Medical Technologies, Inc.

*Speakers:*
- Grand Prize: “Benegraft”
  - Sabin Karki
  - Johns Hopkins University
- “Prosthetic Sock Management Tool (PSMT)”
  - Billie Savvas Slater
  - Minneapolis VA Health Care System
- “Teleoperator for In-Bore MRI-Guided Biopsies”
  - Samuel Frishman
  - Stanford University
- “Cervical Stabilization Device (CSD)”
  - Julie Causey
  - ViaTechMD, LLC
  - Benjamin Booher
  - ViaTechMD, LLC

*Judges:*
- Paul Gam, Zurich Medical
- Karen Kaehler, University of Minnesota
- Greg Peterson, University of Minnesota

---

**Biosensors**

**Tuesday, June 16**

*Session Organizer:*
Tianhong Cui, University of Minnesota

*Speakers:*
- “Microfluidic Organoid Cultures for Personalizing Cancer Treatment”
  - Alexander Revzin
  - University of Minnesota
- “Microfluidic-Robotic Interface”
  - Tingrui Pan
  - University of California, Davis
- “A laser-engraved low-cost microwell array platform for point-of-care colorimetric diagnosis of COVID-19”
  - Yang Wang
  - Chinese Academy of Sciences

---

*All sessions were recorded and are available for free on the DMD YouTube Channel*
**Wearable Medical Technology**
**Tuesday, June 23**

*Session Organizer:*
Alex Fok, University of Minnesota

*Speakers:*

- “Leveraging Electronic Textiles In Low Earth Orbit: From Sensate Skins to Sensory Conductors”
  Juliana Cherston
  MIT Media Lab

- “Wearable Technologies for Clinical Rehabilitation and Outcomes”
  Chandrasekaran Jayaraman
  Shirley Ryan Ability Lab

- “Using Intellectual Property Research for the Assessment of Medical Wearables Competitive Landscape and Technological Strategy”
  Jim Moeller
  Moeller Ventures

  Alexander Kent
  Cala Health

- “The Story of RxFunction”
  Tom Morizio
  RxFunction, Inc.

**Dental Devices**
**Tuesday, April 16, 2019**

*Session Organizer:*
Alex Fok, University of Minnesota

*Speakers:*

- “Facial Silicone Prostheses - Current Status and Concerns”
  Alvin Wee
  University of Minnesota

- “Clinical Assessment of Dental Demineralization”
  Hooi Pin Chew
  University of Minnesota

- “Saving Teeth through Sound Science”
  Mehrzad Khakpour
  Sonendo, Inc.

---

**2020 DMD Awardee Keynote Presentation**
**Wednesday, July 1**

**David Knapp, VP, R&D at Boston Scientific**

David Knapp is a leader in Medical Device Development and Exploratory Research working to treat unmet clinical needs for 20 years. Dave’s current focus as VP of Corporate Research at Boston Scientific (BSci) is on developing new solutions and fostering growth in adjacent and strategic areas of the company and developing novel technical platforms that cut across all BSci Divisions. He is passionate about coordinating open collaborative efforts including developing relationships with external institutions and connecting functions to drive meaningful innovation. Dave also serves as President of the Board for the BSci Foundation, is the Executive Sponsor in Minnesota for the Employee Resource Group Leadership, Education and Allies for Disabilities, and is a member of the BSci Health Advisory Panel.

He holds a BS in Chemical Engineering from University of Michigan and a PhD in Chemical Engineering from the University of Minnesota where he is a Fellow and Industrial Advisor of the IEM and a member of the External Advisory Board for the Dept. of Chemical Engineering and Materials Science. Dave also serves as a member of the External Advisory Boards for the Depts. of Biomedical Engineering and Chemical Engineering at University of Michigan, and the Center for Bioengineering Innovation and Design at Johns Hopkins University.

**Design of Medical Devices Conference**
**University of Minnesota**
**Driven to Discover℠**

*All sessions were recorded and are available for free on the DMD YouTube Channel*
Rapid Fire Presentations

Final papers will be published in the Proceedings of the Design of Medical Devices Conference in the ASME Digital Collection and as a printed book by ASME Press.

**Track 1 - Cardiovascular**

“Pulmonary Artery Stenosis: Early Interventions With Low Profile Stents Versus Delayed Interventions With Large Diameter Stents” DMD2020-9005
Ryan Pewowark, Kevin Pettit, Carolina Larrain, Cody Johnson, Christopher Francois, Luke Lamers and Alejandro Roldán-Alzate, University of Wisconsin - Madison

“Classification of Left Atrial Appendage Morphology Using Deep Learning” DMD2020-9018
Mikayle Holm, Alex Deakyne, Erik Gaasedelen, Weston Upchurch and Paul Iaizzo, University of Minnesota

“A Novel Transcatheter Edge-to-Edge Suturing Technique and Prototype for Repairing Tricuspid Valve Regurgitation” DMD2020-9033
Jorge Zhingre Sanchez and Paul Iaizzo, University of Minnesota

“Selectively Compliant Annuloplasty Ring to Enable Annular Dynamics in Mitral Valve Repair Evaluated by In-Vitro Stereovision” DMD2020-9034
Samuel Frishman, Annabel Imbrie-Moore, Mark Cutkosky, Ali Kight, Ileana Pirozzi, Michael Paulsen and Joseph Woo, Stanford University

“A Novel Tool for Improved Control and Maneuverability in Pediatric Cardiac Catheter Ablation Procedures” DMD2020-9039
Paige Mass, Rohan Kumthekar, Charles Berul and Justin Opfermann, Children’s National Hospital

“Flow Cytometry Method for Characterizing Platelet Activation” DMD2020-9070
Brian Alzua, Mark Smith and Yan Chen, American Preclinical Services

“Thrombogenicity Testing Results for Legally Marketed Comparator Devices (Lmcd): Comparison Between the Traditional Non-Anticoagulated Venous Implant Assay and an In Vitro Ovine Blood Loop Test” DMD2020-9073
Mark Smith and Yan Chen, American Preclinical Services

“Potential of Weight Scale Based Ballistocardiography for Identifying Orthostatic Intolerance: A Tilt Table Study” DMD2020-9074
Stian Henriksen and Parshuram Aarotale, University of North Dakota

“Design of a Miniaturized, Affordable, and Quantifiable Vascular Doppler” DMD2020-9080
Matthew Kubalaubala, Jack Doenges, Brooks Hodenfield and Jeremy Wales, Vibha Mavanji, University of Minnesota

**Track 2 - Neuroengineering**

Manish Balamurugan, Kathryn Chung and Venkat Kupoor, Fairfax High School; Smruti Mahapatra, Aliaksei Pustavoitau and Amir Manbachi, Johns Hopkins University

**Track 3 - Orthopedics & Rehabilitation**

“Improving Footwear Options for Persons With Lower Limb Amputations” DMD2020-9044
Eric Nickel, Gregory Voss and Billie Slater, Minneapolis VA Health Care System; Emily Mueller and Andrew Hansen, Minneapolis VA Health Care System and University of Minnesota

“A Hydraulic Bimodal Ankle to Improve Mobility and Stability for Prosthesis Users” DMD2020-9061
Sara Koehler-Mcnicholas, Minneapolis VA Health Care System and University of Minnesota; Gregory Voss, Minneapolis VA Health Care System; Evandro Ficanha, WillowWood; John Loof and Nicole Walker, Minneapolis VA Health Care System; James Colvin, WillowWood; Andrew Hansen, Minneapolis VA Health Care System and University of Minnesota; Matthew Wernke, WillowWood

“Evaluating the Fit of Current Anatomical Scapula Reconstruction Plates: A Study Using Fifty Scapula” DMD2020-9079
Roopam Dey, Sudesh Sivarasu, Johan Charilaou, Stephen Roche and Frida Hansson, University of Cape Town

**Track 4 - MEMS & Nano**

“Label Free Cell Purification Following Electroporation” DMD2020-9037
Beth Ringwelski, North Dakota State University

“Laser Micromachining of Thin-Film Polyimide Microelectrode Arrays: Alternative Processes to Photolithography” DMD2020-9057
Hsiang-Lan Yeh, Iowa State University; Jonathan Garich, Ian Akamine and Jennifer Blain Christen, Arizona State University; Seth Har, Mayo Clinic

**Track 5 - Sensors**

“An Integrated I2c Sensor Network for Transcatheter Heart Valves” DMD2020-9016
Thomas Secord, Lucas Koerner and Robert Kopas, University of St. Thomas

“A Smartphone Enabled Phototherapy Irradiance Meter for the Care of the Jaundiced Neonates in Low-Resource Regions” DMD2020-9040
Patrick Powell, Arbor Grace; Isa Abdulkadir, Abmadu Bellow University; Tina Slusher, University of Minnesota and HRRI; Katie Satrom, University of Minnesota; Gary DeWitt, Internet Mobility Cellular

“Respiratory Arrest Monitoring; a Non-Invasive Approach for Early Detection of Breathing Complexities in Psychiatric Patients” DMD2020-9087
Moein Enayati and Marjorie Skubic, Mayo Clinic
Track 6 - Surgical Tools

“Design of a Modular Cost-Effective Robot Arm for Increased Dexterity in Laparoscopic Surgery” DMD2020-9010
John Lowery and Carl Nelson, University of Lincoln, Nebraska

“Incremental Needle Insertion System for Force and Position Sensing” DMD2020-9012
Daiyen Brown and Jessica Gonzalez-Vargas, The Pennsylvania State University; David Han, Penn State Heart and Vascular Institute; Scarlett Miller and Jason Moore, The Pennsylvania State University

“A Wire-Driven Multifunctional Manipulator for Single Incision Laparoscopic Surgery” DMD2020-9015
AM Masum Bulbul Chowdhury, Kent State University; Michael Cullado, Summa Health System; Tao Shen, Kent State University

“Towards Manufacturing Scale-Up of an Air Retention Device for Colonoscopy” DMD2020-9022
Carl Nelson and Pin Hao Cheng, University of Nebraska-Lincoln; Joy Wolfe, Daykin

“Minimizing Cotton Ball Retention in Neurological Procedures” DMD2020-9042
Raphael Bechtold, Benjamin Garlow, Arushi Tandon, Alexandra Szewc, Renee Liu, William Zhu and Olivia Musmanno, Johns Hopkins University; George Coles, Noah Gorelick, Ian Suck, Judy Huang, Henry Brem and Amir Manbachi, Johns Hopkins Medical Institution

“An Evaluation of Sensing Technologies to Measure Intraoperative Leg Length for Total Hip Arthroplasty” DMD2020-9056
Akash Chaurasia, Jerry Yan, Robert Li, Kate McCarron, Claire State, Hannah Takasuka, Evan Bender, Aditi Jithendra, Julius Oni and Amir Manbachi, Johns Hopkins Bayview Medical Center

“Cable-Driven 3d Steerable Surgical Needle for Needle-Based Procedures” DMD2020-9072
Zahra Khasevi Varnamkhasti and Bardia Konh, University of Hawaii at Manoa

“Design of a Handheld Tissue Grasping Device to Measure Tissue Mechanical Properties In-Vivo or in a Laboratory Setting” DMD2020-9089
Bradley Drahos, Amer Safdari, Faizan Malik, Rebecca Smith, Matt Kubala, Shikha Goodwin and Timothy Kowalewski, University of Minnesota

“Dynamic Characteristics Analysis and Fem Modeling in Control of an Sma-Activated Flexible Multi-Joint Needle” DMD2020-9097
Saeed Karimi and Bardia Konh, University of Hawaii at Manoa

“Characterization of Acetabular Cup Insertion Forces in Cancellous Bone Proxy for Validation of an Invasive Sensing Model and Development of Automatic Intelligent Prosthesis Installation Device” DMD2020-9098
Kambiz Behzadi and Jesse Rusk, Behzadi Medical Device LLC

Track 7 - Computer Modeling & Simulation

“Development of Anaglyph 3d Functionality for Cost-Effective Virtual Reality Anatomical Education Tool” DMD2020-9014
Alex Deakyne, Erik Gaasedelen, Tinen Iles and Paul Iaizzo, University of Minnesota

“A Pediatric Supracondylar Humerus Fracture Wire Navigation Simulator” DMD2020-9031
Zane Johnson, Geb Thomas, Steven Long and Donald Anderson, The University of Iowa

“A Novel Nonparametric Technique for Segmenting Multimode Hyperspectral Images Obtained From Non-Melanoma Skin Cancer Lesions” DMD2020-9045
Gamal Geweid, Benha University and University of North Dakota; Fartash Vasefi, Wound Exam Corp; Kouhyar Tavakolian, University of North Dakota

Bethany Juhnke, Muhammad Ahsan, Paul Rothweiler and Arthur Erdman, University of Minnesota

“A Precise Scale-Up Method to Predict Particle Delivered Dose in a Human Respiratory System Using Rat Deposition Data: An in Silico Study” DMD2020-9060
Hamideh Hayati and Yu Feng, Oklahoma State University

“Development of an Open-Access Library of Pediatric Congenital Heart Diseases and Treatments: A Tutorial on the Atlas of Human Cardiac Anatomy” DMD2020-9064
Amanda Tenhoff, University of Minnesota

“Using Computational Modeling Derived From Micro Ct Scanning for the Post-Implant Analyses of Various Cardiac Devices” DMD2020-9071
Thomas Valenzuela, Jorge Zhengre Sanchez, Mikayle Holm, Tinen Iles and Paul Iaizzo, University of Minnesota

“On the Modal Analysis of Blood Flows in Brain Aneurysms” DMD2020-9100
Trung Le and Lahcen Akerkouch, North Dakota State University

Track 8 - Human Factors

“Stakeholder Engagement With Prototypes During Front-End Medical Device Design: Who Is Engaged With What Prototype?” DMD2020-9020
Marianna Coulentianos, Ilka Rodriguez-Calero, Shanna Daly and Kathleen Sienko, University of Michigan

“Visualizing Telemetry Metrics From Upper-Airway Stimulation to Enhance Sleep Therapy Management” DMD2020-9035
Mathew Araujo, University of Minnesota; Kent Lee and Quan Ni, Inspire Medical Systems; Jaideep Srivastava, University of Minnesota

“Single Versus Multiple Prototypes: Medical Device Design Practitioners’ Rationale for Varying Prototype Quantities to Engage Stakeholders During Front-End Design” DMD2020-9046
Ilka Rodriguez-Calero, Marianna Coulentianos, Shanna Daly and Kathleen Sienko, University of Michigan
Track 9 - Wearables

“A Framework for Mapping and Controlling Exoskeleton Gait Patterns in Both Simulation and Real-World” DMD2020-9009
Lowell Rose, Michael Bazzocchi, Connal de Souza, Julie Vaughan-Graham, Kara Patterson, University of Toronto; and Goldie Nejat, University of Toronto and Toronto Rehabilitation Institute

“Development of a Pressure Measuring Garment to Understand How to Quantify Compression” DMD2020-9024
Michael Weber and Abigail Clarke-Sather, University of Minnesota Duluth; Tara Bergeron, Anisa Janko, Alicia Jensen, Brittany Malvick and Steven Cope, College of St. Scholastica

“Flexible Circuit Board Package Embedded With Multi-Stack Dies” DMD2020-9032
Nobuki Ueta, Shunsuke Sato, Masakazu Sato, Yoshio Nakao and Osamu Nakao, Fujikura Ltd.; Joshua Magnuson and Rocky Ishizuka, Fujikura America, Inc.

“Assessing Induced Emotions in Employees in a Workplace Setting Using Wearable Devices” DMD2020-9062
Emma Fortune, Yaqoub Yusuf, Sarah Zornes, Jorge Loyo Lopez and Renaldo Blocker, Mayo Clinic

Saurav Dubey, Arash Mahnan and Jürgen Konczak, University of Minnesota

“Design of a Wearable Health Monitoring System for In-Home and Emergency Use” DMD2020-9091
Michael Bertsch and Stephen Gent, South Dakota State University

“An Untethered Electro-Pneumatic Exosuit for Gait Assistance of People With Foot Drop” DMD2020-9099
Lizzette Salmeron, Gladys Juca, Satesh Mahadeo, Jiechao Ma, Shuangyue Yu and Hao Su, City College

Track 10 - Special Devices

“Point-of-Care Viscosity Surrogate Measurement Through Utilization of Smartphone Sensors and Custom 3d Printed Design” DMD2020-9004
Awaiz Khan, Virginia Tech Carilion School of Medicine; Bradley Icard, Cone Health Medical Group; Edmundo Rubio, Virginia Tech Carilion School of Medicine

“A Realistic Phantom for Ultrasound-Guided Central Venous Cannulation” DMD2020-9007
Si Yen Ng and Chi-Lun Lin, National Cheng Kung University

“Design and Implementation of a Balloon Catheter Pressure Testing System” DMD2020-9017
Aaron Tucker, Breanne Retherford, Paul Rothweiler, Ahmed Selim and Art Erdman, University of Minnesota

“Design of a Portable Venomanometer System for Episcleral Venous Pressure Measurement” DMD2020-9021
Tze Yeen Yap, Carl Nelson, University of Nebraska - Lincoln; Deepta Ghate, Vikas Guliati, Shan Fan, Sachin Kedar and Meghal Gagrani, University of Nebraska Medical Center; Adam Hahn, Blaine Minden, Luke Moorhous, Zachary Fowler and Deepak Khazanchi, University of Nebraska at Omaha

“Adherence of Upper Airway Stimulation in Us and German Medical Centers: A Multicenter Meta-Analysis on Adhere Registry” DMD2020-9026
Jingxin Lei, University of Minnesota; Kent Lee, Inspire Medical Systems, Inc.

“Train of Four Monitoring Device” DMD2020-9038
Anastasia Karapanagou, Nicholas Bergstrom, Christopher Beauregard, Kyler Dillon, Jeanine Skorinko and Ahmet Can Sabuncu, Worcester Polytechnic Institute; Eric Rosero, University of Texas Southwestern Medical Center

“Mitigating Complications Caused by Intravenous Therapy: The Iv Patency Monitoring Device” DMD2020-9041
Daniel Portillo, Grant Copeland, Bao Huy Vu, Omar Navarro, Gabriela Pineda, Sepehr Seifi, Lyle Hood and Sukhwinder Kaur, The University of Texas at San Antonio; Nitin Das, Daniel DeArmond and John H. Calhoun, The University of Texas Health Science Center

“Task-Specific Assistive Device (Tad): An Accessible Technological Solution for Upper Limb Disability” DMD2020-9047
Veena Jayasree-Krishnan and Shramana Ghosh; NYU Tandon School of Engineering; Preeti Raghavan, John Hopkins University; Jack Spiegler, Purdue University; Vikram Kapila, NYU Tandon School of Engineering

“Novel Method and Device for Delivery and Retention of Intruterine Devices in the Immediate Postpartum Period: Pilot Baboon Feasibility Study” DMD2020-9049
Etse-Oghena Campbell and Christopher Rylander, University of Texas at Austin; Lauren Thaxton and Yvette Williams-Brown, Dell Medical School

“Solid Fiber Inside Capillary and Modified Fusion-Spliced Fiber Optic Microneedle Devices” DMD2020-9050
Jason Mehta and Christopher Rylander, The University of Texas at Austin

“Electrical Inhibitor for Tocolysis” DMD2020-9075
Ashwin Rajkumar, NYU Tandon School of Engineering; Jeffrey Karsdon and Frederick Naftolin, NYU Langone School of Medicine

“Introducing a Cost-Effective Radiopaque Scale Design for Intra-Operative Use” DMD2020-9076
Roopam Dey, University of Cape Town; Giancarlo Beukes and Gokul Nair, Impulse Biomedical (Pty) Ltd; Sudesh Sivarasu, University of Cape Town

“Design and Fabrication of Patient-Specific Pediatric Laryngoscopes at the Point-of-Care” DMD2020-9077
Madeleine Habib, Robert Sims, Matthew Boutelle, James Inziello, Fluvio Lobo and Jack Stubbs, University of Central Florida

“A New System to Objectively Measure Ankle Proprioception” DMD2020-9094
Arash Mahnan, Jessica Holst-Wolf and Jürgen Konczak, University of Minnesota
2020 DMD Executive Planning Committee:
Dawn Bardot, Industry Committee Member
Matthew Cooper, Industry Committee Member
William Durfee, Technical Program Chair
Tracee Eidenschink, Industry Committee Member
Arthur Erdman, Conference Chair
Mike Finch, Committee Member
Jenny Holden, Conference Administrator
Trisha Huntosh, Conference Coordinator
Paul Iaizzo, Conference Co-Chair
Matthew Johnson, Contributed Papers Co-Chair
Steve Johnson, Emerging Technology Forum
Rosemary Kelly, Clinical Cases Chair
Carl Nelson, Contributed Papers Co-Chair
Markus Reiterer, Industry Committee Member
Kate Taylor, Industry Committee Member
Gary Williams, AV Technical Coordinator

Special Thanks to:
ASME Journal of Medical Devices
Contributed Papers Track Chairs & Reviewers
Curbside Productions
Session Organizers & Speakers
Spartan Promotional Group

Join Us for the Upcoming DMD Conferences:

2021 Design of Medical Devices Conference
April 12-15
Graduate Minneapolis & McNamara Alumni Center
Minneapolis, Minnesota

2022 Design of Medical Devices Conference
April 11-14
Graduate Minneapolis & McNamara Alumni Center
Minneapolis, Minnesota

2023 Design of Medical Devices Conference
April 16-21
Graduate Minneapolis & McNamara Alumni Center
Minneapolis, Minnesota