2019 ORTHOTIC AND PROSTHETIC INNOVATIVE TECHNOLOGIES CONFERENCE

CONFERENCE CHAIR

Jeffrey Wensman, BSME, CPO
Director of Orthotics and Prosthetics
Michigan Medicine

SCIENTIFIC PROGRAM CO-CHAIRS

Deanna Gates, PhD
Associate Professor of Kinesiology and Biomedical Engineering
Core Faculty, Robotics Institute
University of Michigan

Brian Kelly, DO
Professor of Physical Medicine and Rehabilitation
Medical Director, Division of Orthotics and Prosthetics
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Parag Patil, MD, PhD
Associate Professor of Neurosurgery, Neurology, Anesthesiology and Biomedical Engineering
Associate Chair, Clinical and Translational Research in Neurosurgery
Director, Restorative Neuroengineering Program
University of Michigan

Elliott J. Rouse, PhD
Director, Neurobionics Lab
Assistant Professor, Department of Mechanical Engineering
Core Faculty, Robotics Institute
University of Michigan

Presented by the Michigan Medicine Department of Physical Medicine and Rehabilitation, Division of Orthotics and Prosthetics. This conference aims to foster emerging technologies that can advance patient care and have a transformative impact on the field of orthotics and prosthetics.

Conference Aims: Educate, Stimulate, Unite

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the University of Michigan Medical School and the University of Michigan School of Kinesiology. The University of Michigan Medical School is accredited by the ACCME to provide continuing medical education for physicians. The University of Michigan Medical School designates this live activity for a maximum of 13.5 *AMA PRA Category 1 Credit(s)™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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2019 ORTHOTIC AND PROSTHETIC INNOVATIVE TECHNOLOGIES CONFERENCE

Thursday, May 16, 2019

12:00pm-1:00pm	**Registration, Exhibit Hall and Lunch**	
1:00pm-1:10 pm	**Opening Remarks and Introduction**	Jeffrey Wensman, BSME, CPO *Michigan Medicine*

SURGICAL INNOVATIONS IN AMPUTATION

1:10-1:35 pm	**Regenerative Peripheral Nerve Interfaces (RPNI) for High Fidelity Motor Control of Neuroprosthetic Devices**	Paul Cederna, MD *Michigan Medicine*
1:35-2:00 pm	**Prospective Study of Percutaneous Bone-anchored Implants for the Rehabilitation of Patients with Above Knee Amputation**	Richard J. O'Donnell, MD *University of California, San Francisco*
2:00-2:25 pm	**Targeted Muscle Reinnervation for Prosthetic Control and the Treatment of Amputee Pain and Phantoms**	Gregory A. Dumanian, MD *Northwestern Feinberg School of Medicine*
2:25-2:50 pm	**Amputation Surgery for Improved Patient Outcomes**	Matthew J. Carty, MD *Brigham & Women's Hospital*

2:50-3:20 pm	**Exhibit Hall / Break**	

INNOVATIONS IN O&P CONTROL

3:20-3:45 pm	**Neural Interfaces for Controlling Dexterous Finger Movements**	Cindy Chestek, PhD *University of Michigan*
3:45-4:10 pm	**Surgical and Mechatronic Design for New Bionic Systems and Human Augmentation**	Tyler Clites, PhD *University of Michigan*
4:10-4:35 pm	**Intuitive Control of Powered Legs**	Levi Hargrove, PhD *Shirley Ryan Ability Lab*
4:35-5:00 pm	**Controlling Locomotion Over Continuously Varying Activities for Agile Powered Prosthetic Legs**	Robert D. Gregg, PhD *University of Texas at Dallas*

5:00-5:10 pm	**First Day Closing Remarks**	Parag Patil, *Michigan Medicine*
5:10-6:00 pm	**Michigan Stadium Tour**	
6:00-8:00 pm	**UMOPC Residency Program 25th Anniversary Celebration and Welcome Party**	

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Friday, May 17, 2019

7:15-8:00 am	**Registration / Exhibit Hall and Continental Breakfast**	
8:00-8:10 am	**Session Opening Remarks**	Elliott J. Rouse, PhD *University of Michigan*

TECHNOLOGY INNOVATIONS IN ORTHOTIC EXOSKELETONS

8:10-8:35 am	**Robotic Exoskeletons for Assisting Human Locomotion**	Dan Ferris, PhD *University of Florida*
8:35-9:00 am	**Human-in-the-loop Optimization of Exoskeleton Assistance**	Steve Collins, PhD *Stanford University*
9:00-9:25 am	**Can Passive Elastic Exoskeletons Improve Walking Economy in Aging?**	Gregory S. Sawicki, PhD *Georgia Institute of Technology*
9:25-9:50 am	**Exoskeletal Assisted Walking : a Platform for Rehabilitation after Spinal Cord Injury**	Ashraf Gorgey, MPT, PhD *Richmond VA Medical Center*

9:50–10:20 am	**Exhibit Hall / Break**	

TECHNOLOGY INNOVATIONS IN PROSTHETICS

10:20-10:45 am	**An Open Source Robotic Leg as a Standard for Control Strategy Comparison**	Elliott J. Rouse, PhD *University of Michigan*
10:45-11:10 am	**Model-Based Design of Lower Limb Prostheses: Including the Human User**	Brian R. Umberger, Ph.D. *University of Michigan*
11:10-11:35 am	**Perspectives on Foot-Ankle Biomechanics and the Semi-Active Prostheses that Love Them**	Peter G. Adamczyk, PhD *University of Wisconsin-Madison*
11:35-12:00 pm	**Prosthetic Ankle-Feet System for Improvement of Footwear Options for Persons with Lower-Limb Amputations**	Andrew H. Hansen, PhD *University of Minnesota*

12:00-1:00 pm	**Exhibit Hall / Lunch**	

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INNOVATIONS IN SOCKET DESIGN AND MANUFACTURING

1:00-1:25 pm	**3D-Printing of Custom Orthotics and Prosthetics – at the University of Michigan**	Albert Shih, PhD and Darren Bolger, MSPO, CPO *University of Michigan*
1:25-1:50 pm	**The Northwestern University Flexible Sub-Ischial Socket Technique: Development, Research, and Dissemination**	Stefania Fatone, PhD, BPO(Hons) *Northwestern University*
1:50-2:15 pm	**A Prospective Assessment of an Adjustable, Immediate Fit, Transtibial Prosthesis**	Timothy R. Dillingham, MD, MS *The University of Pennsylvania*
2:15-2:40 pm	**The Veterans Health Administration 3D Printing Network Project**	Beth Ripley, PhD *VHA Innovations Ecosystem*

2:40 – 3:10 pm **Exhibit Hall / Break**

CLINICAL PRACTICE INNOVATION IN O&P

3:10-3:35 pm	**Transfemoral Percutaneous Osseointegration OPRA Implant System: Prosthetic and Rehab Considerations**	Matthew Garibaldi, MS, CPO *University of California, San Francisco*
3:35-4:00 pm	**Innovation and Value Based Care: What is viable?"**	Jason Wilken, PhD, PT *The University of Iowa*
4:00-4:25 pm	**Wearable Technologies to Enhance O&P Outcome Measurement**	Arun Jayaraman, PhD, PT *Shirley Ryan Ability Lab*
4:25-4:50 pm	**The Effect of Prosthetic Foot Properties on Intact Limb Knee Loading Associated with Osteoarthritis**	David Morgenroth, MD *University of Washington*

4:50 – 5:00 pm **Day 2 Closing Remarks** Deanna Gates, PhD *University of Michigan*

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2019 ORTHOTIC AND PROSTHETIC INNOVATIVE TECHNOLOGIES CONFERENCE

Saturday, May 18, 2019

7:15-8:00 am	**Exhibit Hall / Continental Breakfast**	
8:00-8:10 am	**Session Opening Remarks**	Brian Kelly, DO *Michigan Medicine*

ASSESSING OUTCOMES IN O&P

8:10-8:35 am	**Prosthetic Intervention: Translating Short-term Studies to Long-term Benefits**	Deanna Gates, PhD *University of Michigan*
8:35-9:00 am	**Selecting, Administering, and Interpreting Performance-based Clinical Balance Tests Among Lower Limb Prosthesis Users**	Andrew Sawers, PhD, CPO *University of Illinois at Chicago*
9:00-9:25 am	**Patient Preference in Lower Limb Prosthesis Prescription**	Max Shepherd, MS, PhD student *Northwestern University and Shirley Ryan Ability Lab*
9:25-9:50 am	**New horizons in upper limb prosthetics: multisensory bionic hands and metrics for evaluating their function**	Paul Marasco, PhD *Cleveland Clinic*

9:50-10:20 am	**Exhibit Hall / Break**	

THE PATIENT PERSPECTIVE

10:20-12:00 pm	**The Impact of Innovation- A Panel Presentation on the Amputee's Perspective:** • How do we Expand Access to Prosthetic Technology from the 1% to the 99%? • Understanding Novel Prosthesis Control Interfaces from a Patient Perspective	Moderators: Carla Vollmer, BS / Nora Rosenblum, LMSW *Michigan Medicine* Panelists: Nicole Ver Kuilen, BBA *Forrest Stump* Susannah Engdahl, MS *University of Michigan* Wendy Ramirez, Peer Visitor, Patient Family Centered Care Advisory Board Brenda Barker, Peer Visitor

12:00-12:15 pm	**Closing Remarks**	Jeffrey Wensman, *Michigan Medicine*

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