2019 ORTHOTIC AND PROSTHETIC INNOVATIVE TECHNOLOGIES CONFERENCE

CONFERENCE CHAIR

Jeff 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
Michigan Medicine

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
Thursday, May 16, 2019

12:00pm-1:00pm  Registration, Exhibit Hall and Lunch

1:00pm-1:10 pm  Opening Remarks and Introduction  
Jeff Wensman, BSME, CPO
University of Michigan

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, Dept of Orthopedics

2:00-2:25 pm  Targeted Muscle Reinnervation for Prosthetic Control and the Treatment of Amputee Pain and Phantoms  
Greg Dumanian, MD
Northwestern Feinberg School of Medicine

2:25-2:50 pm  Amputation Surgery for Improved Patient Outcomes  
Matt 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, University of Michigan

5:10-6:00 pm  Michigan Stadium Tour

6:00-8:00 pm  UMOPC Residency Program 25th Anniversary Celebration and Welcome Party
**2019 Orthotic and Prosthetic Innovative Technologies Conference**

**Friday, May 17, 2019**

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<tr>
<th>Time</th>
<th>Event</th>
<th>Speaker(s)</th>
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<tr>
<td>7:15-8:00 am</td>
<td>Registration / Exhibit Hall and Continental Breakfast</td>
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<tr>
<td>8:00-8:10 am</td>
<td>Session Opening Remarks</td>
<td>Elliot J. Rouse, PhD University of Michigan</td>
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<tr>
<td>8:10-8:35 am</td>
<td><strong>Technology Innovations in Orthotic Exoskeletons</strong></td>
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<td>Robotic Exoskeletons for Assisting Human Locomotion</td>
<td>Dan Ferris, PhD University of Florida</td>
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<td>8:35-9:00 am</td>
<td>Human-in-the-loop Optimization of Exoskeleton Assistance</td>
<td>Steve Collins, PhD Stanford University</td>
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<td>9:00-9:25 am</td>
<td>Can Passive Elastic Exoskeletons Improve Walking Economy in Aging?</td>
<td>Greg Sawicki, PhD Georgia Institute of Technology</td>
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<td>9:25-9:50 am</td>
<td>Exoskeletal Assisted Walking : a Platform for Rehabilitation after Spinal Cord Injury</td>
<td>Ashraf Gorgey, PhD Richmond VA Medical Center</td>
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<td>9:50–10:20 am</td>
<td>Exhibit Hall / Break</td>
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<td>10:20-10:45 am</td>
<td><strong>Technology Innovations in Prosthetics</strong></td>
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<td>An Open Source Robotic Leg as a Standard for Control Strategy Comparison</td>
<td>Elliott J. Rouse, PhD University of Michigan</td>
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<td>10:45-11:10 am</td>
<td>Model-Based Design of Lower Limb Prostheses: Including the Human User</td>
<td>Brian R. Umberger, Ph.D. University of Michigan</td>
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<td>11:10-11:35 am</td>
<td>Perspectives on Foot-Ankle Biomechanics and the Semi-Active Prostheses that Love Them</td>
<td>Peter Adamczyk, PhD University of Wisconsin-Madison</td>
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<td>11:35-12:00 pm</td>
<td>Prosthetic Ankle-Feet System for Improvement of Footwear Options for Persons with Lower-Limb</td>
<td>Andrew Hansen, PhD University of Minnesota</td>
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<td>Amputations</td>
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<td>12:00-1:00 pm</td>
<td>Exhibit Hall / Lunch</td>
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1:00-1:25 pm  **3D-Printing of Custom Orthotics and Prosthetics – at the University of Michigan**  Albert Shih, PhD and Darren Bolger, 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 Dillingham, MD  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**

C L I N I C A L P R A C T I C E I N N O V A T I O N I N O&P

3:10-3:35 pm  **Transfemoral Percutaneous Osseointegration OPRA Implant System: Prosthetic and Rehab Considerations**  Matt Garibaldi, MS, CPO  University of California, San Francisco

3:35-4:00 pm  **Innovation and Value Based Care: What is viable?”**  Jason Wilken, PT, PhD  The University of Iowa

4:00-4:25 pm  **Wearable Technologies to Enhance O&P Outcome Measurement**  Arun Jayaraman, PT, PhD  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**  Jeff Wensman  University of Michigan
Saturday, May 18, 2019

7:15-8:00 am  
Exhibit Hall / Continental Breakfast
8:00-8:10 am  
Session Opening Remarks

University of Michigan

ASSESSING OUTCOMES IN O&P

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<th>Time</th>
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| 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, CPO, PhD  
University of Illinois at Chicago |
| 9:00-9:25 am | Patient Preference in Lower Limb Prosthesis Prescription | Max Shepherd, PhD student  
Northwestern University |
| 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

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<th>Time</th>
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| 10:20-12:00 pm | The Impact of Innovation- A Panel Presentation on the Amputee’s Perspective: | Moderators:  
Carla Vollmer, BS /  
Nora Rosenblum, LMSW  
Michigan Medicine  
Panelists:  
Susannah Engdahl, MS  
University of Michigan  
Nicole Ver Kuilen, BBA  
Forrest Stump  
Wendy Ramirez, Certified Peer Visitor and Patient Advisory Board  
Brenda Barker, Certified Peer Visitor  
Michigan Medicine |

12:00-12:15 pm  
Closing Remarks  
Jeff Wensman, University of Michigan
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.