

## MIE SEMINAR

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### Powered Exoskeletons for Robot-Assisted Gait Training of Neurological Populations

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Date: Thursday, March 3, 2016

Time: 2:00 to 3:00 pm

Location: MEC 221

#### ABSTRACT

With nearly 800,000 cases reported every year in the US alone, stroke represents a major health problem. Stroke survivors often show limited walking capacity and require intense physiotherapy and repetitive training for recovery. Robotic exoskeletons have the potential to automate such repetitive training. However, this technology has not yet proven to have a clear advantage over traditional forms of physiotherapy. The lack of clear results challenges the robotics community to develop novel design solutions and control strategies that better support motor re-learning.

This talk describes recent work carried out at the Robotics and Rehabilitation (ROAR) Laboratory on the design and control of ALEX II and III, two powered exoskeletons for robot-assisted gait training of neurologically impaired individuals. Results on locomotor adaptation of healthy subjects bring novel insights into gait training of hemiparetic stroke patients and provide relevant information to designers of new powered exoskeletons.

**Bio:** Dr. Damiano Zanotto received the Ph.D. degree in Industrial Engineering (curriculum in mechatronics) in 2011 from the University of Padua, in Padua, Italy. Between 2011 and 2013, he was a Postdoctoral Researcher with the Mechanical Systems Laboratory, University of Delaware, Newark, DE. Since 2013 he has been working with the ROAR Laboratory (Columbia University, New York, NY) as an Associate Research Scientist. His research interests include assistive and rehabilitation robotics, wearable technology, and cable-driven robotic devices.

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