

**“Technology to Restore Function After Neurological Injury: A Bench to Bedside Perspective”**

**Dr. Jose Zariffa**  
**Toronto Rehabilitation Institute**

**Monday, March 26th, 2012**  
**LECTURE: 9:00 AM - 10:00 AM**

**ENGINEERING CENTER**  
**ROOM EC 2300**  
**10555 WEST FLAGLER STREET**  
**MIAMI, FL 33174**



**Abstract:** Neurological injuries such as spinal cord injury and stroke can drastically limit an individual's ability to independently perform activities of daily living, to participate in society, and to enjoy a high quality of life. The economic impact of these conditions on the affected individuals, their families and the health care system is considerable. In order to develop technology that can help restore impaired function, we must be able to create artificial systems that effectively interact with the human nervous system, both in the form of long-term implantable systems and non-invasive rehabilitation devices. In this talk, I will present two examples of neurorehabilitation technology. First, I will describe a novel approach for extracting information from the electrical signals produced by peripheral nerves, which is a crucial step in the development of closed-loop implantable neuroprosthetic systems. To take advantage of increasingly sophisticated “nerve cuff” electrodes with multiple recording contacts, we have approached the task of identifying the active pathways in a nerve as an inverse problem of bioelectric source localization. In the second part of the talk, I will emphasize clinical aspects of neurorehabilitation and report the results of a multi-centre pilot study on the use of an upper-limb robotic rehabilitation device in the early stages after spinal cord injury.

**Biography**

**About the speaker:** José Zariffa received his Ph.D. degree in 2009 and his M.A.Sc. degree in 2004, both from the University of Toronto's collaborative program between the Department of Electrical and Computer Engineering and the Institute of Biomaterials and Biomedical Engineering. Prior to that, he received his B.Eng. degree in computer engineering from McGill University in 2002. From 2009 to 2011 he was a post-doctoral fellow at the International Collaboration On Repair Discoveries (ICORD) and the University of British Columbia's Department of Computer Science in Vancouver, Canada. Currently, Dr. Zariffa is a post-doctoral fellow at the Toronto Rehabilitation Institute. His research interests are in neural prostheses, interfaces with the peripheral nervous system, and upper limb neurorehabilitation.

**Contact:** [claudia.estrada1@fiu.edu](mailto:claudia.estrada1@fiu.edu); 305-348-6717

**Map:** <http://campusmaps.fiu.edu/> (Other campuses/ - Engineering Center)