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“Neuromorphic Design and Bionic Interfaces: Restoring Lost Neural Function”

BY Ranu Jung, PhD

Professor and Chair

Biomedical Engineering, Florida International University

ABSTRACT

Real-time communication between a nervous system and a device is now possible, but full and reliable integration in biohybrid systems to restore function lost to trauma is still far from reality. By focal activation of peripheral nerves and adaptive neuromorphic control, bionic interfaces offer targeted restoration of function lost to neurotrauma. This talk will discuss our work in advancing bionic interfaces to enhance ventilatory control after spinal cord injury and restoration of sensation to upper-limb amputees with a neural-enabled prosthetic hand system.

BIOGRAPHY

Ranu Jung holds the Wallace H Coulter Eminent Scholar endowed Chair in Biomedical Engineering at Florida International University where she is Professor and Head of the Department of Biomedical Engineering since 2011. She served as Interim Dean of the College of Engineering and Computing from 2015 to 2017. Previously she was a member of the faculty at Arizona State University and University of Kentucky. Jung is at the cutting edge between engineering and neuroscience, developing devices that lead to scientific advances with clear pathways to clinical application. Of special interest to her are biohybrid systems that merge biologically inspired technologies with humans for recovery and restoration of lost function. A champion for innovation and entrepreneurship her team developed the first wireless, implantable, neural-interface system for restoring sensations to amputees and received FDA approval to conduct a first-in-human trial. Her honors include the FIU 2016 Outstanding Faculty Torch Award, 2012 Top Scholar award, 2011 New Florida Scholar's Boost Award, 2002 Kentucky Science and Engineering Award, Whitaker Foundation Young Investigator Award, NIH National Research Service Award, AHA NE Ohio Research Fellow and appointment as commissioner, Arizona Biomedical Research Commission. Holder of 8 U.S. patents, 4 pending, founder of one R&D Company, past-President of the “Organization for Computational Neurosciences, Inc”, her publications include an edited book - Biohybrid-systems:Nerves, Interfaces and Machines, and over 130 research articles and book chapters. She serves as Co-Editor-in-Chief of the Springer Encyclopedia of Computational Neuroscience, Associate Editor of Annals of Biomedical Engineering and on the Editorial board of Bioelectronics in Medicine. Jung is a Fellow of the American Institute for Medical and Biological Engineering, Fellow of the National Academy of Inventors, Senior Member of IEEE and Society of Women Engineers, and elected to the International Women's Forum. She received her Doctoral degree and Masters in Biomedical Engineering from Case Western Reserve University, USA and her Bachelors with Distinction in Electronics & Communication Engineering from National Institute of Technology, Warangal, India.



EVENT DETAILS

DATE:

April 20th, 2018

TIME:

2:00 P.M.

LOCATION:

McLean 510
Stevens Institute of Technology

ATTENDANCE:

BME and CCB Graduate Students,
Post Docs, and Faculty

CONTACT:

For follow-up information to connect with speaker, contact
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