UNIVERSITY OF CENTRAL FLORIDA | ORLANDO

College of Engineering and Computer Science

FACULTY RESEARCH TALKS

LISTEN. LEARN. COLLABORATE.

Zoom talk | Friday, Oct. 9, 2020 | Noon to 1 p.m.

PRESENTER 1:
SVETLANA SHTROM
Director of Technology Transfer, UCF Office of Research and Graduate Studies

Off the Lab Bench and Into the Marketplace: Technology Commercialization at UCF

The Office of Technology Transfer is responsible for managing the university's intellectual property assets and for bringing the discoveries to the marketplace through intellectual property protection, marketing and licensing processes. Its team of professionals meets with the inventors/creators to review the discovery or work, gain additional insight and uncover potential applications. Based on the disclosed information and internal research, a customized intellectual property protection plan and commercialization strategy is designed for each qualified technology. The office partners with inventors/creators to ensure that they obtain broad protection and generate valuable intellectual property.

Dr. Shtrom has extensive experience in business development and technology management, as well as broad expertise in collaborative partnership structuring, strategic planning, market assessment, technology evaluation and intellectual property management. Her business development experience includes leadership roles in academia, government and industry. Dr. Shtrom holds an MBA from UCF. She was a postdoctoral fellow at the National Institutes of Health and received a Ph.D. in cell biology from the University of California at San Francisco and a B.S. in molecular genetics from the Ohio State University. She serves on the Board of Directors for BioFlorida.

PRESENTER 2:
YUXIAO YANG
Assistant Professor, Electrical and Computer Engineering, Disability, Aging and Technology Cluster

Next-Generation Brain-Machine Interfaces (BMIs) for Control of Brain States

Many health care applications, such as the treatment of neuropsychiatric disorders, require controlling the patient's brain state using external stimuli such as electrical brain stimulation. In this talk, Dr. Yang will present the design of a new type of closed-loop BMI that controls the brain state by guiding the delivery of stimuli to the brain with the feedback of neural activity. He will focus on two clinical neuroscience applications: treatment of major depression and anesthetic delivery.

Dr. Yang's research interests include neural engineering, stochastic signal processing, control theory and machine learning. His research has centered on designing closed-loop BMIs for neural decoding and control, aiming to provide new therapies for neurological and neuropsychiatric disorders. He received his Ph.D. and M.S. degrees from the University of Southern California (USC) in 2018 and 2019, both in electrical engineering. Before joining UCF in fall 2020, he was a postdoc at USC. Dr. Yang has published in the most prestigious neural engineering journals, including *Nature Biotechnology* and *Nature Biomedical Engineering*. He received the Brain-Computer Interface Award in 2019.

ZOOM LINK: https://bit.ly/35unuVe | QUESTIONS? Email Jennifer.Sutton@ucf.edu

For more information, and to see previous talks, visit www.cecs.ucf.edu/faculty-research-talks

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PRESENTER 3:
DINGBAO WANG
Associate Professor, Civil, Environmental and Construction Engineering

Unified and Integrated Hydrologic Modeling for Sustainable Water Resources Management

In this presentation, Dr. Wang will introduce the recent and on-going research conducted in his lab. A unified hydrologic model structure has been developed for modeling water balance at different time scales and investigating the climatic and landscape controls on precipitation partitioning. Integrated surface water and groundwater models are developed for addressing the issues of, but not limited to, floods, droughts, food-energy-water system, land use change and groundwater pumping impacts on water resources.

Dr. Wang's major research interests are in hydrology and water resources. His work is focused on understanding the roles of climate, topography, soil, vegetation, bedrock and human activities on hydrologic fluxes at various spatial scales from daily to long-term scales. He received his Ph.D. and M.S. from the University of Illinois at Urbana-Champaign in 2009 and 2005 respectively, both in civil engineering. Before joining UCF in 2010, he was a postdoctoral research associate at the University of Illinois.

PRESENTER 4:
SHAOJIE ZHANG
Professor, Computer Science

Efficient Algorithms and Computational Methods for Biological Data Analysis

This talk will highlight the efficient algorithms and computational tools for biological data analysis recently developed in Dr. Zhang's research group. Examples include computational methods for RNA 3-D structure analysis, efficient algorithms for identify-by-descent segment identification for genealogical search and biobank-scale data analysis, and RNA design for CRISPR-based DNA imaging in live cells.

Dr. Zhang received his Ph.D. in computer science from the University of California, San Diego. His research predominantly focuses on algorithms related to bioinformatics and computational biology; in particular, on computational methods for non-coding RNA discovery, genomics and genetics data analysis and high-throughput sequencing data analysis. Dr. Zhang also works on algorithms related to hardware gate-level netlist analysis. His research is currently funded by the National Institutes of Health and National Science Foundation.

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