Utilizing Machine Learning to Predict Endothelial Biomechanics

In this talk, Dr. Steward will discuss his latest research efforts in the cardiovascular field, which are focused on utilizing machine learning to predict cellular biomechanics. He will specifically present on different machine learning models utilized in his lab to model how pharmacological interventions influence endothelial biomechanical forces. Such forces that will be discussed are cell-substrate forces and cell-cell adhesion forces, for example.

Dr. Steward’s research is focused specifically on elucidating the underlying role mechanics plays in cell physiology and pathology. He has active projects in the cardiovascular field, diabetes, neurosciences and gut epithelium. Dr. Steward received his Ph.D. from Carnegie Mellon University and completed a postdoc at the T.H. Chan Harvard School of Public Health. His research is supported by the National Institutes of Health and National Science Foundation.

Data Science for Smart and Resilient Cities

Rising seas, natural hazards and other stressors have adversely affected regional economies and millions of people all over the world. In this talk, Dr. Hasan will discuss his group’s efforts to understand infrastructure and community resilience by developing data-driven approaches. He will present several NSF-funded and other projects focusing on hurricane evacuation, including traffic prediction, evacuation crash analysis and infrastructure disruptions. He will also share the results of an FDOT-funded project of developing a data-driven traffic forecasting tool for nearly 200 intersections in Seminole County.

Prior to joining UCF, Dr. Hasan worked as a post-doctoral research fellow at Commonwealth Scientific and Industrial Research Organization. He received a Ph.D. from Purdue University. Dr. Hasan received the 2014 Best Dissertation Award presented by the Transportation Science and Logistics Society of the Institute for Operations Research and the Management Sciences. His research interests include urban data science, human mobility, network modeling, infrastructure interdependencies and disaster management. Dr. Hasan’s research has received funding from the Florida Department of Transportation, National Science Foundation, Northeast Florida Regional Planning Council, SAFER-SIM University Transportation Center and Southeastern Transportation Center.

Utilizing Machine Learning to Predict Endothelial Biomechanics

In this talk, Dr. Steward will discuss his latest research efforts in the cardiovascular field, which are focused on utilizing machine learning to predict cellular biomechanics. He will specifically present on different machine learning models utilized in his lab to model how pharmacological interventions influence endothelial biomechanical forces. Such forces that will be discussed are cell-substrate forces and cell-cell adhesion forces, for example.

Dr. Steward’s research is focused specifically on elucidating the underlying role mechanics plays in cell physiology and pathology. He has active projects in the cardiovascular field, diabetes, neurosciences and gut epithelium. Dr. Steward received his Ph.D. from Carnegie Mellon University and completed a postdoc at the T.H. Chan Harvard School of Public Health. His research is supported by the National Institutes of Health and National Science Foundation.

PRESENTER 1: YANJIE FU
Assistant Professor, Computer Science

PRESENTER 2: SAMIUL HASAN
Assistant Professor, Civil, Environmental and Construction Engineering

PRESENTER 3: ROBERT STEWARD JR.
Assistant Professor, Mechanical and Aerospace Engineering