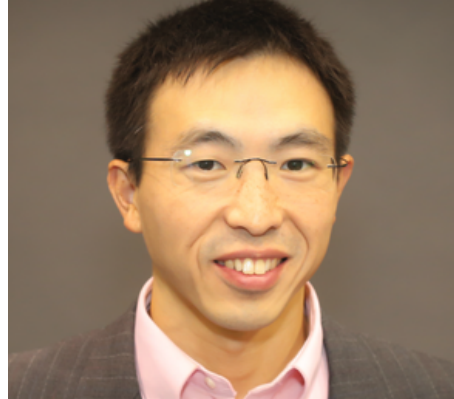


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SPCEET RESEARCH SEMINAR SERIES

A SYSTEMS ENGINEERING APPROACH TO DIGITAL TWIN MODELS FOR BIOLOGICAL SYSTEMS

DATE: WEDNESDAY, OCTOBER 29TH
TIME: 11:15 AM - 12:15 AM
LOCATION: Q 108

BIO

Dr. Lizhi Wang is a professor in the Department of Bioengineering and the Department of Systems Engineering and Operations Research at George Mason University. Dr. Wang received the Teaching Excellence Award in the Operations Research Division at IISE. His research interest is to solve real world problems using mathematical modeling and computational optimization. His recent research focus is to develop physiology-based and data-driven models for plants, animals, and human body.

ABSTRACT

Most commonly used models for biological systems are either process-based or data-driven. As an attempt to overcome the challenges of these two types of models and combine their strengths, we have developed a variety of digital twin models using systems engineering principles. Such a model can be considered as a special neural network with a delicately designed architecture, where every neuron represents part of a physiological process and every parameter has a biological meaning. A few examples for plants and animals will be introduced to demonstrate the potential of these models. A plan to develop similar models for human body will also be discussed.