STEM BYTES SEMINARS

Summer 2021 | 12:00 - 1:00 pm PDT | Zoom | Open to the USC community

Monday, June 14

Victor Ardulov

Human Interaction through a Dynamical System Lens

Abstract: In high stakes interactions, there is a desire to measure, and regulate the interactions as effectively as possible. In this talk we'll take a look at how modern data driven modeling combined with well-established dynamical systems theory can help make people better in these interactions.

Bio: Having originally studied Robotics and Computer Engineering at UC Santa Cruz, Victor became interested in psychology and human behavior after recognizing that similar modeling questions arise when attempting to predict how people act. Victor's research focuses on helping psychologists diagnose and apply interventions in cooperative settings by applying established frameworks for signal processing, pattern recognition, and control systems. Prior to becoming a PhD student at USC, Victor worked as a research assistant at HRL Laboratories working on dynamical systems modelling and at NASA's JPL working on novel Virtual Reality tools for science and mission planning.

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Monday, June 28

Agnimitra Dasgupta

A hybrid probabilistic approach to characterizing material heterogeneity

Abstract: Characterizing material heterogeneity from noisy response measurements constitutes an inverse problem that has many applications, ranging from medical imaging to structural health monitoring, but remains computationally challenging. In this talk, we will explore a hybrid probabilistic approach to the inverse problem that has shown promise in reducing the computational costs.

Bio: Agnimitra is a Provost Fellow at USC working towards his PhD in Civil Engineering. He also holds an MS in Electrical Engineering from USC, and previously completed his ME in Civil Engineering from the Indian Institute of Science. The goal of his current research is to develop computationally efficient solutions to inverse problems arising in mechanics. Broadly, his research interests include uncertainty quantification in inverse problems, computational statistics and scientific machine learning.

Serveh Kamrava

Simulating fluid flow in complex porous materials using deep learning

Abstract: Fluid flow in complex materials is directly affected by their morphology. However, relating the morphology to fluid flow in a way that enables one to estimate flow properties based on morphology has remained a challenging problem. On the other hand, machine learning (ML) has proven to be an efficient method for extracting complex patterns and therefore we have used ML for predicting fluid flow in fine-scale porous media.

Bio: Serveh Kamrava has completed her Ph.D. in Chemical engineering at University of Southern California where her research was focused on Complex Porous Materials Modeling using Machine Learning. She was also the recipient of the 2021 MFD Best Research Assistant Award. She is also a member of Society of Women Engineers (SWE), American Institute of Chemical Engineers (AIChE) and American Physical Society (APS). Her research has been published in journals such as Neural Networks, Journal of Membrane Science, Physical Review E (and Rapid Communication), Advances in Water Resources and Transport in Porous Media. Outside academic work, Serveh enjoys skiing and hiking.

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Monday, July 19

Nicole Stuhr

Behavior of C. elegans on lifespan-promoting bacteria

Abstract: C. elegans respond to changes in food availability and environmental conditions through coordinated behavioral, physiological and metabolic responses controlled by signaling olfactory sensory neurons. While examining the diet-dependent phenotypes of C. elegans on bacteria found in C. elegans' natural and laboratory environments, we noticed that despite the Red bacteria providing a longer lifespan, the worms are found less often on this food source when another food is present. In light of these behaviors and changes in physiology, it will be beneficial to investigate if particular neuropathways are responsible for alterations in fat content and lifespan due to differential dietary exposure.

Bio: Nicole Stuhr is a fourth year Molecular Biology PhD student studying how diet influences physiology and gene expression in the Curran Lab. Nicole is interested in extending healthspan and lifespan in C. elegans and wants to elucidate how to use diet as a nutraceutical.

Danielle E. White

Talk: To be announced

Abstract: To be announced

Bio: Danielle E. White is a second year PhD student in Materials Science. Her research entails nano-scaled composite materials design, housed in the Hodge Materials Nanotechnology Research Group. She has earned her B.S. in Mechanical Engineering from North Carolina Agricultural and Technical State University in 2019. General interests include space exploration, fine art, volunteering, and travel in addition to fulfilling challenging leadership roles. Danielle currently looks forward to in-person conference experiences and a balanced summer of research and LA exploration.

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