UCF

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

FACULTY RESEARCH TALKS

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Zoom talk | Friday, April 14, 2023 | Noon to 1 p.m.

PRESENTER 1:
SHAURYA AGARWAL
Assistant Professor
Civil, Environmental and Construction Engineering

Synergizing Data-Driven and Model-Driven Approaches for Complex Socio-Cyber-Physical Systems

Physics-driven and data-driven are the two main paradigms for modeling complex socio-cyber-physical systems, which have their own challenges and shortcomings. This talk will highlight the different approaches to bridge this gap, including Koopman operator formalism and mean-field games. Potential application areas include urban transportation systems and public health infrastructure dealing with infectious disease containment and vaccination. Dr. Agarwal will also discuss recent results and projects from his research group.

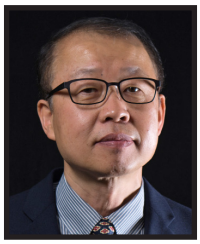
Passionate about cross-disciplinary research, Dr. Agarwal integrates data-driven techniques, mathematical modeling, control theory and information science with applications focusing on interdisciplinary areas of cyber-physical systems, intelligent and connected transportation, and smart health. He received his Ph.D. in electrical engineering from the University of Nevada, Las Vegas. Dr. Agarwal has been at UCF since 2018 and is a core member of Future City Initiative at UCF.

PRESENTER 2:
YASER P. FALLAH
Associate Professor
Electrical and Computer Engineering

Cooperative AI for Connected and Automated Vehicles

Autonomous vehicle technologies have been progressing at a fast pace during the last decade. However, their safe and large-scale deployment remains a challenge due to technical difficulties in perception and decision-making tasks. Recent advancements in wireless communications allow augmenting both perception and decision-making components. Introducing cooperative AI techniques, Dr. Fallah will discuss how machine learning methods for the sharing and processing of information from cooperating vehicles can improve the operation of connected vehicles today and automated vehicles in the future.

Dr. Fallah's recent research has been mainly focused on cooperative AI in automated driving and safety systems. His research interests include stochastic modeling and machine learning, wireless communication, perception/sensing, and decision-making topics as they apply to cyber-physical networked systems such as autonomous vehicles and smart energy systems. Dr. Fallah received the NSF CAREER award in 2015. He received his Ph.D. from the University of British Columbia and was a research scientist at the University of California, Berkeley.



PRESENTER 3:
HYOUNG JIN "JOE" CHO
Professor
Mechanical and Aerospace Engineering

Enhancing Student Success in Engineering Curriculum Through Active e-Learning and High-Impact Teaching Practices (ESSEnCe)

Dr. Cho will present a new NSF-supported project for Hispanic-Serving Institutions (HSI). As a federally-designated HSI, UCF is one of the leading transfer institutions in the nation. Based on admission-articulated agreements with six community colleges in the Central Florida region, transfer students are guaranteed access to bachelor's degree programs at UCF. This transfer pathway has been used as an attractive conduit for many Hispanic/Latino students. However, the retention rates of transfer students are significantly lower than those of first-time-in-college students. Keenly recognizing this achievement gap, the project focuses on improving transfer students' initial experiences in engineering foundation courses from two large enrollment majors: mechanical engineering and aerospace engineering.

Dr. Cho's research interests are in miniaturized sensors and sample handling devices. He has published more than 120 peer-reviewed journal and proceeding papers and has 12 and six patents granted in the U.S. and Korea, respectively. He earned his Ph.D. in electrical engineering from the University of Cincinnati, and his M.S. and B.S. in materials engineering from Seoul National University. He worked as research engineer at Korea Electronics Technology Institute before coming to UCF and received the NSF CAREER award in 2004.

ZOOM LINK: https://bit.ly/3ILqC1I | PREVIOUS TALKS: www.cecs.ucf.edu/faculty-research-talks