College of Engineering and Computer Science
FACULTY RESEARCH TALKS
LISTEN. LEARN. COLLABORATE.

Zoom talk | Friday, Jan. 29, 2021 | Noon to 1 p.m.

PRESENTER 1:
STEPHEN FIORE
Professor,
Cognitive Sciences,
Dept. of Philosophy
and Institute for
Simulation and
Training

Practicing What You Preach and the Path to Interdisciplinary Impact

In this talk, Dr. Fiore will discuss a series of interdisciplinary research initiatives in human-human and human-machine collaborative cognition that have contributed to the scientific ecosystem in complementary ways. He will cover links between his empirical work, theoretical synthesis research and contributions to agency reports guiding science policy, with a focus on the relationship between science and societal problems. The goal is to illustrate how academics can broaden their impact by collaborating with multiple stakeholders to improve our understanding of, and solutions for, complex problems.

Dr. Fiore is president-elect for the International Network for the Science of Team Science. He became a member of DARPA's Information Science and Technology Study Group in 2018. His primary area of research is the interdisciplinary study of complex collaborative cognition and how humans interact socially and with technology. While at UCF, he helped secure and manage approximately $25 million in funding for the study of collaborative problem solving, human-machine teaming and the use of technology to augment cognition and learning. Dr. Fiore is co-author of "Accelerating Expertise" and is a co-editor of volumes on shared cognition, macrocognition in teams, distributed training and team cognition. He has co-authored more than 200 scholarly publications in the area of learning, memory and problem solving on individuals and groups.

PRESENTER 2:
JIANNAN "NICK" CHEN
Assistant Professor,
Civil, Environmental
and Construction
Engineering

Containment and Sensing Technologies in Solid and Hazardous Waste Management

Improperly managed solid and hazardous waste poses a severe threat to human health and the environment. The most challenging problem for the waste management industry is how to effectively manage the leakage from the management facilities. In this talk, Dr. Chen will share advanced technology that uses polymer-based geosynthetics and in-situ/remote sensing technologies to prevent secondary contamination and potential geohazards of the waste management system.

Dr. Chen's research interests include fate and transport of emerging contaminants in the waste containment system, vadose zone geochemical modeling, polymer-based geosynthetics for sustainable design and machine learning in engineering design. He has published 51 articles in peer-reviewed journals and conferences. He received a Ph.D. in civil and environmental engineering at the University of Wisconsin in 2015. Before joining UCF in 2020, he was a research associate in the Department of System Engineering and the Environment at the University of Virginia.

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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Designing Social Agents for Automated Negotiation

Artificial agents are increasingly interacting with humans on a daily basis. Whether they are personal assistants on our phones, customer service agents or e-commerce bidding bots, these agents are becoming ubiquitous. Many of these tasks can be modeled as bilateral negotiations, and the agents that engage in them require advanced social intelligence. This talk explores an incremental roadmap to socially-aware agents, shows empirical results of human studies on human-agent interaction and explores the horizons of this burgeoning research community.

PRESENTER 3:
JOHNATHAN MELL
Assistant Professor,
Computer Science

Dr. Mell holds degrees in business and computer engineering from the University of Pennsylvania and the Wharton School, and received his Ph.D. at the University of Southern California. His research focuses on the impact of social features of repeated negotiations with a computer partner. Dr. Mell's work covers favor exchange, cross-cultural features and temporal effects in an effort to make automated negotiators and emotive and realistic virtual characters. He is also interested in efficient designs for systems that are used by a non-AI "man behind the curtain" called "Wizard of Oz" systems. His IAGO platform serves as a framework for creating virtual agents that negotiate with humans. Dr. Mell is published at AAMAS, IJCAI, AAAI, IVA, and ACII, and his IAGO platform was a finalist for Best Demonstration at AAMAS 2016.

From Bits to Bricks: Bridging Building Energy Modeling and Simulation and Human-Centered Activity

In this talk, Dr. Kider will cover several research projects that bridge building energy modeling and human activity. He will introduce his NSF-funded study that investigates how augmented reality and building information modeling technologies can be integrated to increase human performance by improving the retraining of construction workers for retrofitting and repurposing buildings. He will also show how a first-principle. physics-based approach to energy and light simulation produces more informed design choices to architects and engineers, and show how this process is being formalized to conduct basic research in buildings and cities.

PRESENTER 4:
JOSEPH KIDER
Assistant Professor,
Institute for Simulation
and Training

Dr. Kider is the director of the SENSEable Design Lab, a transdisciplinary lab researching responsive sustainable architecture. He received his Ph.D. from the University of Pennsylvania and was a postdoctoral fellow at Cornell University. His research areas are changing current architectural and urban planning practices by developing, validating and testing simulation methods utilizing complex illumination, material appearance, physically-based simulation and spectral rendering to improve design solutions for building energy use and human-building interaction.