UCF

FACULTY RESEARCH TALKS
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Zoom talk | Friday, April 8, 2022 | Noon to 1 p.m.

PRESENTER 1:
CHARLIE HUGHES
Professor,
Computer Science

Virtual Learning Environments

Virtual Learning Environments (VLEs) refer to the employment of extended reality (VR, AR an MR) in contexts that are intended to improve the performance of participants in some area of work, education or job training, especially when these involve human-to-human interactions. This talk will discuss VLE research in support of the education of youth who have autism, and the efforts of people who interact with those on the spectrum (coaches, teachers and police officers).

Dr. Hughes is co-lead of the Learning Sciences Cluster and Center for Research in Education Simulation Technology, and interim director of the modeling and simulation graduate programs. His research centers on environments for teacher preparation, and STEM and cyber-education for children with autism. He received his Ph.D. and M.S. from Penn State. In 2021, as PI, Dr. Hughes received an NSF SaTC-EDU EAGER award. As co-PI he received an NSF CCRI, an NSF BPC-AE, an extension to an NSF IUSE, and three U.S. Department of Education awards.

PRESENTER 2:
GEORGE ATIA
Associate Professor,
Electrical and
Computer Engineering

Scalable and Robust Approaches to Learning, Acquisition and Decision-Making

Future applications of national importance, such as healthcare, critical infrastructure, transportation systems and smart cities, are expected to increasingly rely on machine-learning methods, including structured learning, supervised learning and reinforcement learning. In this talk, Dr. Atia will discuss his research efforts on understanding the fundamental limits of learning, data acquisition and decision-making, as well as the design of scalable, robust and provable learning algorithms, and verifiable decision policies in dynamic environments. This work is motivated by numerous challenges in this domain, including large data volume and dimensionality, distributional uncertainties, data corruption, incomplete data, non-linearities, complex data structures and structural constraints.

Dr. Atia directs the Data Science and Machine Learning Lab (DSML). His research focuses on robust and scalable machine learning, statistical inference, verifiable and explainable AI, and sequential decision methods. In 2019-2020, he was a Visiting Faculty at the Air Force Research Laboratory. Dr. Atia serves as an associate editor for the *IEEE Transactions on Signal Processing* and is the recipient of many awards, including UCF Reach for the Stars, CECS Research Excellence, the inaugural UCF Luminary and the NSF CAREER Award. His research has been funded by NSF, ONR, DARPA and DOE.

PRESENTER 3:
SHIBU YOOSEPH
Professor,
Computer Science

Studying Microbial Associations Using Microbiome Sequence Data

Microbial associations play an important role in defining the structure and function of a microbial community. Dr. Yooseph will present algorithms to infer microbial associations from microbiome sequence data, and show how their application to real microbiome datasets can provide insights into microbial ecology.

Dr. Yooseph is the lead for the Genomics and Bioinformatics Cluster. His main research area is computational biology and bioinformatics, with a focus on the design and development of efficient algorithms for large-scale biological data analysis. His research has been interdisciplinary, involving collaborations and applications in the fields of computing, microbiology, environmental science and biomedical science. His current research is focused on the development of novel computational approaches to elucidate mechanisms of microbial interactions with their environment and host, in the context of human diseases.