



UCF

FACULTY RESEARCH TALKS

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Zoom talk | Friday, Feb. 24, 2023 | Noon to 1 p.m.



PRESENTER 1:

**OZLEM OZMEN
GARIBAY**

Assistant Professor,
Industrial
Engineering and
Management Systems

Six Human-Centered Artificial Intelligence Grand Challenges and Artificial Intelligence-Assisted Drug Target Interaction

In this presentation, Dr. Ozmen will discuss her research on applied artificial intelligence with a focus on two areas: drug and material design, and social systems. She will present six grand challenges of human-centered AI. In addition, she will briefly discuss their study in modeling influence pathways and the study to develop a machine-learning modeling approach to assist in the discovery of nanomaterials and drug candidates.

Dr. Ozmen directs the Human-Centered Artificial Intelligence Research Lab (Human-CAIR Lab). Prior to that, she served as UCF's Director of Research Technology. Her areas of research are big data, social media analysis, social cybersecurity, artificial social intelligence, human-machine teams, social and economic networks, network science, STEM education analytics, higher education economic impact and engagement, artificial intelligence, evolutionary computation and complex systems.



PRESENTER 2:

HAO ZHENG

Assistant Professor,
Electrical and
Computer
Engineering

Efficient Computer Architectures for AI/ML Computing

Machine learning (ML) applications are pervasive nowadays. Despite their wide popularity, the continued explosion of ML models and complexity are posing many stringent computation, memory and communication requirements on the underlying hardware. In this talk, Dr. Zheng will introduce his research efforts to improve performance and energy efficiency for deep neural network inference and training.

Dr. Zheng's research interests are in the areas of computer architecture and parallel computing, with emphasis on network-on-chip and machine learning for efficient computing. Dr. Zheng received his Ph.D. in computer engineering from George Washington University in 2021. His research has been published in leading computer architecture and electronic design automation venues, such as the IEEE Symposium on High Performance Computer Architecture, Design Automation Conference, Design Automation and Test in Europe Conference, IEEE Transactions on Emerging Topics in Computing, and IEEE Transactions on Parallel and Distributed Systems.



PRESENTER 3:

**TAREK
ELGOHARY**

Assistant Professor,
Mechanical
and Aerospace
Engineering

A Cislunar Space Surveillance Network for Space Domain Awareness

In this talk, Dr. Elgoahary will introduce the astrodynamics, space and robotics laboratory at UCF MAE, highlighting the three main research thrusts of the lab. The talk will focus on astrodynamics research, where his team focuses on the scientific framework for a cislunar space surveillance network for space domain awareness (SDA) applications. Dr. Elgoahary will highlight three research areas: a novel measurement model for multi-agent observation, coverage optimization for the network that transcends the state-of-the-art, and rapid quantification of uncertainty to efficiently perform SDA operations.

Before coming to UCF, Dr. Elgoahary was a postdoctoral research associate at Texas A&M University in aerospace engineering. He received his B.S. in mechanical engineering from American University in Cairo and his M.S. and Ph.D. in aerospace engineering from Texas A&M University. He was a visiting scholar in the department of mechanical and aerospace engineering at the University of California, Irvine from 2014 to 2015. He received the Texas A&M aerospace graduate student fellowship in 2012 and the Heep Graduate Fellowship from the Hagler Institute for Advanced Study at Texas A&M in 2013. His research interests include developing analytical and computational techniques for nonlinear systems, and optimal control and two-point boundary value problems and uncertainty quantification in astrodynamics. His research has been funded by the FAA, NASA, Lockheed Martin and USSF.