



UCF

FACULTY RESEARCH TALKS

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Zoom talk | Friday, Feb. 10, 2023 | Noon to 1 p.m.



PRESENTER 1:

**SAMIK
BHATTACHARYA**

Assistant Professor,
Mechanical and
Aerospace Engineering

The Fluid Dynamics of Natural Flyers and Swimmers

In this talk, Dr. Bhattacharya will discuss his group's efforts to investigate problems in the fluid mechanics of natural flyers and swimmers across different length scales using advanced optical measurement systems. In particular, he will focus on problems involving morphing surfaces and avian aerodynamics. In this talk, he will discuss projects that mainly focus on bio-inspired swimming with morphing hydrofoils for autonomous underwater vehicles. He will also discuss two other projects involving avian aerodynamics.

Dr. Bhattacharya's research is focused on unsteady fluid mechanics, flow control and turbulence. He joined UCF in the spring of 2017. Before joining UCF, he was a postdoc at Queens University in Canada. Dr. Bhattacharya received his Ph.D. in aerospace engineering from Ohio State University in 2013. He leads the Experimental Fluid Mechanics Laboratory at UCF.



PRESENTER 2:

**CHINWENDU
ENYIOHA**

Assistant Professor,
Electrical and
Computer
Engineering

Limited-Communication Control of Cyber-Physical Systems (CPSs)

In this talk, Dr. Enyioha will discuss a synopsis of his group's efforts in developing distributed sensing and optimization algorithms capable of operating in communication-constrained environments. As advances in CPSs enable increased capability, scalability, resiliency and security to expand the horizons of critical infrastructure, his group's protocols make these CPS advances a reality without overburdening the existing communication infrastructure. The talk will present communication-efficient methods (via information compression with performance guarantees) they are developing to reduce the communication needs in spatially distributed large-scale systems and adversarial environments.

Dr. Enyioha's research focuses on distributed decision-making and limited-communication control of networked autonomous systems. He leads the Autonomous and Intelligent Systems Lab at UCF. Before coming to UCF, he was a postdoctoral fellow in electrical engineering at Harvard University and Tufts University, and a postdoctoral researcher in the GRASP Lab at the University of Pennsylvania. He received a B.Sc. in mathematics from Gardner-Webb University and a Ph.D. in electrical engineering from the University of Pennsylvania. Dr. Enyioha is a Fellow of the Ford Foundation and was named a William Fontaine Scholar at the University of Pennsylvania.



PRESENTER 3:

LORRAINE LEON

Assistant Professor,
Materials Science
and Engineering

Molecular Engineering of Biomimetic Condensates and Polyelectrolyte Complex Micelles

In this talk, Dr. Leon will discuss her group's efforts to develop biomimetic peptide-based materials for applications in medicine and catalysis. Her lab is focused on expanding the self-assembly toolbox to include multiple, synergistic molecular interactions using biomolecules, specifically peptides and peptide/polymer conjugates. This brief overview will discuss the molecular engineering of both bulk and nanoscale polyelectrolyte complexes and complex coacervates.

Dr. Leon joined UCF from a postdoctoral appointment at the Institute for Molecular Engineering at the University of Chicago and Argonne National Laboratory. She received her Ph.D. in chemical engineering from City University of New York and her B.S. in chemical engineering from the University of Florida. Dr. Leon is an experimentalist with research interests at the intersection of biomaterials and polymer science ranging from nanomedicine to catalysis. She was named an Emerging Investigator by the *Journal of Materials Chemistry B* in 2019, received an NSF CAREER award in 2021, and received a 3M Non-Tenured Faculty Award in 2022.