



UCF

2021
NSF CAREER
Awards

\$**3M**
to UCF
Researchers

2021

Meet Our

4

NSF CAREER Awardees
IN THE UCF COLLEGE OF ENGINEERING
AND COMPUTER SCIENCE



SAMIK BHATTACHARYA

Assistant Professor

Department of Mechanical and Aerospace Engineering

NSF CAREER AWARD

Hydrodynamics of Adaptive Lifting Surfaces in Unsteady Flows: An Integrated Experimental and Analytical Study

This work will explore the physics and mechanics employed by underwater swimmers to maintain control and perform dynamic maneuvers (such as hovering) in unsteady flow fields across all positions and orientations, such as in high sea conditions, propeller wake, during tides, and waves. The knowledge could be applied to next-generation autonomous underwater vehicles.

Bhattacharya's Award Summary: <https://bit.ly/3wqkLrU>



YANJIE FU

Assistant Professor

Department of Computer Science

NSF CAREER AWARD

Reinforced Imitative Graph Learning: Bridging the Gap between Perception and Prescription in Graph Sequences

New machine-learning techniques will be developed to equip complex systems, such as a power grid, with the perception intelligence to understand what happened and predict what will happen, and the prescription intelligence to understand how the system changes. The research can help computers better assess situations, forecast trends, detect anomalies, discover causality, simulate system behaviors; and prevent, mitigate, and eliminate threats to the system.

Fu's Award Summary: <https://bit.ly/3hmVmLk>



LORRAINE LEON

Assistant Professor

Department of Materials Science and Engineering

NSF CAREER AWARD

Designing a Synthetic Nucleolus for Cell Free Biocatalysis

New biomaterials will be developed incorporating enzymes – functional proteins that act as a catalyst for chemical reactions – to revolutionize chemical manufacturing, where the full power of enzymes has yet to be unleashed. This work could mean that fuels, pharmaceuticals, and fine chemicals are made in more efficient, selective, and ecofriendly ways compared to current industrial methods based on petroleum.

Leon's Award Summary: <https://bit.ly/3hNc7OP>



ROBERT STEWARD JR.

Assistant Professor

Department of Mechanical and Aerospace Engineering

NSF CAREER AWARD

Elucidation of the Physical Principles that Govern Endothelial Structure and Function

This work will explore the role that biomechanical forces and fluid forces play in the structure and function of endothelial cells, which line the inside of all blood and lymphatic vessels. Their ability to regulate structure and function is essential to proper organ function. Aberrant endothelial cell function has been linked to debilitating diseases such as cardiac fibrosis, thrombosis, and brain tumors. The results have the potential to advance endothelial biology, biomechanics, and drug delivery.

Steward's Award Summary: <https://bit.ly/2SUMNxV>



Read about all five NSF CAREER Awardees at UCF in 2021

<https://bit.ly/3zwVvT1>

