College of Engineering and Computer Science

FACULTY RESEARCH TALKS

Listen. Learn. Collaborate.

Zoom talk | Friday, Oct. 30, 2026 | Noon to 1 p.m.

Presenter 1:
SEONGMI SONG
ASSISTANT PROFESSOR

Mechanical and Aerospace Engineering

Neural Engineering for Human Mobility and Assistive Technologies

Human mobility relies on complex interactions between the nervous system and musculoskeletal system. Seongmi Song's research combines wearable sensing, electroencephalography, biomechanics and assistive technologies to study the neural mechanisms underlying gait and movement. This presentation will highlight recent work on human-machine interaction, mobility impairments associated with neurological disorders such as Parkinson's disease, and the development of adaptive assistive technologies.

Song directs the Smart Optimization of Neural and Gait Assistive Technologies (SONG) Laboratory. Her research combines neural engineering, human movement science, robotics and wearable sensing to develop next-generation assistive technologies. Song's long-term goal is to create intuitive human-technology interfaces that adapt to users rather than requiring users to adapt to technology. Her work focuses on neuro-adaptive systems for mobility assistance, rehabilitation and neurological disorders, with applications including exoskeletons, brain-computer interfaces and personalized therapeutic technologies.

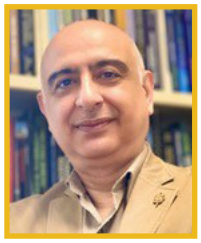
Presenter 2:
ARVIND SINGH
ASSOCIATE PROFESSOR

Civil, Environmental and Construction Engineering

Connectivity in River Networks: Patterns, Processes and Dynamics Across Scales

River basins are complex landscape systems where network structure and dynamics shape the movement of water, sediment and nutrients, influencing ecosystem function. Arvind Singh will present his group's recent research using network science, complexity theory and cluster analysis to investigate how channel network structure and connectivity regulate environmental fluxes across watersheds with diverse climatic, anthropogenic and geologic settings.

Singh received his doctorate in civil engineering from the University of Minnesota. His contributions to the study of the statistical mechanics of sediment transport and its interaction with flow turbulence have been widely recognized by the hydro-geomorphologist community. His work integrates and models interacting processes, including fluid flow, topography and material transport across spatial and temporal scales to improve quantitative predictions of landscape evolution and environmental change under future climate and land-use scenarios.



Presenter 3:
F. NECATI CATBAS
PROFESSOR

Civil, Environmental and Construction Engineering

Novel Technologies for Assessment of Infrastructure Systems

Civil infrastructure, from landmark bridges and high-rise buildings to transmission towers and road networks, represents critical national assets requiring safe operation and informed maintenance decisions. This talk explores innovative structural health monitoring and nondestructive evaluation strategies tailored to diverse infrastructure systems. Applications span permanently instrumented structures to network-level assessment using connected and instrumented vehicles, wireless sensors, computer vision and mixed reality, enabling scalable condition assessment, performance prediction and data-driven infrastructure management.

F. Necati Catbas is the Lockheed Martin St. Laurent Professor and director of the Civil Infrastructure Technologies for Resilience and Safety research initiative at UCF. His internationally recognized research advances structural health monitoring, structural identification, non-destructive evaluation and AI-driven infrastructure assessment. Consistently ranked among the world's top 2% of civil engineering researchers, he has received numerous prestigious honors, including the ASCE Journal of Bridge Engineering Award, IABMAS Senior Award, two Aftab Mufti Medals and the TRB Kikuchi-Karlaftis Award.

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