COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

FACULTY RESEARCH TALKS

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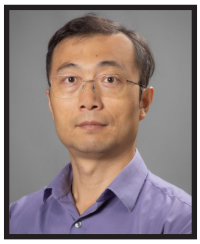
Zoom talk | Friday, Mar. 3, 2023 | Noon to 1 p.m.



PRESENTER 1:
CLIFF ZOU
Professor, Computer Science, Cyber Security and Privacy Cluster

Cyber Security Educational Research and Cyber Scholarship in UCF

In this talk, Dr. Zou will briefly explain his recent research projects on cyber security education, including online digital forensics labs, Internet-of-Things security and privacy hands-on labs, and advanced Windows-based software attack and defense. He will then introduce two full-ride scholarship programs and opportunities available to UCF students in pursuing cyber security education and career in government agencie: a successful NSF scholarship-for-service program offered since Fall 2021, and a DoD CySP scholarship starting in Fall 2023.

Dr. Zou is the program coordinator for both the master's degree in cyber security and privacy, and the master's degree in digital forensics. His research focuses on cyber security and privacy, computer networking and performance evaluation, especially on networking security/privacy and cyber security education in recent years. He obtained his Ph.D. in computer engineering from the University of Massachusetts, Amherst in 2005, and has been at UCF as tenure-track faculty since then.

PRESENTER 2:
ARVIND SINGH
Associate Professor, Civil, Environmental and Construction Engineering

On Dynamic Clusters and Phase Transition in River Networks

River networks are important landscape features that drain watersheds, transport water, sediment and nutrients, and provide numerous services to terrestrial and aquatic habitats. Understanding their structure and transport dynamics is important for predicting their response under changing climatic and human activities. In this talk, Dr. Singh will present his research group's recent effort in exploring the dynamics of flux movement on river networks based on network theory and cluster analysis, and the role that channel structure and connectivity exert on the environmental transport processes. The results will be discussed based on several watersheds across the U.S. in different climatic and geologic conditions.

Dr. Singh received his Ph.D. in civil engineering from the University of Minnesota in 2011. He joined UCF as an assistant professor in 2014 and was promoted to associate professor in 2020. Dr. Singh is a sediment transport expert whose 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 current research focuses on linking and modeling interacting processes such as fluid flow, topography, and material flux transport over a range of spatio-temporal scales that will help increase the ability to make quantitative predictions of how geomorphically and societally relevant variables will change under scenarios of future climatic and land-use changes.

PRESENTER 3:
JAY KAPAT
Pegasus Professor and Trustee Chair, Mechanical and Aerospace Engineering; Director, CATER

Decarbonization: Opportunities, True Cost and Needs for Collaboration

Decarbonization must be affordable, holistic, global and equitable to be effective and successful. Current human civilization is based on various fossil-fuel-using technologies that have been carefully optimized over many centuries. Economy-wide and society-wide decarbonization must consider decarbonization of all sectors of the economy, not just the decarbonization of electricity generation. In this context, technologies related to carbon capture, utilization and sequestration, alternative sources of chemical agents, sources of process heat, waste heat recovery, thermal storage and water-energy coupling will be as important and must be developed, leading to tremendous opportunities for today's researchers and innovators.

Dr. Kapat is the founding director for the Center for Advanced Turbomachinery and Energy Research (CATER). He obtained his Sc.D. in mechanical engineering from Massachusetts Institute of Technology. He joined UCF in 1997 as an assistant professor, and was promoted to associate professor and professor in 2001 and 2005, respectively. Since mid-2000s, Dr. Kapat has fully focused his research activities on turbo-machineries and associated technologies for power generation, aviation and space propulsion, and created partnerships with a number of OEMs in these industries.

ZOOM LINK: https://bit.ly/3lLqC1l | PREVIOUS TALKS: www.cecs.ucf.edu/faculty-research-talks