College of Engineering and Computer Science
FACULTY RESEARCH TALKS
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Zoom talk | Friday, July 10, 2020 | Noon to 1 p.m.

PRESENTER 1:
JAYANTA KAPAT
Pegasus Professor and Trustee Chair, CATER, Mechanical and Aerospace Engineering

Changes in Power Generation and Propulsion — A Mechanical Engineer's Perspective

Dr. Kapat will discuss roles of turbomachineries in power generation, aviation and space propulsion, and associated research efforts on turbines and associated energy systems. With the overwhelming presence of the world's turbine engine companies in Florida, this line of research has prospered over the past two decades, leading to a large group of well-placed graduates in Florida high-tech companies and the formation of Center for Advanced Turbomachinery and Energy Research (CATER) with a successful group of core faculty members. Dr. Kapat will use one of the current technical topics to illustrate the immense fundamental challenges in this line of research, and the room for collaboration across multiple disciplines. The talk will end with a description of the megatrends that are affecting these industries, and potential opportunities in the future.

Dr. Kapat is the founding director of CATER, which he plans to transition to CATER 2.0. He obtained his Sc.D. in mechanical engineering from the Massachusetts Institute of Technology. He joined UCF in 1997 as an assistant professor, and was promoted to the ranks of associate professor and professor in 2001 and 2005, respectively.

PRESENTER 2:
LORRAINE LEON
Assistant Professor, Materials Science and Engineering

Engineering Biomolecules for Drug Delivery, Biotemplating and Biocatalysis

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

Dr. Leon joined UCF in 2017 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 the City University of New York and her B.S. in chemical engineering from the University of Florida. Leon is an experimentalist with research interests at the intersection of biomaterials and polymer science ranging from nanomedicine to catalysis. She was named a 2019 Emerging Investigator by the Journal of Materials Chemistry B.

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Deep Learning for Computer Vision and Multimedia

In this talk, Dr. Rawat will discuss his group's efforts in deep learning for video understanding and multimedia analysis. In particular, he will talk about recent progress in video understanding using capsule networks, where he will cover works in action detection, video segmentation, and text-based video segmentation. In his talk, he will discuss an ongoing IARPA effort where UCF has developed a real-time online activity detection system for security videos which won the NIST ActEV challenge in CVPR 2020 earlier this month.

His research interests lie in the intersection of computer vision, deep learning, social computing, and multimedia. He received his Ph.D. in computer science at the School of Computing, National University of Singapore (2012-2017). His dissertation focused on enhancing the photography experience of users utilizing social media and camera sensors. He did his postdoctoral training in the Center for Research in Computer Vision at UCF from 2017-2019. He obtained his BTech degree in computer science and engineering from the Indian Institute of Technology, IIT-BHU, Varanasi in 2009. Before joining NUS in summer 2012, he worked at Mentor Graphics, India (2009-2012).

PRESENTER 3:
YOGESH SINGH RAWAT
Assistant Professor, Center for Computer Vision, Computer Science

Distributed Energy Resources and Grid Interactions

The energy industry is undergoing significant changes with the proliferation of renewable and distributed energy resources. The economies of scale from the bulk power system is gradually fading due to significantly reduced cost and improved efficiency of distributed energy resources. In this talk, Dr. Zhou will discuss her research in solar PV, smart buildings, and its interactions with the power grid, and how her group applies data analytics and optimization techniques to improve the efficiency and sustainability of our daily energy activities.

Dr. Qun Zhou is the director of UCF Smart Infrastructure Data Analytics Lab. Before joining UCF, Dr. Zhou worked for Genscape and GE Grid Solutions as a power system engineer. She received her Ph.D. in electrical engineering from Iowa State University. Dr. Zhou is devoted to improving energy efficiency and customer engagement through data analytics, probabilistic modeling, and advanced pricing schemes. She focuses on grid-edge resources, including smart buildings, rooftop PVs, and batteries, and their interactions with the grid.

PRESENTER 4:
QUN ZHOU
Assistant Professor, Electrical and Computer Engineering

ZOOM LINK: https://bit.ly/35unuVe | **QUESTIONS? Email Jennifer.Sutton@ucf.edu**

For more information, and to see previous talks, visit www.cecs.ucf.edu/faculty-research-talks