FACULTY RESEARCH TALKS
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**Zoom talk | Friday, Oct. 14, 2022 | Noon to 1 p.m.**

PRESENTER 1:
VASILEIOS ANAGNOSTOPOULOS
Assistant Professor,
Department of Chemistry

Insights in the Interdisciplinary Field of Radiochemistry: Environment, Materials and Nuclear Forensics

In this talk, Dr. Anagnostopoulos will discuss his group's efforts to understand the redox and complexation chemistry of fission products and will provide information on the cutting-edge analytical techniques he has developed, which allow elemental and oxidation state ultra-sensitive measurements. He will also provide a brief overview of the nuclear forensics efforts and the current needs in the field.

Dr. Anagnostopoulos received his M.Sc. in analytical chemistry (environmental track) and his Ph.D. in radiochemistry from University of Patras, Greece. His research group focuses on radiochemistry and specifically, nuclear fuel disposal and environmental radiochemistry, design of material for radionuclide retardation and nuclear forensics. He is the recipient of the 2019 U.S. Nuclear Regulatory Commission Early Career Award and has spearheaded projects funded by the DOE Office of Environmental Management. He has participated in worldwide standard material testing trials organized by the International Atomic Energy Agency and has close collaboration with DOE National Labs, such as Lawrence Livermore, Pacific Northwest and Savannah River.
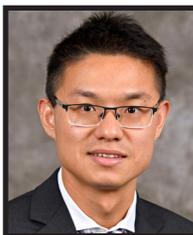
PRESENTER 2:
CHEN CHEN
Assistant Professor,
Center for Research in
Computer Vision,
Computer Science

Toward Efficient, Adaptive and Robust Deep Learning

Deep neural networks have achieved great success in various vision tasks; however, they incur heavy resource costs. This is a challenging problem and solutions must investigate new transformations of what have become standard computational models for deep learning. In this talk, Dr. Chen will discuss an NSF project (UbiVision), mainly focused on developing adaptive and efficient machine vision algorithms for resource-constrained edge devices such as smart cameras.

Dr. Chen received his Ph.D. in electrical engineering from the University of Texas at Dallas in 2016, receiving the David Daniel Fellowship (Best Doctoral Dissertation Award). He was an assistant professor at the Department of Electrical and Computer Engineering at the University of North Carolina at Charlotte from 2018 to 2021. His research interests include computer vision, efficient deep learning and federated learning. He has been actively involved in several NSF and industry-sponsored research projects, focusing on efficient resource-aware machine vision algorithms and systems development for large-scale camera networks, and federated learning for the internet of things.

PRESENTER 3:
JONGOUK CHOI
Assistant Professor,
Computer Science,
Cyber Security Cluster

Losing Nonvolatility in Nonvolatile Memory

Non-volatile memories (NVMs) have been widely adapted in various systems from large-scale servers to small internet of things (IoT) devices and are very close to the mass production stage in their development. To keep their non-volatility, today's NVMs leverage a battery/capacitor-backed write back buffer with a just-in-time (JIT) checkpointing that flushes all pending writes to NVMs in case of a power loss by spending the reserved energy in the battery/capacitor. However, NVMs can unexpectedly fail the JIT checkpointing, due to battery/capacitor aging/reliability problem, thus losing or corrupting data across the power outage. In this talk, Dr. Choi will introduce two studies developed in his group that explore the data corruption problem in NVMs and expose the vulnerability in emerging NVM-based IoT devices.

Dr. Choi's research interests include computer architecture and compilers. He develops architecture/compiler co-design solutions to improve performance, reduce hardware complexity and address reliability/security problems. He received his Ph.D from Purdue University. Before joining UCF, he worked for LG Electronics, ARM Research, Verizon and NASA EpSCoR.