Computer Science Colloquium

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3 p.m. • Virtual via Zoom

Abstract: In today's big data and big compute era, the explosive rate of data growth strangles the limited scalability of the DRAM technology, which defies the performance potentials for in-memory applications. Fortunately, emerging ultra-low latency and terabyte scale non-volatile memory (NVM) technologies, such as 3D-Xpoint, Phase-Change Memory (PCM) and Memristor, are promising candidates for supplementing or even replacing DRAM. Emerging NVMs are very dense, hence promise large capacities. Additionally, NVMs are non-volatile, thus enable persistent applications and byte-addressable files. Both density and persistency are key enablers for in-memory applications. On the other side, emerging NVMs are slower than DRAM, constrained by endurance and remanence problems, thus revamping and optimizing current OS with architecture support for finer-granularity, locality, and avoiding contentions are key aspects to unlock the NVM performance.

Speaker Biography: Dr. Jun Wang is a professor of computer engineering; and director of the Computer Architecture and Storage Systems (CASS) Laboratory at the University of Central Florida, Orlando. He has conducted extensive research in the areas of computer systems and data-intensive computing. His specific research interests include massive storage and file systems in a local, distributed, and parallel systems environment. He ireceived the National Science Foundation Early Career Award in 2009. He has published over 150 publications in premier journals and conferences. Dr. Wang is a Fellow of IEEE.

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