

BUET ACM CHAPTER
presents

Rethinking Future Systems with Persistent Memory

Speaker: **Samira Khan**

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Samira Khan is an Assistant Professor at the University of Virginia (UVa). Her group, ShiftLab, focuses on building system stack for emerging memory technologies. Prior to joining UVa, she was a Post Doctoral Researcher at Carnegie Mellon University, funded by Intel Labs. She is the recipient of NSF CRII Award and Rising Stars in EECS Award. She received her PhD from the University of Texas at San Antonio and BSc from Bangladesh University of Engineering and Technology (BUET). During her graduate studies, she worked at Intel, AMD, and EPFL.

She is mainly interested in Computer Architecture and Computer systems, especially in building new systems by rethinking the traditional assumptions in abstraction and separation of responsibilities in different system layers and redesigning interfaces with new interaction and collaboration to solve systems/architecture research problems. Her current research focuses on designing systems with scalable and high capacity main memory by rethinking two interfaces: (i) circuits and architecture, and (ii) architecture and operating system. Her prior work focuses on improving performance, efficiency, and reliability of the cache hierarchy.

Abstract

Data is growing exponentially in the current era of data-driven applications. Unfortunately, as the technology scaling slows down, we cannot rely on transistor scaling to make our computation faster anymore. We need to innovate how we design our systems to sustain the demand for computing over exponentially growing data sets. However, the fundamental model of computing has not changed over many decades. Data that is the core of computation sits in the slower persistent storage and data is moved back and forth to faster memory for computation by the processor. My research focuses on enabling a fundamental paradigm shift in how data is stored and processed in future systems. The goal of ShiftLab (motivated to introduce a paradigm shift) is to fundamentally rethink our memory, storage, and processor design and to provide collaborative hardware-software support for emerging new technologies of the future. I take a holistic approach by redesigning and rethinking the whole system vertically across the stack in the interface of application, architecture, operating system, and network.

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Where: Online. Zoom Meeting ID: 648 6365 9541, Password: 335909

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