



Professor Krishna Kavi

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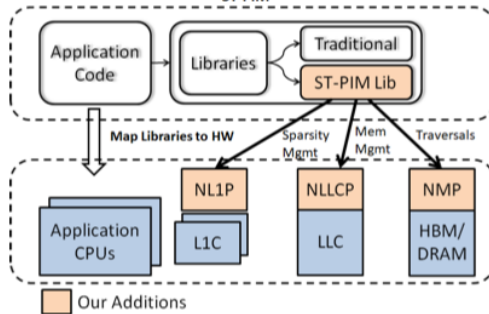
Regents Professor

AI Accelerators, Hardware Security, Memory-Side Accelerators, Processing-in-Memory, Dataflow processing, System level computer security, Security ontologies

Federal and Industrial funding, 3 current PhD students

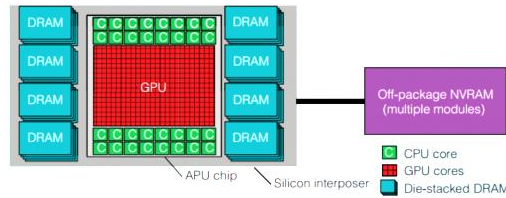


Memory-Side Accelerators Processing in Memory



- Evaluated offloading memory management functions to PIM
- Developed PIM accelerators to aid in complex memory indexing for AI applications
- Developed programmable PIM accelerators

Heterogeneous Memory Systems

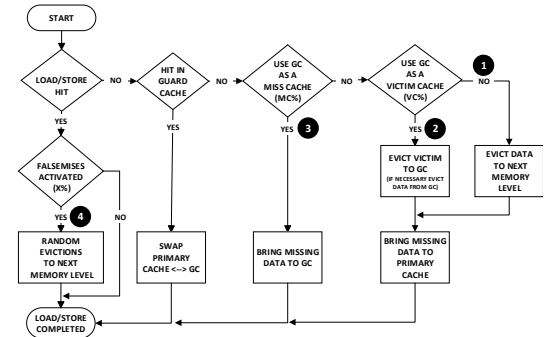


- Combine 3D-DRAMs, DDR4 and non-volatile devices into a single computer memory
- Prefetching data into 3D-DRAM
- Intelligent page migration policies
- Hierarchical organizations with 3D-DRAM as last level cache memory

IoT Security

- A framework for capturing security requirements
- Software Life Cycle approach for tracking and validating IoT system design and implementation for meeting security requirements

Obfuscating Hardware Side-Channels



- Evaluated techniques to create false cache hits and false misses that obfuscate cache timing and mitigate well know hardware security attacks
- Protection is turned on only when needed or when an attack is detected
- Very minimal performance loss
- Very minimal hardware complexity

