



# Professor Krishna Kavi

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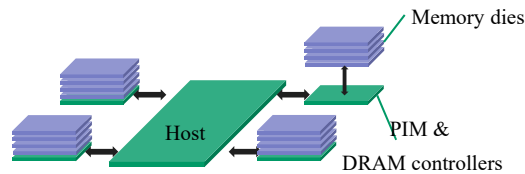
Professor and Director of NSF Net-centric I/UCRC

Exa-scale computing, Processing-in-Memory, Heterogeneous Memory systems,

Dataflow processing, System level computer security, Security ontologies

Federal and Industrial funding, 6 current PhD students

## Processing in Memory

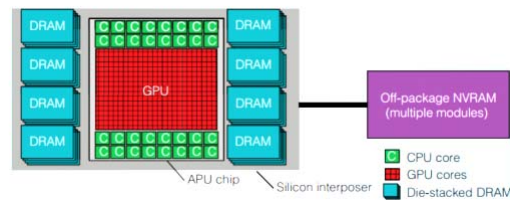


- Evaluated GPUs as PIMs
- Utilized ARM cores as PIMs
- Exploring Dataflow as PIMs
- DVFS scaling for energy and performance trade-offs

## Vulnerability Ontologies

- Ontologies for vulnerabilities, attacks and defenses
- Scoring security threats faced by computer systems
- Scan social networks to discover unknown vulnerabilities
- Identify system symptoms for different attacks

## 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

- Hardware level security isolation
- Different security policies for different devices
- SDN to isolate communication with IoT devices

## Exa-scale computing

- Processing in memory and heterogeneous memory systems
- Dataflow processing for exa-scale computing
- Memory systems for heterogeneous memory technologies
- Patent on cache designs

## Security ontologies

- Threat analysis
- Predicting unknown vulnerabilities
- Differentiated levels of IoT security

