# Qizhong Wang

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## Research Interests

GPU Architecture; Cache and Memory Subsystems; Computer Architecture for ML.

## Education

**University of California, Santa Cruz** **Sep. 2024 – Present**
*M.S. Student in Computer Science and Engineering* *Santa Cruz, CA*

**Huazhong University of Science and Technology** **Sep. 2020 – Jun. 2024**
*B.E. in Artificial Intelligence* *Wuhan, China*

## Publications

**MICRO 2025** **Qizhong Wang**, Xiangyue Huang, Yanan Guo, and Yuanchao Xu, "Security and Performance Implications from GPU Cache Eviction Hints", the 58th IEEE/ACM International Symposium on Microarchitecture, 2025.

## Project Experience

**Characterizing GPU Cache Eviction Hints Behaviors** **Jul. 2024 – Jun. 2025**
*Advisor: Prof. Yuanchao Xu and Yanan Guo*

- Characterized NVIDIA GPU cache eviction hints, such as evict_first and evict_last, analyzing their eviction and interaction behaviors.
- Security Implications: built more efficient cache covert channels; demonstrated a more stealthy multi-GPU DoS attack; proposed a new side channel to infer eviction hints usage.
- Performance Implications: demonstrated that improper use of evict_last hints induces cache thrashing and degrades performance on real-world GPU workloads.

**Reproducing FusionRAID** **Feb. 2023 – Jul. 2023**
*Advisor: Prof. Jie Zhang*

- Modified the kernel of Linux 5.11 and added the replicated writing function to the md module so that small-scale data is directly copied and written without RAID stripes, and two copies of data are stored on different SSDs.
- Added the conversion function to convert replicated writing blocks into RAID stripes when appropriate.

**Stateful Serverless Data Analytics Workloads** **Sep. 2022 – Jan. 2023**
*Advisor: Prof. Yue Cheng*

- Applied ZNS SSDs in serverless environments for efficient intermediate data management, reducing wear and garbage-collection overhead in multi-tenant scenarios.
- Simulated ZNS with libzbd/blkzone and ran multi-threaded workloads to evaluate I/O throughput and latency.

## Research Experience

**Research Intern at UT Arlington** **Aug. 2023 – Nov. 2023**
*Advisor: Prof. Hong Jiang and Hao Che*

- Installed OpenWhisk on a single node and cluster on the UTA ACES lab server (CentOS8) and ran common benchmarks.
- Took the serverless work of MXFaaS, AQUATOPE, FaasCache, etc. as the baseline, which will be reproduced on our servers.

## Teaching Experience

**Spring 2025** | Teaching Assistant for Computer Architecture, CSE 120, UCSC

## Technical Skills

**Languages**: C, C++, Python, CUDA
**Systems**: Linux