

YUQI XUE

Email: yuqixue2@illinois.edu ◇ Phone: +1-217-721-4958

RESEARCH INTERESTS

Computer Architecture and Systems, Accelerator Design. Hardware Security.

EDUCATION

University of Illinois at Urbana-Champaign

Aug 2021 – Present

Ph.D. in Electrical and Computer Engineering

Advised by Prof. Jian Huang

University of Illinois at Urbana-Champaign

Aug 2017 – May 2021

Bachelor of Science in Computer Engineering with High Honors

Bachelor of Science in Mathematics with Highest Distinction

PUBLICATION

IceClave: A Trusted Execution Environment for In-Storage Computing. Luyi Kang*, **Yuqi Xue***, Weiwei Jia*, Xiaohao Wang, Jongryool Kim, Changhwan Youn, Myeong Joon Kang, Hyung Jin Lim, Bruce Jacob, and Jian Huang. In *Proceedings of the 54th Annual IEEE/ACM International Symposium on Microarchitecture (MICRO'21)*. 2021.

*Co-primary authors.

RESEARCH PROJECTS

Hardware-assisted Neural Processing Unit (NPU) Virtualization

Apr 2022 – Present

Research Assistant of Prof. Jian Huang

UIUC

- Conducts a thorough study of the resource utilization of modern NPUs with real hardware devices.
- Proposes a simultaneous multi-threading NPU design for DNN workload collocation.
- Designs a tensor operator scheduler that improves the fairness and throughput for collocated ML workloads.
- Develops a clustering scheme to identify pairs of collocatable DNN workloads.
- Paper to be submitted to ISCA'23.

Trusted Execution Environment for In-Storage Computing

2021

Research Assistant of Prof. Jian Huang

UIUC

- Develops *IceClave*, a trusted execution environment for in-storage computing in modern solid-state drives.
- Enables security isolation between in-storage applications and the flash translation layer with ARM TrustZone.
- Proposes efficient memory encryption and integrity verification method to protect user data against physical attacks.

WORK EXPERIENCE

Systems Platform Research Lab at UIUC

May 2021 - Present

Graduate Research Assistant

Urbana, IL

UIUC ECE 511: Computer Architecture

Fall 2022

Graduate Teaching Assistant

Urbana, IL

UIUC ECE 310: Digital Signal Processing

Jan 2020 - Jul 2020

Undergraduate Grader

Urbana, IL

TALKS

· **IceClave: A Trusted Execution Environment for In-Storage Computing**

- *54th Annual IEEE/ACM International Symposium on Microarchitecture (MICRO'21)*. Virtual. Oct 19, 2021.
- *17th Coordinated Science Laboratory Student Conference (CSLSC'22)*. Urbana, IL, United States. Feb 24, 2022.
- *13th Annual Non-Volatile Memories Workshop (NVMW'22)*. San Diego, CA, United States. May 10, 2022.