

Xuhao Luo

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Education

University of Illinois Urbana-Champaign Ph.D. Student in Computer Science	Aug. 2021 - Now
University of California San Diego M.S. in Computer Science, <i>GPA: 3.82/4.00</i>	Sep. 2019 - Mar. 2021
University of Science and Technology of China B.S. in Applied Physics	Sep. 2015 - Jun. 2019

Research Publication

- **Xuhao Luo**, Weihai Shen, Shuai Mu, Tianyin Xu, **DepFast: Orchestrating Code of Quorum Systems** (*USENIX ATC 2022*)
- Zhiyuan Guo*, Yizhou Shan*(*co-first author), **Xuhao Luo**, Yutong Huang, Yiyang Zhang, **Clio: A Hardware-Software Co-Designed Disaggregated Memory System** (*ASPLOS 2022*)

Experience

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| Amazon Web Service
<i>Applied Scientist Intern</i> | May. 2022 - Aug. 2022
Seattle, WA, USA |
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- Improved the reliability of the volume metadata updating workflow for AWS S3 volume metadata cache service.
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| University of Illinois Urbana-Champaign
<i>Research Assistant, advised by Prof. Tianyin Xu</i> | May. 2021 - Jun. 2022
Urbana, IL, USA |
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- Built a framework to implement and reason about fail-slow tolerant distributed systems in an easy and effective way.
 - Introduced `event` abstraction and `wait()` API for better management of waiting points globally.
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| Microsoft Research
<i>Research Intern</i> | Jun. 2020 - Sep. 2020
Beijing, China |
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- Designed and implemented task scheduling and dispatching system for distributed machine learning using **C++**.
 - Designed and implemented **CUDA**-based high-performance inter-GPU communication channel for distributed ML within a large-scale GPU cluster.
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| University of California San Diego
<i>Research Assistant, advised by Prof. Yiyang Zhang</i> | Sep. 2019 - Dec. 2020
La Jolla, CA |
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- Designed and implemented a *go-back-N* based reliable network stack on both FPGA and host Linux server to support high-performance reliable network communication. Using kernel-bypass to achieve high-throughput and low-latency.
 - Designed and implemented an RPC-semantic connectionless network stack to improve scalability, with a delay-based congestion control.
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| Agora.io
<i>Software Engineer Intern</i> | Jul. 2019 - Sep. 2019
Shanghai, China |
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- Participated in the development of CapSync, a distributed capability negotiation system for synchronizing media capability info between users, implemented with **C++** and **libevent**.

Projects

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| Distributed Messaging System
<i>Project for CSE223, Distributed System</i> | Apr. 2020 - Jun. 2020 |
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- Built a distributed messaging system patterned on Kafka using **Go**. Provided messaging service via `Append()` and `Get()` APIs. Implemented *Topic* and *Partition* abstraction for replication management with **Zookeeper**.
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| Fault-tolerant Distributed Storage System
<i>Project for CSE224, Networked System</i> | Sep. 2019 - Dec. 2019 |
|---|-----------------------|
- Implemented a cloud-based file storage system patterned on Dropbox. Used multiple servers for duplicated file storage. Achieved consistence and fault-tolerance mechanism using **Raft** consensus algorithm.

Skills

Language	C/C++, Python, Go, Java, Rust, Haskell, OpenCL, Verilog
Tools/Framework	TensorFlow, Docker, Zookeeper, LLVM, Google Test