Shuwen Sun

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Research Interests

Distributed systems, storage systems, networked systems, and performance diagnosis.

Professional Experience

9/2018 – Present **Northeastern University**, *Graduate Research Assistant*
- Designed and implemented a highly-efficient object storage system, ZStore, that leverages ZNS SSDs to achieve high performance and strong consistency.
- Designed and implemented several application network functions which can offload user/application level functions to the network.

5/2023 – 8/2023 **Google**, *PhD Research/SWE Intern*
- Designed and implemented research prototypes for the Google Global Networking team. Submitted 12 CLs in total.

6/2022 – 9/2022 **ThousandEyes (Part of Cisco)**, *Research Intern*
- Worked on Internet measurement related to anomaly detection in HTTP timing. Part of the Internet Research team.

1/2018 – 7/2018 **Hariri Institute for Computing**, *Staff Researcher/Engineer*
- Developed a novel diagnosis framework built upon end-to-end request tracing on the cloud.

6/2017 – 12/2017 **Massachusetts Open Cloud**, *Research Intern*
- Worked as a research intern at Red Hat Engineering as a part of the Distributed-system Tracing team within the MOC Research group. I worked on adopting end-to-end request tracing techniques for performance diagnosis on the cloud.

Education

9/2018 – 8/2025 ***Northeastern University***, *Boston, Massachusetts*
Ph.D. in Computer Science
Advisor: *Prof. Peter Desnoyers*

9/2015 – 5/2017 ***Boston University***, *Boston, Massachusetts*
M.S. in Computer Science

9/2011 – 5/2015 ***Sun Yat-sen University***, *Guangzhou, China*
B.Eng. in Software Engineering

Skill Sets

Programming: C/C++, Rust, Python, Go, Bash
Tools: SGX, eBPF, Docker, OpenTracing/OpenTelemetry, Boost
Networking: Kernel bypassing (DPDK), NFV, Datacenter networking, Cloud networking, SDN
Storage: NVMe-over-fabric, SPDK, SSD, Zoned NameSpace SSD
Systems: Distributed systems, End-to-end request tracing, Cloud computing

Publication

C4. **ZStore: A Fast, Efficient, and Strongly-Consistent Object Storage System with ZNS SSDs**
Sun, Shuwen, Khor, Isaac, Shin, Ji-yong, and Desnoyers, Peter.
Under submission

C3. **A case for IO efficiency as a research metric for storage systems**
Sun, Shuwen, Khor, Isaac, Krieger, Orran, and Desnoyers, Peter.
Under submission

C2. **Endpoint-defined In-Network Functions**
Sun, Shuwen and Choffnes, David.
Under submission

C1. **Toward Flexible Auditing for In-Network Functionality**
Sun, Shuwen and Choffnes, David.
CoNEXT-SW '22

Honors & Awards

Academic Honors:

1/2018   Northeastern University Graduate School Ph.D. Fellowship.
(Admitted to Ph.D. program in Computer Science at Northeastern University)

Travel Grant Awards:

3/2021   NSDI '21 Conference Student Grant, USENIX
2/2020   NSDI '20 Conference Student Grant, USENIX
8/2019   SIGCOMM '19 Conference Student Grant, NSF
8/2017   SIGCOMM '17 Conference Student Grant, NSF
7/2016   ATC '16 and HotCloud '16 Conference Student Grant, USENIX

Miscellaneous:

2/2022   Invited participants of Google Network Research Summit
9/2014   Second-class Scholarship for Outstanding Students at Sun Yat-sen University
(Top 10%).
4/2011   Recipient of independent recruitment for Sun Yat-sen University in 2011
(Top 6%, roughly 660 of 11,000 in China).

Relevant Courses

Distributed Systems, Advanced Algorithms, Network Security, Computer Networks, Machine Learning

References

Peter Desnoyers, Associate Professor
Northeastern University
✉ pjd@ccs.neu.edu

Ji-yong Shin, Assistant Professor
Northeastern University
✉ j.shin@northeastern.edu

Orran Krieger, Research Professor
Boston University
✉ okrieg@bu.edu

Vasilis Pappas, Tech Lead
Google Global Networking
✉ vasilis@google.com