

Shuwen Sun

Khoury College of Computer Sciences
805 Columbus Ave
Boston, Massachusetts 02115 U.S.A.

email: sun.shuw@northeastern.edu

URL: <https://ccs.neu.edu/jethrosun>

Research Interests

My work revolves around networking and storage systems. Broadly, I am interested in understanding the behavior of distributed systems with many components for enabling new functionality, and making sure they work as they should. In particular, I'm interested in how to build, operate, and improve large scale systems.

Education

9/2018 – 2025 (Expected) **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

Publication

C3. **A case for IO efficiency as a research metric for storage systems**
Sun, Shuwen 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

Professional Experience

- 9/2018 – Present **Northeastern University, Graduate Research Assistant**
- Advisor: *Prof. Peter Desnoyers*
- 5/2023 – 8/2022 **Google, Research Intern**
- Mentor: *Vasileios Pappas*
 - Ph.D. SWE intern in GGN
 - CLs: 8 submitted, 12 in total
- 6/2022 – 9/2022 **ThousandEyes (Part of Cisco), Research Intern**
- Mentor: *Dr. Arash Molavi Kakhki & Dr. Abbas Razaghpanah*
 - 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**
- Supervisors: *Prof. Orran Krieger & Dr. Raja Sambasivan.*
 - Worked on developing a novel diagnosis framework built upon end-to-end request tracing on the cloud. I worked on OPENSTACK's tracing system OSPROFILER and benchmarking tool RALLY.
- 6/2017 – 12/2017 **Massachusetts Open Cloud, Research Intern**
- Supervisors: *Prof. Orran Krieger & Dr. Raja Sambasivan.*
 - 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.
 - Host: *Jan Mark Holzer*
- 9/2016 – 5/2017 **Massachusetts Open Cloud, Research Assistant**
- Supervisors: *Prof. Orran Krieger & Prof. Rodrigo Fonseca.*
 - Worked with Da Yu, Prof. Orran Krieger, Prof. Rodrigo Fonseca, Dr. Raja Sambasivan and Dr. Jason Hennessey on FLEXNET, a novel datacenter networking design. I also served as a core contributor to the HIL project.
- 5/2016 – 8/2016 **Massachusetts Open Cloud, Research Intern**
- Supervisors: *Prof. Orran Krieger & Prof. Peter Desnoyers.*
 - Worked with Prof. Orran Krieger, Prof. Peter Desnoyers, and Dr. Jason Hennessey on Hardware Isolation Layer project.
- 2/2014 – 6/2015 **Sun Yat-sen University, Research Assistant**
- Supervisor: *Prof. Wushao Wen.*

- Performed research on networking and cloud computing. I worked on exploring Software Defined Networking and applying it to network QoS. I also worked on developing and deploying a OPENSTACK based customized cloud environment solution.

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).

Talks & Posters

Talks:

1/2024 “A case for IO efficiency as a research metric for storage systems”
Shuwen Sun. Talk at *2nd Northeastern System Day*, Boston, MA
1/2023 “Toward Flexible Auditing for In-Network Functionality”
Shuwen Sun. Talk at *1st Northeastern System Day*, Boston, MA
10/2017 “PYTHIA: A Just-in-Time Instrumentation Framework for Debugging Distributed Systems.” Lily Sturmman, **Shuwen Jethro Sun**. Talk at *2017 MOC Annual Workshop*. Boston, MA

Posters:

3/2020 “How well does your network (function) function? Understanding Network Functions Under User-level Use Cases” **Shuwen Jethro Sun**, David Choffnes.
Poster at *Khoury Ph.D. Open House*.
12/2017 “PYTHIA: A Cross-layer Just-in-Time Instrumentation Framework for Debugging Distributed Applications.” Lily Sturmman, **Shuwen Jethro Sun**, Raja Sambasivan,

- Orran Krieger, Peter Portante. Poster at *IV New England Networking and Systems Day (NENS'17)*. Boston, MA
- 10/2017 “PYTHIA: A Just-in-Time Instrumentation Framework for Debugging Distributed Systems.” Lily Sturmman, **Shuwen Jethro Sun**, Rajul Kumar, Vladimir Pchelin, Orran Krieger, Peter Portante, Raja Sambasivan. Poster at *2017 MOC Annual Workshop*. Boston, MA

Teaching Experience

- Spring 2024 **Head Teaching Assistant**,
CS 3650 Computer Systems, Northeastern
Course instructors: Peter Desnoyers and Cheng Tan.
- Fall 2023 **Teaching Assistant**,
CS 5600 Computer Systems, Northeastern
Course instructors: Peter Desnoyers.
- Fall 2021 **Teaching Assistant**,
CS 3700 Networks and Distributed Systems, Northeastern
Course instructors: David Choffnes, Sakib Miazzi, Christo Wilson.

Professional Service

To Northeastern University & Khoury College:

- 9/2023-1/2024 • **Organizing committee & Program committee & Session chair** — 2nd Khoury Systems Day
- 1/2023 • **General Chair & Session Chair** — 1st Khoury Systems Day
- 7/2021 • **Co-organizer & panelist** — Workshop on Completing PhD Course Requirements at Khoury
- 3/2021 • **Moderator** — 2021 Ph.D. Open House Graduate Student Panel
- 1/2021 • **Ph.D. Open House Co-organizer** — 2021 Ph.D. Open House
- 1/2021 – 05/2022 • **Organizing member** — Khoury Graduate Students Association
- 12/2020 • **Ph.D. Admission Volunteer** — 2021 Ph.D. Admission
- 3/2020 • **Panelist** — 2020 Ph.D. Open House Graduate Student Panel
- 9/2019 • **Panelist** — 2019 Ph.D. Orientation
- 3/2019 • **Letter writer** — Khoury College Naming Ceremony Thank you Gift
- 3/2019 • **Panelist** — 2019 Ph.D. Open House Graduate Student Panel
- Spring 2019 • **Co-organizer** — Systems and Networking Reading Group

To the Discipline:

- 2021 • **External Reviewer** — CCS 2021

- 2020 • **Organizing Volunteer** — SIGCOMM 2020 Hallway Sessions
- 2020 • **External Reviewer** — IMC 2020
- 2019 • **External Reviewer** — NSDI 2020
- Summer 2017 • **Layer 9 Scriber** — SIGCOMM 2017

Skill Sets

- **Programming languages:** Rust, Python, Go, C/C++, Bash, SQL
- **Stacks:** Intel DPDK, Intel SGX, eBPF, OpenStack, Docker, SDN, OpenTracing/OpenTelemetry
- **Tools:** Mininet, NS3, Git, Wireshark, L^AT_EX, D3.js
- **Knowledge (networking):** Kernel bypassing (DPDK), Network Function Virtualization, Datacenter networking, Cloud networking, Software-defined Networking
- **Knowledge (storage systems):** SSD, Ceph, Minio, etcd, PostgreSQL
- **Knowledge (systems):** Distributed systems, Storage systems, End-to-end request tracing, Cloud computing
- **Knowledge (PL):** Asynchronous programming in Rust (async, future, tokio)

Personal Trivia

Languages: English (professional proficiency), Mandarin (native)

Affiliations

Khoury College of Computer Sciences, Northeastern University
[MOC Alliance](#)