Sachin Ashok

sachin.cs.illinois.edu sachinashok.g@gmail.com
LinkedIn Google Scholar GitHub

Research Interests

Broadly interested in networked systems with recent emphasis on enhancing performance, monitoring, and root cause analysis for microservices and cloud systems.

Education

2021 – **PhD.** in Computer Science, CGPA: 4.0
University of Illinois at Urbana-Champaign
Advisors: **Prof. Radhika Mittal**, **Prof. Philip Brighten Godfrey**

2014 – 2018 **B.Tech.** in Computer Science and Engineering
National Institute of Technology, Trichy

Industry Experience

2024 **Microsoft Research, Redmond** **Research Intern**
Mentor: **Prateesh Goyal**

2018 – 2021 **Microsoft Research, India** **Research Fellow**
Mentors: **Venkat Padmanabhan**, **Nagarajan Natarajan**, **Johannes Gehrke**

2017 **Samsung R&D, India** **Intern**
Mentors: **Pratibha Moogi**, **Karthikeyan Somanathan**

2016 **Mozilla Organization** **Intern**
Mentors: **Franziskus Kiefer**, **Tim Taubert**

Publications

[1] **TraceWeaver: Distributed Request Tracing for Microservices Without Application Modification**
Sachin Ashok, Vipul Harsh, Brighten Godfrey, Radhika Mittal, Srinivasan Parthasarthy, Larisa Shwartz
In Proceedings of ACM SIGCOMM, 2024.

[2] **Murphy: Performance Diagnosis of Distributed Cloud Applications**
Vipul Harsh, Wenxuan Zhou, **Sachin Ashok**, Radhika N. Mysore, Brighten Godfrey, Sujata Banerjee
In Proceedings of ACM SIGCOMM, 2023.

[3] **Data-Driven Network Path Simulation with iBox**
Sachin Ashok, Shubham Tiwari, Nagarajan Natarajan, Venkat Padmanabhan, Sundararajan Sellamanickam
In Proceedings of ACM SIGMETRICS, 2022.

[4] **Fast and Efficient Look-Ups via Data-Driven FIB Designs**
Sachin Ashok*, Aditi Partap*, Ammar Tahir* (* = equal contribution)
In Proceedings of ACM SIGCOMM FIRA Workshop, 2022.

[5] **Leveraging Service Meshes as a New Network Layer**
Sachin Ashok, P. Brighten Godfrey, Radhika Mittal
In Proceedings of ACM HotNets, 2021.

[6] **iBox: Internet in a Box**
Sachin Ashok, Sai Surya Duvvuri, Nagarajan Natarajan, Venkat Padmanabhan, Sundararajan Sellamanickam, Johannes Gehrke
In Proceedings of ACM HotNets, 2020.

[7] **RL for Bandwidth Estimation and Congestion Control in Real-Time Communications**
Joyce Fang, Martin Ellis, Bin Li, Siyao Liu, Yasaman Hosseinkashi, Michael Revow, Albert Sadovnikov, Ziyuan Liu, Peng Cheng, **Sachin Ashok**, David Zhao, Ross Cutler, Yan Lu, Johannes Gehrke
In Proceedings of NeurIPS MLForSystems workshop, 2019.

Under Submission/ Preparation

[1] **Multiparty Load balancing**
Talha Waheed, **Sachin Ashok**, Brighten Godfrey, Radhika Mittal, R. Srikanth
In preparation.

[2] **TierX: Adaptive Prioritization to Meet SLO Guarantees for Diverse Workloads**
Matthew Gerard, **Sachin Ashok**, Brighten Godfrey, Radhika Mittal
In preparation.

Teaching/ Service

External Reviewer, SIGCOMM 2025

Teaching Assistant, CS435 - Cloud Networking (Spring 2025)

Invited Talks

Distributed Tracing without the Pain!
KubeCon 2022, Detroit, USA

Fast and Efficient Lookups via Data-Driven FIB Designs (presented virtually)
FIRA@SIGCOMM 2022, Amsterdam, Netherlands

Data-Driven Network Path Simulation with iBox
ACM SIGMETRICS 2022, Indian Institute of Technology Bombay (IIT-B), India

Leveraging Service Meshes as a New Network Layer (presented virtually)
CSL Student Conference 2022, University of Illinois at Urbana-Champaign

Leveraging Service Meshes as a New Network Layer (presented virtually)
HotNets 2021, University of Cambridge, Virtual Event

iBox: Internet in a Box (presented virtually)
HotNets 2020, University of Chicago, Virtual Event

iBox: Internet in a Box for Realistic Network Simulation
Microsoft Bandwidth Control Workshop 2020, Microsoft Research, Redmond

Honors

Invited for student panel discussion at **NetworkingChannel** 2024.

Awarded student grant/ invite to attend **SIGMETRICS'22**, **SIGCOMM'23**, **HotNets'23**.

Invited for project demo at **Microsoft TechFest** (Seattle), 2020.

Finalist, **Pragyan CTF**, an international level security contest held by **NIT Trichy**, 2018.

Among top 100 chosen by **IISc, Bangalore** for **CSA Undergraduate Summer School**, 2017.

Among top 25 chosen by **IMSc, Chennai** for **Summer Research Program**, 2017.

Among 45 chosen worldwide for **Mozilla Winter of Security**, 2016.

Skills and Background

Languages: `C++, C, Python, Golang, Javascript, Bash`

Tools: `Kubernetes, Docker, eBPF, Istio, Protobuf, ns-2/3, gRPC, TensorFlow`

Courses taken: `Advanced Networking (CS 538)`, `Advanced Operating Systems (CS 523)`, `Reliability of Cloud Systems (CS 598XU)`, `High-Speed and Programmable Networks (CS 598RM)`, `Advanced Distributed Systems (CS 525)`