Xiangfeng Zhu

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Research Interests

Systems and Networking, with a focus on microservices, service mesh, and application networking.

Education

University of Washington — Expected: June 2026

Ph.D., Computer Science

Advisors: Prof. Arvind Krishnamurthy and Prof. Ratul Mahajan

University of Michigan, Ann Arbor — May 2021

B.S., Computer Science(with honors)

Advisor: Prof. Mosharaf Chowdhury

Research Experience

Graduate Research Assistant — Sep. 2021- Now
Systems Lab, University of Washington
Advisors: Prof. Arvind Krishnamurthy and Prof. Ratul Mahajan

Research Assistant — Dec. 2018 - Aug. 2021
Symbiotic Lab, University of Michigan
Advisor: Prof. Mosharaf Chowdhury

Research Assistant — Mar. 2018 - Sep. 2019
Disorderly Lab, UC Santa Cruz
Advisor: Prof. Peter Alvaro

Publications

1. **Xiangfeng Zhu**, Yuyao Wang, Banruo Liu, Yongtong Wu, Nikola Bojanic, Jingrong Chen, Gilbert Bernstein, Arvind Krishnamurthy, Sam Kumar, Ratul Mahajan, Danyang Zhuo, "High-level Programming for Application Networks", *Proceedings of the 22nd USENIX Symposium on Networked Systems Design and Implementation (NSDI 2025)*, Philadelphia, PA, 2025
2. **Xiangfeng Zhu**, Weixin Deng, Banruo Liu, Jingrong Chen, Yongji Wu, Thomas Anderson, Arvind Krishnamurthy, Ratul Mahajan, Danyang Zhuo, "Application Defined Networks", *Proceedings of the 22nd ACM Workshop on Hot Topics in Networks (HotNets 2023)*, Cambridge, MA, 2023
3. **Xiangfeng Zhu**, Guozhen She, Bowen Xue, Yu Zhang, Yongsu Zhang, Xuan Kelvin Zou, XiongChun Duan, Peng He, Arvind Krishnamurthy, Matthew Lentz, Danyang Zhuo, Ratul Mahajan, "Dissecting Overheads of Service Mesh Sidecars", *Proceedings of the 14th Symposium on Cloud Computing (SoCC 2023)*, Santa Cruz, CA, 2023
4. Fan Lai, Yinwei Dai, Sanjay S. Singapuram, Jiachen Liu, **Xiangfeng Zhu**, Harsha Madhyastha, Mosharaf Chowdhury, "FedScale: Benchmarking Model and System Performance of Federated Learning at Scale", *Proceedings of the 39th International Conference on Machine Learning (ICML 2022)*, Baltimore, MD, 2022

5. Sebastian Burckhardt, Badrish Chandramouli, Chris Gillum, David Justo, Konstantinos Kallas, Connor McMahon, Christopher S. Meiklejohn, **Xiangfeng Zhu**, "Netherite: Efficient and Reliable Execution for Stateful Serverless Applications", *Proceedings of the 48th International Conference on Very Large Databases (VLDB 2022)*, Sydney, Australia, 2022

6. Fan Lai, Yinwei Dai, **Xiangfeng Zhu**, Harsha Madhyastha, Mosharaf Chowdhury, "FedScale: Benchmarking Model and System Performance of Federated Learning", *Proceedings of the First Workshop on Systems Challenges in Reliable and Secure Federated Learning (ResilientFL 2021)*, Virtual, 2021, **Best Paper Award**

7. Fan Lai, **Xiangfeng Zhu**, Harsha Madhyastha, Mosharaf Chowdhury, "Oort: Informed Participant Selection for Scalable Federated Learning", *Proceedings of the 15th USENIX Symposium on Operating Systems Design and Implementation (OSDI 2021)*, Virtual, 2021 (Acceptance Rate: 18.79%), **Distinguished Artifact Award**

8. Fan Lai, Jie You, **Xiangfeng Zhu**, Harsha Madhyastha, Mosharaf Chowdhury, "Sol: Fast Distributed Computation Over Slow Networks", *Proceedings of the 17th USENIX Symposium on Networked Systems Design and Implementation (NSDI 2020)*, Santa Clara, CA, 2020 (Acceptance Rate: 18.36%)

9. Lennart Oldenburg, **Xiangfeng Zhu**, Kamala Ramasubramanian, Peter Alvaro, "Fixed It For You: Protocol Repair Using Lineage Graphs", *Proceedings of the 9th biennial Conference on Innovative Data Systems Research (CIDR 2019)*, Asilomar, CA, 2019

Talks

Application Defined Networks

- May 2023: FOCI Application Networking Workshop
- May 2023: CSE 461: Introduction to Computer Communication Networks (Guest Lecture)
- Oct 2023: FOCI Annual Symposium
- Oct 2023: Disorderly Lab, UC Santa Cruz
- Nov 2023: ACM Workshop on Hot Topics in Networks

Dissecting Overheads of Service Mesh Sidecars

- Nov 2023: Istio Day North America
- Nov 2023: ACM Symposium on Cloud Computing

Work Experience

Uber June 2023 - Sep. 2023
PhD Software Engineer Intern, Service Mesh Team
Mentor: Dr. Hongqiang (Harry) Liu

VMware Research June 2022 - Sep. 2022
Research Intern
Mentor: Dr. Radhika Niranjan Mysore

Microsoft Research May 2021 - Aug. 2021
Research Intern , RiSE Group
Mentor: Dr. Sebastian Burckhardt

Databricks May 2020 - Aug. 2020
Software Engineer Intern , Serverless Team

Dropbox May 2019 - Aug. 2019
Software Engineer Intern , Filesystem Team

Professional Activities

- **Virtual Chair**: WORDS 2022
- **Program Committee**: Istio Day 2023, NeurIPS(Datasets and Benchmarks Track) 2022, EuroSys 2022 (Shadow PC), IMC 2022 (Shadow PC)
- **Student Volunteer**: SoCC 2021, SIGCOMM 2021
- **Artifact Evaluation Committee**: SIGCOMM 2021, OSDI 2021, EuroSys 2021, JSys 2021

Other Activities

- **Area Chair (System)**: UW CSE PhD Admissions Committe, 2022-2023
- **Reader**: UW CSE PhD Admissions Committe, 2021-2024
- **Mentor**: UW CSE PhD Pre-Application Mentorship Service (PAMS), 2021-2024

Honors & Awards

- **Best Paper Award**, ACM SOSP ResilientFL, 2021
  For *FedScale: Benchmarking Model and System Performance of Federated Learning*
- **Distinguished Artifact Award**, USENIX OSDI, 2021
  For *Oort: Efficient Federated Learning via Guided Participant Selection*
- **Allen School Computer Science & Engineering Research Fellowship**, 2021
- **Conference Student Grant**, KubeCon '23, HotNets '22, FAST '21, NSDI '21, OSDI '21, OSDI '20

Mentorship Experience

Yongtong Wu 2024
Peking University Undergraduate → Peking University PhD
Project: High-level programming for Application Networks

Yuyao Wang 2023-2024
Nanjing University Undergraduate → University of Washington PhD
Project: High-level programming for Application Networks

Banruo Liu 2022-2023
Tsinghua University Undergraduate → UIUC PhD
Project: Application Defined Networks

Fenet Guyassa 2023-2024
Bonney Lake High School Senior → Stanford University Undergraduate
Project: Characterizing Service Mesh Overheads

Ami Oka 2023
University of Washington Undergraduate → Databricks
Project: Characterizing Service Mesh Overheads