## Xiangfeng Zhu

CONTACT 650-660-0918 xzhu27.me

Information xfzhu@cs.washington.edu www.linkedin.com/in/xzhu

RESEARCH INTERESTS Systems and Networking, with a focus on systems for emerging large-scale workloads

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

Mar. 2018 - Sep. 2019

B.S., Computer Science(with honors)

Thesis: Toward Real-time Systems for Vision and Language Applications

Advisor: Prof. Mosharaf Chowdhury

RESEARCH Research Assistant Sep. 2021- Now

EXPERIENCE Systems Lab, University of Washington

Advisosr: Prof. Arvind Krishnamurthy and Prof. Ratul Mahajan

Characterizing Service Mesh Performance Overheads

• Conduct studies on the performance overheads in using a service mesh.

Research Assistant Dec. 2018 - Aug. 2021

Symbiotic Lab, University of Michigan

Advisor: Prof. Mosharaf Chowdhury

Fast Distributed Computation Over Slow Networks

- Co-Developed a general-purpose execution engine, Sol, that can adapt to diverse network conditions on top of Apache Spark.
- Improved SQL, machine learning, and streaming jobs by  $4.2\times$  and  $16.4\times$  on average, respectively, in offline and online settings compared to the state-of-theart systems in resource-constrained networks.

Participant Selection for Federated Learning

- Co-Developed a participant framework to tackle data and device heterogeneity in Federated Learning using importance sampling
- Improved time-to-accuracy performance by  $1.2 \times -14.1 \times$  and final model accuracy by 1.3%-9.8% compared to state-of-the-art FL framework

Undergraduate Researcher Disorderly Lab, UC Santa Cruz

Advisor: Prof. Peter Alvaro

Protocol Repair Using Lineage Graphs

- Co-Designed a debugging approach for distributed systems based on analysis of data provenance obtained during system executions
- Co-Developed a standalone prototype Debugger Nemo and Evaluated it on the TaxDC collection of real-world bugs from large-scale distributed systems (e.g., Hadoop and HBase)

Undergraduate Researcher

Mar. 2017 - Aug. 2017

Storage System Research Center, UC Santa Cruz

Worked under: Prof. Darrell D. E. Long and Prof. Ethan L. Miller

Rogue Cell tower(IMSI Catcher) detector

- Wrote a design document with three lab partners detailing the project and future
- Co-Designed an algorithm to pinpoint the location of IMSI Catchers based on received signal strength (RSS) and signal spike

## **Publications**

- 1. 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", Under Review
- 2. 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
- 3. 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
- 4. 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%)
- 5. 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

Work EXPERIENCE 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

- Program Committee: EuroSys 2022(Shadow PC)
- Student Volunteer: SoCC 2021, SIGCOMM 2021
- Artifact Evaluation Committee: SIGCOMM 2021, OSDI 2021, EuroSys 2021, JSys 2021

- OTHER ACTIVITIES Reader: UW CSE PhD PhD Admissions Committe, 2021
  - Mentor: UW CSE PhD program Pre-Application Mentorship Service (PAMS), 2021

Awards

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

SKILLS

- Programming: Java, C, C++, Python, Scala, Bash, SQL, HTML, CSS, IATEX
- Tools: Perf, GDB, Valgrind, Make, Git, Vim, Docker

Miscellaneous

• Personal Blog: xzhu0027.gitbook.io/blog/