

# Xiangfeng Zhu

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INFORMATION xzhu0027@gmail.com www.linkedin.com/in/xzhu

RESEARCH Systems and Networking, with a focus on systems for emerging large-scale workloads  
INTERESTS such as big data analytics and machine learning.

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)

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

Advisor: Prof. Mosharaf Chowdhury

RESEARCH **Research Assistant** Dec. 2018 - Aug. 2021  
EXPERIENCE **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-the-art 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** Mar. 2018 - Sep. 2019

**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 work.
- Co-Designed an algorithm to pinpoint the location of IMSI Catchers based on received signal strength (RSS) and signal spike

PUBLICATIONS

1. Fan Lai, **Xiangfeng Zhu**, Harsha Madhyastha, Mosharaf Chowdhury, "FedScale: Benchmarking Model and System Performance of Federated Learning", *Under Review*
2. 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*
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%)
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

<b>Microsoft Research</b> <i>Research Intern</i> , RiSE Group Mentor: Dr. Sebastian Burckhardt	May 2021 - Aug. 2021
<b>Databricks</b> <i>Software Engineer Intern</i> , Serverless Team	May 2020 - Aug. 2020
<b>Dropbox</b> <i>Software Engineer Intern</i> , Filesystem Team	May 2019 - Aug. 2019

PROFESSIONAL ACTIVITIES

- **SIGCOMM**: Artifact Evaluation Committee, 2021
- **OSDI**: Artifact Evaluation Committee, 2021
- **EuroSys**: Artifact Evaluation Committee, 2021
- **Journal of Systems Research (JSys)**: Artifact Evaluation Board, 2021

AWARDS

- **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, L<sup>A</sup>T<sub>E</sub>X
- **Tools**: Perf, GDB, Valgrind, Make, Git, Vim, Docker

MISCELLANEOUS

- **Personal Blog**: [xzhu0027.gitbook.io/blog/](https://xzhu0027.gitbook.io/blog/)