Xiangfeng Zhu

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xzhu27.me www.linkedin.com/in/xzhu

Networking, Cloud Computing, Distributed Systems, Operating Systems, Systems for Research

ML, Federated Learning Interests

EDUCATION University of Michigan, Ann Arbor Expected: Dec 2020

> B.S., Computer Science • GPA: 3.76/4.00

University of California, Santa Cruz Sep. 2016 - June. 2018

B.S., Computer Science • GPA: 3.94/4.00

Dec. 2018 - Now Research Research Assistant

EXPERIENCE Software System Lab, University of Michigan

Advisor: Prof. Mosharaf Chowdhury

Sol: 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 and 16.4 on average, respectively, in offline and online settings compared to Apache Spark in resourceconstrained networks.

Data Management for Federated Learning

• Developing a data/device management framework for client selection to tackle data/device heterogeneity in Federated Learning

Undergraduate Researcher Disorderly Lab, UC Santa Cruz

Advisor: Prof. Peter Alvaro

Nemo: Protocol Repair Using Lineage Graphs

- Co-Designed a debugging approach for distributed systems based on analysis of provenance data obtained during system executions
- Co-Developed a standalone prototype Debugger Nemo and Evaluated our approach on the TaxDC collection of real-world bugs from large-scale distributed systems.
- Demonstrated the promise of automatic provenance-guided debugging for complex distributed protocols.

Box of Pain

- Co-Designing a tracer and a fault injector using system-level provenance for unmodified distributed systems
- Evaluating our approach on real-world distributed systems (e.g. Redis and Apache Bookkeeper)

Undergraduate Researcher

Aug. 2017 - Feb. 2018

Mar. 2018 - Now

Computer Communication Research Group, UC Santa Cruz

Advisor: Prof. J.J. Garcia-Luna-Aceves

CUP: Channel-Utilization Persistence for MAC protocols

- Helped Professor J.J. design the first transmission strategy(CUP) for contentionbased MAC protocols which applies to any MAC protocols with carrier sensing, virtual carrier sensing, or priority acknowledgments.
- Analyzed the efficiency of Channel-Utilization Persistence MAC protocols, such as CUP-CSMA and CUP-CSMA/CA, using Markov Chains.
- Presented numerical results that compare the throughput of CUP-CSMA, nonpersistent CSMA, and 1-persistent CSMA.

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)

WORK Experience

Software Engineer Intern, Databricks

May 2020 - Aug. 2020

Software Engineer Intern, Dropbox

May 2019 - Aug. 2019

Software Engineer Intern, Hainan Airline

Jun. 2018 - Aug. 2018

Publications

- 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
- 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 19), Asilomar, CA, 2019

OTHER EXPERIENCE

- CMPE107: Probability and Statistics, UC Santa Cruz, Grader Spring 2018
- CMPS12B: Introduction to Data Structures, UC Santa Cruz , Tutor Spring 2018
- CMPS12B: Introduction to Data Structures, UC Santa Cruz , Lab Tutor Winter 2018
- CMPS101: Algorithms and Abstract Data Types, UC Santa Cruz , Tutor Fall 2017
- \bullet CMPS101: Algorithms and Abstract Data Types, UC Santa Cruz , Grader Fall 2017

AWARDS

• Dean's Honor List: Fall 2016, Winter 2017, Spring 2017, Winter 2018, Spring 2018

SKILLS

• Language: English, Chinese

• Programming: Java, C, C++, Python, Bash, SQL, HTML, CSS, LATEX

• Platform: Mac OS, Windows, Linux

• Tools: Perf, GDB, Valgrind, Make, Git, Vim, Docker

• Data: Oracle, MySQL, Hadoop, Hive, Spark

References

Dr. J.J. Garcia-Luna-Aceves University of California, Santa Cruz

Distinguished Professor of Computer Science and Engineering

Jack Baskin Endowed Chair of Computer Engineering

Phone: 831-459-4153 E-mail: jj@soe.ucsc.edu

Dr. Peter Alvaro University of California, Santa Cruz

Assistant Professor of Computer Science and Engineering

Phone: 415-813-9364 E-mail: palvaro@ucsc.edu

Chris Parsa University of California, Santa Cruz

Adjunct lecturer of of Computer Science and Engineering

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