

Xiangfeng Zhu

CONTACT INFORMATION	3510 Murdoch Dr. Palo Alto, CA 94306 xzhu27.me	650-660-0918 zxfeng@umich.edu www.linkedin.com/in/xzhu
RESEARCH INTERESTS	Networking, Cloud Computing, Distributed System, Operating System	
EDUCATION	University of Michigan, Ann Arbor B.S., Computer Science <ul style="list-style-type: none">GPA: 4.00/4.00 Univeristy of California, Santa Cruz B.S., Computer Science <ul style="list-style-type: none">GPA: 3.94/4.00	Expected: May 2020 Sep. 2016 - June. 2018
RESEARCH EXPERIENCE	Research Assistant Software System Lab, University of Michigan Advisor: Prof. Mosharaf Chowdhury and Fan Lai <i>Speed-of-Light Wide-Area Computation</i> <ul style="list-style-type: none">Co-developing a general-purpose execution engine tailored for latency-sensitive wide-area computation on top of Apache SparkImproved the job completion time by 6.8x and CPU utilization by 1.8x on average compared to the state-of-the-art Spark-based wide-area computation frameworks Undergraduate Researcher Disorderly Lab, UC Santa Cruz Advisor: Prof. Peter Alvaro <i>Protocol Repair Using Lineage Graphs</i> <ul style="list-style-type: none">Developed a debugging approach based on analysis of provenance data obtained during system executions equipped with correctness specifications. Our approaches require programs and their correctness properties written in a high-level declarative language.Helped Design a standalone prototype Debugger Nemo and validated Nemo on protocols from real-world distributed bugs. Our experimental result shows that Nemo demonstrates the promise of automatic provenance-guided debugging for complex distributed protocols. Undergraduate Researcher Computer Communication Research Group, UC Santa Cruz Advisor: Prof. J.J. Garcia-Luna-Aceves <i>CUP: Channel-Utilization Persistence for MAC protocols</i> <ul style="list-style-type: none">Helped Professor J.J. design the first transmission strategy(CUP) for contention-based MAC protocols. This approach 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, non-persistent CSMA, and 1-persistent CSMA.	Dec. 2018 - Now Mar. 2018 - Sep. 2018 Aug. 2017 - Feb. 2018

Undergraduate Researcher
Storage System Research Center, UC Santa Cruz
Worked under: Prof. Darrell D. E. Long

Mar. 2017 - Aug. 2017

Rogue Cell tower(IMSI Catcher) detector

- Wrote a design document with three lab partners detailing the project and future work. Our approach includes Neighboring Cell Tower Information, Absence of Encryption and Signal Strength.
- Designed an algorithm to pinpoint the location of IMSI Catchers based on received signal strength (RSS)
- Wrote C code to communicate with a SIMCOM module via AT commands and a GPS module

PROJECTS

Distributed Debugger Using Provenance Graph 2018

- Designed a lineage-driven distributed debugger(Nemo) with graduate students that can analyze the program and give suggestions to the programmer how and where to correct the program

Fault-tolerant Scalable Key-Value Store 2018

- Developed a distributed, fault-tolerant key-value store that can store the amount of data that cannot fit into one single machine, using consistent hashing.

Chess Puzzle Solver 2017

- Wrote a program that can determine if a player can force checkmate in up to 5 steps, including the moves of the opponent.

Online Reservation system 2017

- Designed an online reservation app for Manyue Yoga Stadium, on-line payment system, and on-line community for member to share their experience.

PUBLICATIONS

1. Fan Lai, Jie You, **Xiangfeng Zhu**, Mosharaf Chowdhury, Harsha Madhyastha, "Sol: Fast Distributed Computation Over Slow Networks", *under review*
2. 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
- **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:** Language: Java, C, C++, Python, Scala, MATLAB, Bash, SQL, HiveQL, HTML, CSS, L^AT_EX, Go(Limited), JavaScript(Limited)
- **Platform:** Mac OS, Windows, Linux
- **Tools:** Perf, GDB, Valgrind, Make, Git, Vim, Neo4j, Docker
- **Data:** Oracle, MySQL, SQLite3, Hadoop, Hive, Spark, Flink

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 Computer Engineering
Phone: 831-252-9033 E-mail: cparsa@ucsc.edu