Liam Arzola

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EDUCATION

B.A. Computer Science 12/2023
Cornell University
GPA: 3.35
Relevant Graduate Coursework: Distributed Systems, Advanced Systems, Advanced Networking, System Security

RESEARCH EXPERIENCE

Research Intern at The Max Planck Institute for Software Systems 06/2023 – present
Operating Systems Group, Prof. Antoine Kaufmann
Working with Prof. Antoine Kaufmann on host network stack research.

- Worked on extending TAS, an optimized userspace TCP stack, by adding optimizations for larger flows, including hardware offload and extended message buffer support (DPDK).
- I am also working on Virtuoso, a host networking stack for virtualized environments. My primary contribution has been adding support for Docker containers and integrating them into our benchmark framework. Virtuoso is currently under submission (https://arxiv.org/abs/2309.14016).
- Additionally, I'm working on modifying TAS to support µs scale reconfigurable optical networks in collaboration with Prof. Yiting Xia. The goal of this project is to understand the trade-offs between increased cost of tracking more out-of-order packets on sender and receiver, and the performance benefit of reducing retransmissions for varying degrees of reordering.

Research Assistant at Cornell University 10/2022 – present
Theory Meets Practice Lab, Prof. Lorenzo Alvisi
Working with Professor Lorenzo Alvisi's group on a byzantine fault tolerant relational database. My work so far has involved designing a relational frontend engine, the implementation of popular online transaction processing benchmarks (TPCC/Auctionmark), as well as helping with the integration of CockroachDB as a baseline system.

TEACHING EXPERIENCE

Undergraduate Teaching Assistant - Operating Systems Practicum 01/2023 – 05/2023
Cornell University

- Teaching assistant alongside Prof. Robbert van Renesse for the optional advanced Operating Systems Practicum.
- Held office hours and graded student OS assignments in C in the Earth and Grass Operating System (EGOS) and EGOS-2000 .

PROFESSIONAL EXPERIENCE

Software Engineer 01/2024 – present
Microsoft
Software engineer working in Azure Edge and Platform's Core OS group. I primarily work in C on I/O virtualization.

Software Engineer Intern 05/2022 – 08/2022
Microsoft
Worked on the Azure Storage Capacity Management team on designing and implementing a leader based crash fault tolerant consensus library for partitioning requests over a cluster of workers. (C#, .NET)

Software Engineer Intern 12/2021 – 05/2022
Quantum Resistant Ledger
Rewrote core library from C++ to Rust and added multithreading support for concurrent XMSS signature verification.

Cofounder/Software Engineer 08/2021 – 11/2021
KabCash
Helped build a community based lending solution for underbanked adults in Latin America. Built server side logic and infrastructure using Python, Flask, and Terraform. Wrote business logic and deployed AWS autoscaling groups.

Software Engineer Intern 06/2021 – 08/2021
Dropbox
Designed and implemented sync progress aggregation for backups. (Rust)

Launch Intern 06/2020 – 08/2020
Dropbox
Developed an API for retrieving a summary of sync failures. (Rust/Python)

Precollege Residential Community Advisor 06/2019 – 08/2019
Cornell University
Led events for students, enforced policy on the floor and within the residence hall, and was responsible for establishing a sense of community within the residence hall.

Lead Mentor 12/2016 – 01/2017
01
Taught the fundamentals of computer science to 20 kids between the ages of 6 and 13.

SERVICE

Volunteer at The 29th ACM Symposium on Operating Systems Principles (SOSP) 10/2023

PROJECTS

Gossip
A peer to peer gossip client built in Rust. Gossips a user provided digit to other clients, updating to the freshest value. Supports an adversarial mode that attempts to attack peers. Built using Tokio for networking and native OS threads for processing user input.

egos-2000 Paging Support
Worked with Yunhao Zhang to add paging to the egos-2000 operating system. (C)

SKILLS

- Rust, C, C++, Terraform (AWS), SQL, Python, C#, DPDK, gdb, perf, Wireshark

HACKATHON AWARDS

1st Place Startup Prize at Miami Hack Week 2021
HF0 Backend Capital

2nd Place at the Miami Bitcoin Hackathon 2018

1st Place at the Matrix & Visa IoT and AI Hackathon 2017