

# Liam Arzola

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🐙 [github.com/liam0215](https://github.com/liam0215)

## EDUCATION

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### B.A. Computer Science

12/2023

Cornell University

GPA: 3.35

Relevant Coursework: Distributed Systems, Advanced Systems, Advanced Networking, System Security, Operating Systems, Computer Systems Organization and Programming

## RESEARCH EXPERIENCE

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### Research Assistant at Cornell University

10/2022 – present

*Theory Meets Practice Lab, Prof. Lorenzo Alvisi*

Working with Professor Lorenzo Alvisi's group on a follow up paper to Basil: Breaking up BFT with ACID (transactions) [🔗](#) (I was not involved in this paper). We are extending the Byzantine Fault Tolerant key-value store presented in the paper to support range queries and SQL. I am responsible for writing a C++ implementation of AuctionMark and TPCC, two relational database benchmarks. I'm also responsible for designing and implementing all client side SQL support and APIs.

### 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 networking stack research. Worked on extending TAS, an optimized userspace TCP stack, by adding optimizations for larger flows, including hardware offload and extended mbuf support (DPDK). I'm also working on Virtuoso, a host networking stack for virtualized environments. My primary contribution has been adding support for Docker containers and experiments. Virtuoso is currently under submission to NSDI'24 (<https://arxiv.org/abs/2309.14016>). Additionally, I'm working on modifying TAS to support  $\mu$ s scale reconfigurable optical networks in collaboration with Prof. Yiting Xia.

## PROFESSIONAL EXPERIENCE

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### 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 for production and testing.

### 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

OI [↗](#)

Taught the fundamentals of computer science to 20 kids between the ages of 6 and 13.

## PROJECTS

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### 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)

### RustCodeGen [↗](#)

Rust Actix API Code Generator

Worked on the CLI using clap-rs.

## SKILLS

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

## HACKATHON AWARDS

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### 1st Place Startup Prize at Miami Hack Week

2021

HFo Backend Capital

### 2nd Place at the Miami Bitcoin Hackathon

2018

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

2017

## TEACHING EXPERIENCE

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### Undergraduate Teaching Assistant - Operating Systems Practicum

01/2023 – 05/2023

Cornell University

- Graded student OS assignments in C in the Earth and Grass Operating System (EGOS) and EGOS-2000 [↗](#).