Sam Flattery

Software Engineer

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Education

Carnegie Mellon University May 2022
Bachelor of Science in Computer Science

- Concentration in Computer Systems
- GPA : 3.91 / 4.00 (Dean's List : F '18, S '19)

Experience

Software Engineering Intern June - Aug 2020
Google (remote)

- Worked with the security team to find bugs in Envoy, an open source L7 proxy, through randomized fuzz testing
- Wrote a fuzz target for Envoy's xDS protocol, which provides a centralized infrastructure for distributing config files to Envoy nodes
- Implemented an abstract state tracker that maintained the correct state of the nodes to verify that updates to the configurations were properly processed after executing the fuzzed input
- Fixed two logical bugs in Envoy's implementation of xDS found by my fuzzer
- Increased fuzz coverage over key files by more than 40%

C++17 | Bazel | Protobuf | Networking | Git

Personal Projects

iOS App : FCE++ May - Aug 2019
Created an iOS app on which students can view CMU's course information and ask questions about courses. Utilized the Parse Platform API and HTTP requests to manage a server-side database. Compiled data from CMU's CSV of course data to JSON format using Python's Pandas, CSV and JSON modules.

Programming Language : sudoCode Dec 2019 - Jan 2020
Taught myself C++ by writing a lexer, parse tree and abstract syntax tree generator from scratch for a small programming language. Created a tool to visualize the graphs that are created as the input code is interpreted.

Coursework

15-440 Distributed Systems (current)
15-451 Algorithm Design and Analysis (current)
15-445 Database Systems
15-418 Parallel Computer Architecture and Programming
15-330 Introduction to Computer Security

Skills

Programming Languages C++17, C, Python, Swift, SML, x86-64 Assembly
Development Tools Git, Vim, Xcode, Make, Bazel, Tmux

Extracurriculars

The Atlas Project | Software Lead Aug 2019 - Now

- Managing the software team developing a fully autonomous gravity-powered vehicle
- Present weekly briefings on software progress to the organization and assign tasks to team members
- Integrated deep learning semantic segmentation into the vehicle's control mechanism