Sam Flattery

Software Engineer

samflattery@gmail.com | 412-419-4127
github.com/samflattery | linkedin.com/in/sam-flattery123

Education

Carnegie Mellon University — May 2022
Bachelor of Science in Computer Science

- Concentration in Computer Systems
- GPA : 3.89 / 4.00 (Dean's List : F '18, S '19, S '20)

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 configuration 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

15-445 - Database Systems (current)
15-418 - Parallel Computer Architecture and Programming (current)
15-414 - Bug Catching : Automated Program Verification
15-330 - Introduction to Computer Security
15-210 - Parallel Algorithms and Data Structures

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