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 : 3.89 / 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 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

15-445 - 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 and Sequential Data Structures and Algorithms

☰ 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