

# 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 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 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