Ashley Vaughn

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Education

- Carnegie Mellon University - School of Computer Science   August 2024 – Present
  Bachelors in Computer Science   Pittsburgh, PA
  Relevant classses: 15-122 (imperative computation), 21-242 (matrix theory),
  15-151 (mathematical foundations for CS)
- MIT Lincoln Labs BeaverWorks Summer Institute (BWSI)   July 2023 – August 2023
  Embedded security and hardware hacking course (in C)   Virtual
  Learning about embedded systems, cryptography, side-channel analysis, and other vulnerabilities

Skills

- Languages: Rust, C, and Python
- Programming language theory and type theory
  - Type systems' safety and effects on performance and parallelism (e.g. substructural type systems, compiler optimizations and analysis)
  - Theorem proving and formalization, Lean, type theoretic foundations for mathematics (e.g. Homotopy Type Theory)
- Security (encryption, common software vulnerabilities)
- Linux and Bash (Arch Linux as primary OS for >2 years)
- Machine learning (Pytorch, architecture and efficiency of various models and algorithms)

Awards

- Team Obsidian   August 2023
  Designed a firmware update system for an embedded device
  Won the MIT BWSI design challenge/CTF
- National Spanish Exam Gold Medal   2022

Interests

- Theoretical Computer Science
  - Algorithms and complexity theory
- Mathematics
  - Abstract algebra, graph theory, category theory, linear algebra
  - CMU Math Club
- Various projects in mathematics, algorithms, and other miscellaneous areas (Blog)
- Ethics and Philosophy
- Fencing (Sabre)