Ashley Vaughn

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Education

- Carnegie Mellon University - School of Computer Science
  August 2024 – May 2028
  Pittsburgh, PA
- MIT Lincoln Labs BeaverWorks Summer Institute (BWSI)
  Embedded security and hardware hacking (in C)
  July 2023 – August 2023
  Virtual

Skills

- Languages: Rust, C, and Python
- Theorem proving and formalization in Lean and Agda
- Programming language theory and type theory
  Type systems and safety, alternative foundations of mathematics
- Security (encryption, common vulnerabilities in code and their solutions)
- Linux and Bash (primary OS for >2 years)
- Machine learning (Pytorch, architecture and performance of various models)

Awards

- Team Obsidian - won the BWSI design challenge/CTF
  August 2023
- National Spanish Exam Gold Medal
  2022

Other Interests

- Mathematics
  - ‣ Abstract algebra, category theory, linear algebra
- Wrote a choice function for countable types and decidable predicates in Lean
- Thought of a method of polynomial root finding inspired by Newton fractals and the Gauss-Lucas theorem
- Computed and analyzed repetend lengths for reciprocals in ranges of various sizes for various bases
  Adds another consideration to the advantages and disadvantages of different bases for number systems beyond the number of prime factors
- Optimizing keyboard layouts: srtmy
- Linguistics and Philosophy
- Fencing (Sabre)