Patrick May

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Education

The College of Wooster, Wooster, OH — August 2020 - May 2024 (Expected)

Bachelor of Arts in Computer Science, Minors in Mathematics, Music — **GPA: 4.0/4.0**

Awards: Edward Taylor Prize, College Scholar Award, Music Performance Award, Dean's List

Work Experience

Junior QA Automation Engineer, Webstaurant Store — May 2023 - Ongoing

- Automate QA tests using **Groovy** scripts and an in-house **Selenium** wrapper to replace up to 95% of manual testing.
- Practice leadership in an **agile** development environment, through assisting in sprint planning in Azure DevOps, sizing 200+ hours of development work, working to implement structural changes to reduce redundant work by 44%.
- Discuss automation software architecture, performing cost/benefit analysis of various **OOP design pattern** implementations of automation software to eliminate redundant code and improve documentation methodologies.

Software Engineering Researcher, Carnegie Mellon University — Summer 2022

- Conducted novel research in the area of **secure programming** in computer science education
- Designed a user study, gathered research subjects, and analyzed over 20 hours of interview data
- Presented findings through poster, powerpoint, and text mediums to various professors and government agencies

Teaching Assistant, The College of Wooster — January 2023 - Ongoing

- Assist students in understanding concepts and applications within **discrete math**, **introductory data structures**, and **algorithm analysis** to increase course performance.
- **Lecture** about select computer science topics and create handouts to aid in students learning throughout lessons
- Mentor peers with post-undergrad prospects, directly helping 10+ students find internships in desired field

Trustee/Secretary/Vice President, Jenny Investment Club — September 2020 - Ongoing

- Research and manage the student-run club's investment portfolio of ~**$10 Million** in assets, to outperform the Russel 2000 ($ RUT) by 16% avg, annually
- Monitor portfolio risk and manage portfolio to keep risks within desired volatility parameters
- Manage officers and club activities to increase participation, engagement, and diversity through outreach initiatives

Projects

SEA, a Static Energy Analyzer — project repo

- Researched **static program analysis** methodologies, worst-cost-execution-time, compilers, computer architecture, cost relations, etc. resulting in a 100+ page senior undergraduate thesis.
- Created a SEA tool, a software pipeline from inputted assembly code to estimated energy "cost" to execute the program.
- Tested the SEA empirically through comparing empirical test-bench results acquired from a Raspberry Pi 4 B.

Independent Study Predictor — postmortem

- Created a simple **webscraper** using Go to harvest 12,000 college theses papers' metadata.
- Automated retrieval of all 6,000 accessible full-text pdf theses using **python** and **selenium**.
- Constructed a 6,000 entry by 92 observation dataset using GPU accelerated **natural language pipelines** and existing **lexical analysis** software.
- Performed exploratory data analysis and fitted various regression models to the lexical thesis data using **R**.

CowProf, a Dynamic Energy Profiler — project repo

- Researched **dynamic program analysis** tools, profilers, and energy measurement tools that culminated in a 25 page research paper
- Created a tool for energy profiling utilizing techniques such as **metaprogramming** and **higher order functions**
- Wrote wrappers for CowProf in **Python** and **C++**, and performed data visualization using **polars**, a Rust data library

Skills

Programming (Experience: More -> Less)

Python C++ Groovy Java C Zig SQL Dart R Haskell Go ARM ASM Rust Bash

Tools/Frameworks/Etc.

Git Linux WSL NeoVim polars numpy Flask Flutter Azure DevOps MSSQS CMD Docker Wireshark