Austin McCulley

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Education

University of Michigan, Ann Arbor
August, 2019 - April, 2023

BSE in Computer Science, Minor in Political Science *GPA: 3.533/4.00; Magna Cum Laude*

- **Course Highlights:** Intro to Computational Linguistics, CS Pragmatics, Intro to Quantum Information Science and Engineering, Programming Paradigms, Software Engineering, Programming Languages, Intro to AI, UI Dev, Human Centered Software and Design and Development
- **Awards/Honors:** Dean's List, University Honors

Port Huron High School
August, 2015 - May, 2019

High School Diploma *GPA: 4.48/4.00; Summa Cum Laude*

- **Course Highlights:** AP Calculus AB, AP Computer Science, AP Stats
- **Awards/Honors:** National AP Scholar, AP Capstone Diploma, NMSQT Commended Student

St. Clair Community College
August, 2017 - May, 2019

Dual Enrollment *GPA: 4.00/4.00*

- **Course Highlights:** Computer Programming I & II, Web Client Programming, Intro to Web Development
- **Awards/Honors:** President's Honor List

Experience

Instructional Aide - University of Michigan, Ann Arbor MI
August, 2021 - June, 2023

- Taught a weekly (twice weekly in Spring) 2-Hour lab section on Data Structures and Algorithms (EECS 281).
- Held one-on-one office hours for project debugging and course content questions.
- Wrote, proctored, and graded exams, including leading the grading team on free response questions and writing the instructor's solutions.
- Mentored new instructional aides every semester following first semester teaching.
- Developed strong fundamentals from teaching a keystone course for 6 semesters.
- For my final 2 semesters, I received an average anonymous feedback score of 5.0/5.0 with a high response rate.

Independent Tutor - Ann Arbor MI
October, 2023 - Present

- Through the Wyzant platform, I am running an independent tutoring business with 25 clients. Primarily focused on college level Python or C++, this has provided further experience practicing important fundamentals..

Skills

- **Languages**: C/C++, Java, JavaScript (received CIW JavaScript Specialist certificate). HTML, CSS, Python, LaTeX, Matlab, OCaml, Rust, R, Assembly, Bash, Scheme, Prolog
- **Tools**: Valgrind, VS Code, git, makefiles, qiskit, Virtual Machines (VirtualBox), WSL, Anaconda, Jupyter Notebook, Regex, Python Coverage package, gcov, cobertura, AFL fuzz testing, evosuite, infer, codesonar
- **Other Skills:** Communication, Adaptability, Research, Writing, Calculus, Linear Algebra, Teamwork

Projects

- **Set Cover Problem:** In C++, implemented a program that found the smallest number of sets needed to cover all elements in the union of all sets. Additionally wrote versions that instead found which sets would cover all elements with the fewest number of duplicate elements, and a version that, where each set has an associated cost, finds the smallest cost to cover all elements.
- **Name Web Scraper:** In Python, wrote a web scraper that retrieves the set of all names from several top baby names websites, for use in collating options for selecting a baby name.
- **Monopoly:** In C++, created a text based version of the game Monopoly with very simple AI in order to later experiment with graphical interface and more complicated AI. Capable of handling multiple human players.
- **Pokemon Type Evaluator:** In C++, wrote an algorithm to find the Pokemon moveset that hit the most type combinations super effectively, and the type combination that resists the most types.

Academic

- **Programming Language:** In OCaml, implemented a strongly typed functional programming language.
- **Rock Climbing Partner Pairing Interface:** In HTML, CSS, and JavaScript, designed the interface for a webapp designed to help people find partners to rock climb with (similar to a dating app, but hobby focused).
- **Vocab Quiz Chrome Extension:** Worked on a team that implemented a Chrome extension that periodically quizzes users on the definition of words on the webpage they're browsing to assist with language learning.
- **Social Media Classifier:** In C++, implemented a simple ML algorithm to classify social media posts into discrete categories based on the post's words compared to training data.
- **Stock Market Simulation:** In C++, implemented a simple stock market simulation, using priority queues to determine when transactions took place.
- **Other:** Multiplayer Uno, Single player Euchre, Maze Solver (BFS, DFS, UCS, A-Star), MCTS emulating AlphaZero, PageRank, branch and bound optimal TSP, 5 Stage Processor Simulator, Delta Debugging, Seam Carving image resizing.