

Ethan McCartney

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| Github: <https://github.com/Master-Pr0grammer> | Personal Website: tinyurl.com/472m3r5f |

Education

Rensselaer Polytechnic Institute (GPA: 3.41)

- B.S. Computer Science (CS) - (*with a strong foundation in Engineering*)
 - Completed coursework equivalent to 2 years in Mechanical Engineering in addition to 3 years of CS.
- Dean's Honor List & Member of National Society of Leadership and Success (NSLS).

Aug. 2021 - May 2025
Troy, NY

Work Experience

Potdevin Machine Systems Engineer - (*Internship*)

- Constructed a bill of materials database containing information on raw materials, manufactured parts, routing information, and vendors.
- Programmed a Python script that expedited the migration of legacy files to a format seamlessly compatible with the new database, speeding up the database construction process by ~ 400%.
- Designed and implemented a new company wide part numbering system.

May 2023 - Aug. 2023
Madison, CT

Physics I & II Tutor - (*Leadership Position*)

- Provided weekly drop-in tutoring sessions with physics I and II students. Reviewed lecture material & homework, covered practice exams, and addressed any academic challenges encountered by students.

Dec. 2022 - May 2023
Troy, NY

Physics I Mentor - (*Leadership Position*)

- Prepared lessons and conducted two weekly classes of 10-15 students each, reviewing Physics I lectures, practice problems, and quizzes.
- Coordinated meetings with struggling students to help them keep up with academic responsibilities.
- Proctored several practice exams to help students prepare for exams.

Aug. 2022 - Dec. 2022
Troy, NY

Projects

Game Engine From Scratch - (*Personal Project*)

- Programmed an entire game engine from scratch in C++ utilizing the OpenGL graphics API, in order to send data from the CPU to the GPU for more efficient rendering.

Dec. 2023 - Present
Troy, NY

Reinforcement Learning Game AI - (*Personal Project*)

- Designed a Reinforcement learning AI architecture to play a simple, custom game. The AI was able to match human performance after playing just 10 games.

Dec. 2023 - Jan 2024
Troy, NY

Personal Website - (*Personal Project*)

- Programmed a custom website from scratch using HTML 5 and CSS, and hosting it on Github pages, to display personal projects that couldn't fit on this resume, and show them in more detail.

Sep. 2023 - Present
Troy, NY

Natural Language Processing AI - (*Personal Project*)

- Designed and deployed a Natural Language Processing (NLP) AI in Python utilizing state-of-the-art transformer architecture and supervised learning techniques.

Jul. 2023 - Aug. 2023
Madison, CT

Mini-BLAST Algorithm Implementation

- Designed an extremely efficient miniature version of the Basic Logical Alignment Search Tool (BLAST) in C++ that implements a custom hash function & table to search a large DNA sequence for similar matches within a user-defined error range.

Apr. 2023 - Apr. 2023
Troy, NY

Recursive Cross-Word Puzzle Algorithm

- Engineered a recursive algorithm in C++ to generate all possible crossword puzzles from a user-defined list of included words, excluded words, and puzzle dimensions.
- Leveraging a dynamic blend of depth-first and breadth-first search techniques, along with strategic symmetry utilization, the algorithm achieved remarkable computational efficiency, outperforming 80% of benchmarked algorithms in speed and performance metrics.

Mar. 2023 - Mar. 2023
Troy, NY

Wordle Solver - (*Personal Project*)

- Programmed an algorithm in Python capable of achieving 100% accuracy in solving the "Wordle" puzzle from The New York Times, completely independent of any external information.

Nov. 2021 - May 2022
Troy, NY

Other Skills & Interests

Technical Skills

Python, C++, C, Java, R, Matlab, HTML5, CSS, Object Oriented Programming (OOP), Linux, MacOS, Windows, Siemens NX, Solidworks, Microsoft suite

Interests

Learning new things, programming, AI & robotics, camping, fishing, soccer