

Wyatt McCarthy

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EDUCATION

Amherst College, Amherst, MA | *BA in Computer Science*

Expected December 2024

- **GPA:** 3.8/4.0 **SAT:** 1550/1600
- NESCAC All-Academic Student-Athlete on Men's Varsity Soccer, NCAA National Championship Runner-Up 2021, NESCAC Tournament Champion 2022, NESCAC Tournament Champion 2023, CSC Academic All-District Team 2023, NCAA National Championship Runner-Up 2023
- Extensive coursework in Math, Economics, and Computer Science (Industrial Organization, Microeconomics, Macroeconomics, Multivariable Calculus, Linear Algebra, Data Structures, Algorithms, Artificial Intelligence, Computer Systems, Networks, Databases)

The Beacon School, New York, New York | *High School Diploma*

June 2020

- **Activities and Societies:** Varsity Soccer, High Honor Roll

RELEVANT COURSEWORK

Data Structures & Algorithms

- Data Structures Curriculum Focus: Lists, Stacks, Queues, Binary Search Trees, Hash Tables, Graphs, Dictionaries, Abstraction
- Algorithms Curriculum Focus: Algorithmic Paradigms (Divide and Conquer, Greedy, Dynamic Programming) and Implementation, NP Completeness

Artificial Intelligence

Fall 2022

- Curriculum Focus: Search, Adversarial Search, Reasoning Under Uncertainty, Reinforcement Learning
- Projects Completed: Implemented algorithms for path-finding, adversarial search, reinforcement learning, and particle filtering to create artificial intelligence agents for Pacman in various observable and unobservable environments. Algorithms: A* search, Minimax, Q-Learning, Joint Particle Filtering

Computer Systems

Spring 2023

- Curriculum Focus: C, Assembly, Linux, Git, ISAs, Virtual Memory, Caching, Memory Management, Threads and Synchronization, Virtual Machines, File Systems, Embedded Systems

Algorithms and Visualization

Spring 2023

- Curriculum Focus: HTML, CSS, and JS, jQuery, Recursion and Dynamic Programming, Computational Geometry and Visualization, Graph Visualization

Databases

Fall 2023

- Curriculum Focus: Entity-Relationship Model and Algebra, SQL, Relational Algebra Operation in DBMS, Disk Layouts, Query Planning, Concurrency Control

WORK EXPERIENCE

Roblox, Incoming Software Engineer Intern

Summer 2024

Massachusetts Institute of Technology CSAIL, Undergraduate Research Assistant

Spring 2024

DegreeCat, Software Engineer Intern

July 2023 - November 2023

- Responsible for brainstorming and participating in discussions regarding the development of DegreeCat's web application in the company's very early stages.
- Self-taught and worked in the MERN (MongoDB, Express JS, React, Node JS) stack to contribute to the early stages of DegreeCat's web app/website.

Amherst College, Amherst, Massachusetts | *Computer Science Teaching Assistant/Tutor*

October 2022 - Present

- Assisted Professor Mihaela Malita in overseeing a lab period; assisted students with programming fundamentals in Java.
- Tutored students across Intro to Computer Science, Data Structures, Algorithms, and Artificial Intelligence, strengthening my mastery of programming fundamentals.

A2 Aviation, New York, New York | *Operational Manager and Tech Lead*

June 2021 - Present

- Responsible for market research, negotiating sales and purchasing transactions, and handling relevant paperwork. Identified profitable purchases that met the company's and our clients' specifications; facilitated the purchasing and sales operations behind over \$1 million in product sales.
- Wrote Python scripts and developed simple web applications with vanilla JavaScript to streamline our sales management processes. Scripts automated previously manual processes like the creation and maintenance of a company directory, sales and profit data log, and market pricing data log.

PROJECTS

Amherst Athletics Database

October - December 2023

- Developed aER model for Amherst athletes' Catapult Sports GPS data and created PostgreSQL database around said model.
- Built full-stack app with PERN (postgres, react, express, node) stack that interfaces with PostgreSQL database, providing users various means of visualizing existing data and uploading new data.
- Amherst Strength and Conditioning coaches hope to utilize the app for performance insights in upcoming collegiate seasons.

Pathfinding Algorithm Visualizer

November 2022/April 2023

- Applied fundamental concepts learned in Artificial Intelligence and Algorithms courses to create a program for visualizing pathfinding algorithms in Python. Have since remastered the project and reimplemented it using HTML, CSS, and JavaScript.
- Mastered the logic of these algorithms such that the program can demonstrate an algorithm's final product and how it produces such a result on an iterative and/or recursive level.

Checkers AI

November - December 2022

- Designed a checkers game in Python with pygame such that an AI agent to play against the user could be smoothly implemented.
- Implemented relevant logic to create an evaluation function/heuristic for the board state. Used evaluation function to implement the minimax and expectiminimax algorithms. Used presorting, alpha-beta pruning, and transposition tables to optimize minimax, increasing algorithm computation speed by over 10x.
- Wrote scripts to simulate games such that I could test the empirical efficiency of various minimax optimizations. Used test results to further refine, debug, and optimize the algorithm based on trends of worst-case and best-case runtimes.

SKILLS & INTERESTS

Proficient in: Java, Python, JavaScript, HTML, CSS, Excel/Google Sheets **Have Worked With:** Git, ExpressJS, NodeJS, Tailwind CSS, React, C/C++, jQuery, SQL, Assembly, Linux **Tools and Software:** VSCode, IntelliJ, MongoDB, Postman, PostgreSQL, QuickBooks Online

Soft Skills: Time Management, Tutoring, Leadership, Teamwork, Interpersonal Communication, Negotiation, Project Management, Work Ethic

Interests: I truly enjoy the way programming challenges you to problem solve and its unlimited creative potential. I have always been fascinated by algorithms and have found programming to be my greatest means of exploring and applying algorithmic thinking to creative expression/building projects. I am particularly interested in the development and application of algorithms. Outside of school, I am interested in soccer, calisthenics, rock climbing, and general health/wellness. I dedicate over 20 hours a week to my athletic pursuits and believe the maintenance of my physical health allows me to perform at my highest level in the classroom and workplace.