

ALEX WANG

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EDUCATION

Case Western Reserve University

Cleveland, OH

Bachelor of Science in Computer Science, Software Engineering concentration

Aug 2021 – May 2025

- **Cumulative GPA:** 3.81 | **Honors/Awards:** National Merit Finalist (2020), Dean's High Honors (2021-2024)
- **Coursework:** Data Structures and Algorithms, Statistics for Engineering in R, Linear Algebra, Intro to AI, Discrete Mathematics, Computer Networks, Intro to Operating Systems, Programming Language Concepts, Full Stack Web Development
- **Organizations:** University Program Board, Society for Industrial and Applied Mathematics, Hacker Society, Theta Tau

SKILLS

Programming Languages: Python, JavaScript, Java, MATLAB, Scheme, C#, R, Haskell, C/C++

Software Tools: Git, LaTeX, GIMP, Inkscape/Canva, Unity, Microsoft Office Suite, Affinity Photo

RELEVANT PROJECTS

University Budget Sheet Bot | JavaScript | Google Sheets API

June 2024 – present

- Engineered an error-resistant data scraping bot to track purchase & revenue items, computing relevant financial statistics in real time
- Maintained aggregated budget information by dynamically generating spreadsheet tables on the Finance committee's master sheet
- Safeguarded sensitive financial information from unauthorized access by automatically changing access based on each user's roles

Scheme Language Interpreter | Scheme/Racket

Feb 2024 – May 2024

- Developed a robust interpreter to evaluate parse trees and manage program environments for a Java/C-like programming language
- Exploited tail call optimization to implement variable scoping by properly coding function closures, bindings, and exception handling
- Constructed automated test cases, covering scenarios such as recursion, parameter mismatch, nested function calls, and name masking

Flight Price Predictor | Python | Scikit-learn

Jan 2024

- Predicted the price of airline tickets by using hyperparameter tuning to choose the most effective model parameters and architecture
- Achieved an R squared value of 0.8 by optimizing the parameters of the loss function and utilizing train-validation-test splitting
- Performed pre-processing & filtering on raw data to produce a standardized representation of the feature vector for the ML model

Eight Puzzle Solver | Python | Pygame

Dec 2023 – Jan 2024

- Created a simple and intuitive GUI, utilizing the A* algorithm to efficiently solve a variant of Noyes P. Chapman's 15-puzzle
- Leveraged Pygame library for UI and program visualization, allowing users to interactively shuffle, solve, and see the puzzle state
- Formulated a heuristic resulting in optimal search with a median search time of 0.04 seconds, considering a maximum of 800 states

WORK EXPERIENCE

Cognizant

Remote

Generative AI Externship

June 2024 – Aug 2024

- Contributed to a project comparing the accuracies of 3 convolutional neural networks by measuring the rate of false positives
- Applied a parameter-efficient fine-tuning technique to tweak generative models with minimal usage of computational resources
- Gave 6 presentations to externship cohort and mentors, discussing case studies and ideas related to ongoing programming projects

Case Western Reserve University

Cleveland, OH

Algorithms Teaching Assistant

Jan 2024 – May 2024

- Held weekly office hours and one-on-one appointments for students seeking extra help, raising exam scores by 15 percentage points
- Spearheaded 5 review sessions throughout the semester to boost student understanding of relevant topics before exams and quizzes
- Conducted 20+ mock interviews to demonstrate how to formulate and explain solutions to programming problems effectively

Case Western Reserve University

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Intro to Programming Teaching Assistant

Aug 2022 – Jan 2024

- Tutored 30+ students per week on control flow, data structures, and sorting algorithms to raise exam scores by 20 percentage points
- Designed quiz questions and projects to assess students on algorithmic development, noise reduction, and signal analysis techniques

LEADERSHIP EXPERIENCE

University Program Board

Cleveland, OH

Finance Co-Chair

April 2024 – present

- Introduced a cost-cutting program to buy items in bulk at the beginning of each purchasing period to reduce annual costs by 20%
- Oversaw the management of \$435k+, analyzing previous budget expenditures to effectively allocate resources to 13 subcommittees
- Analyzed financial projections to create new budget system for the following year and presented to a panel of university administrators

Society of Industrial & Applied Mathematics

Cleveland, OH

Secretary

Sep 2022 – May 2023

- Organized monthly chapters for 20 university students interested in discussing technology and math-related research topics
- Hosted 5+ seminars teaching students technologies such as Python, MATLAB, or LaTeX by developing programming tutorials
- Curated a newsletter to inform the student body about free access to peer-reviewed journals and 10+ research conferences a year