

ALESSANDRO LORENZO

lorenzoa@umich.edu • (786) 405-3280 • Ann Arbor, MI • <https://lorenzoa3.github.io/portfolio>

EDUCATION

University of Michigan

Bachelor of Science in Engineering in Computer Science

GPA: 3.42 / 4.00 (Graduated with Cum Laude Honors)

Relevant Coursework: Software Engineering, Data Structures and Algorithms, Operating Systems, Web Systems & Development

Ann Arbor, MI

August 2024

SKILLS

Computer & Management: C++, C#, C, Python, HTML, JavaScript, CSS, R, SQL, Unity, Label Studio, Jira

Languages: Spanish

PROJECT EXPERIENCE

Stock Market Simulator

May 2023 – July 2023

- Developed stock exchange simulator in C++ with multiple priority queue structures to accurately match buy/sell orders, emulating an efficient and realistic stock market
- Optimized trading algorithms by utilizing the STL library and object-oriented design principles such as abstraction, decomposition, generalization, and encapsulation, enhancing order matching speed and overall simulation performance
- Analyzed performance of various priority queue implementations to evaluate efficiency, gaining insights into data structure optimization and improving execution time for complex trading scenarios

Rent-A-Bot

September 2023 – December 2023

- Collaborated in a team of four to develop a couch co-op simulation game with Unity and C#, applying game design concepts such as player guidance, game physics, game flow, and progression, resulting in a cohesive and engaging multiplayer experience
- Designed and implemented gameplay mechanics with a focus on novelty, theming, and game juice, increasing player satisfaction and boosting overall gameplay engagement with Jira for project management
- Led game testing and debugging to ensure technical soundness and smooth performance, resolving critical issues and delivering a polished, high-quality final product acquiring 2nd place at the University of Michigan's Game Showcase

Client-Side Dynamic Pages

May 2024 – June 2024

- Built dynamic client-side web pages with HTML, CSS, and JavaScript, enabling asynchronous updates using AJAX, which resulted in a seamless user experience with real-time page interactions
- Integrated REST APIs and SQL database to dynamically manage and retrieve user data, enhancing page functionality without full page reloads, significantly improving application responsiveness
- Worked on backend API and database design, ensuring efficient data flow and reducing latency, improving page load times while securely tracking user information

Network File Server

July 2024 – August 2024

- Developed a multi-threaded secure network file server in C++, handling concurrent client requests via socket programming, improving server reliability and performance during high traffic
- Integrated encryption protocols to secure communication between clients and the server, preventing unauthorized access and ensuring data confidentiality during file operations
- Optimized file system operations with synchronization techniques, locks, and condition variables reducing read/write conflicts, ensuring data integrity, and improving overall server performance in high-concurrency environment

EXPERIENCE

University of Michigan

Machine Learning Researcher

Ann Arbor, MI

September 2022 – April 2023

- Collected 345,289 syllabi from public Texas universities with web scraping in Python for research aimed at determining courses with a significant writing component, employing a text-as-data approach
- Annotated 2500+ syllabi, validating a specific definition for significant writing component; trained machine learning model to incorporate said definition into its annotation process
- Built over 50 data visualizations with Python to accurately illustrate findings; presented weekly updates to project faculty on discrepancies and strengths of model and discussed potential improvements to its accuracy

LEADERSHIP EXPERIENCE

PHI THETA KAPPA HONOR SOCIETY - BETA PI THETA CHAPTER

President

Miami, FL

April 2021 – April 2022

- Managed and contributed to Hallmark Award submissions, actively participated in all essential weekly chapter meetings, regional and national events; led Honors in Action initiative obtaining first place Internationally Distinguished Research Project Award
- Guided and supported 100+ college freshmen, assisted them in navigating their college journey; organized 10+ student events, collaborated with 3 college departments across 5 campuses, increased community engagement by 50%