ALESSANDRO LORENZO
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EDUCATION

University of Michigan **Ann Arbor, MI**
Bachelor of Science in Engineering in Computer Science *December 2024*
GPA: 3.42 / 4.00
Relevant Courses: Software Engineering, Data Structures and Algorithms, Operating Systems, Web Systems & Development

SKILLS

Programming Languages: C++, Python, C#, JavaScript
Technologies & Tools: Git, HTML, CSS, Unity, SQL, Label Studio, Docker, Ubuntu, Linux, Jira, Pandas
Languages: Spanish (Native Proficiency)

TECHNICAL PROJECTS

Network File Server | C++, Docker, Ubuntu *June 2024 – August 2024*

- Engineered a multi-threaded secure network file server in C++, processing 500+ concurrent requests for reading, writing, deleting, and creating files/directories through socket programming to enhance system resilience under peak traffic
- Devised innovative measures to integrate advanced security protocols between clients and the server; ensured protection of sensitive directories while handling over 500 concurrent user requests for improved data integrity
- Enhanced file system performance by 80% through the implementation of synchronization techniques, locks, and condition variables, which reduced read/write conflicts and ensured data integrity while avoiding deadlocks.

Full-stack Social Networking Service | Python, JavaScript, HTML, CSS, SQL, AJAX *May 2024 – July 2024*

- Built a full-stack social media platform using dynamic server and client-side web pages with Python, HTML, CSS, and JavaScript, enabling asynchronous updates using AJAX resulting in a seamless user experience with real-time page interactions
- Integrated REST APIs and optimized SQL database queries to dynamically manage and retrieve user data, enabling core features such as likes, comments, shares, and follows, improving application responsiveness by more than 50%
- Created and deployed backend API and database architecture, halving data retrieval latency, while securing user data through a robust session-based login mechanism

Rent-A-Bot | C#, Unity, Jira *September 2023 – December 2023*

- Collaborated with a team of four developers using Agile development to build a co-op game with Unity and C#, applying game design concepts such as guidance, progression, and game physics, resulting in an engaging multiplayer experience
- Designed and implemented gameplay mechanics, leveraging a TDD workflow to ensure quality and consistency, with a focus on novelty, theming, and game juice, resulting in a 20% increase in game attraction and enhanced gameplay engagement
- Led game testing and debugging utilizing Jira for project management to ensure technical soundness and smooth performance, resolving critical issues and delivering a polished, high-quality final product acquiring 2nd place at Michigan's Game Showcase

Piazza Post ID Classifier | C++, Ubuntu *May 2023 – June 2023*

- Developed a probabilistic post identification system in C++ using Naive Bayes algorithm and NLP techniques, analyzing over 10,000 posts from Piazza to classify content based on tags, improving classification accuracy substantially
- Implemented feature extraction with recursive parsing and function objects to identify unique words in posts, enhancing processing efficiency by over 65% when handling large datasets
- Optimized classification speed by designing word-label frequency mappings and leveraging log-probability calculations for fast and accurate prediction, reducing manual sorting time by 40%

WORK EXPERIENCE

University of Michigan **Ann Arbor, MI**
Researcher, Machine Learning *September 2022 – May 2023*

- Annotated 2500+ syllabi using Label Studio, validating a specific definition for significant writing component; trained machine learning model for annotation with an 80/20 test split, utilized natural language processing to scale human annotation to corpus
- Web scraped 345,289 syllabi from public Texas universities using Python for research aimed at determining courses with a significant writing component, employing a text-as-data approach, achieving higher accuracy in identifying criteria
- Created 50+ data visualizations with Python to articulate model performance and insights to faculty; findings aligned with expectations of a lower number of robust writing courses at under-developed institutions

LEADERSHIP EXPERIENCE

PHI THETA KAPPA HONOR SOCIETY - BETA PI THETA CHAPTER **Miami, FL**
President *April 2021 – April 2022*

- Managed and contributed to Hallmark Award submissions, actively participated in all essential weekly chapter meetings, regional and national events; Honors in Action initiative obtained 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 over 50%