Lei Lin

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Education

University of Michigan - Ann Arbor Expected May 2025

B.S.E. Computer Science, Minor in Mathematics GPA: 3.9/4.0

- **Relevant Coursework**: Data Structures and Algorithms, Operating Systems, Machine Learning, Computer Organization, Statistics and Data Analysis, Computer Security, Signal Processing

Skills

Languages: C++, C, Python MATLAB, JavaScript, HTML, CSS

Tools: AWS, REST APIs, pandas, numpy, scikit-learn, BeautifulSoup, PyTorch, React, Git

Experience

Undergraduate Researcher, *University of Michigan – Ann Arbor, MI* *Sept 2023 – Present*

- Automatically measured the performance of GPT-3.5 at creating Terraform code for deploying AWS resources by developing Rego policies for the expected results
- Developed a Python script to query GPT-3.5 for generating Terraform configuration files for testing and analysis

Project Team Lead, *Wolverine Sports Analytics – Ann Arbor, MI* *Sept 2023 – Present*

- Developed a play-by-play model by using the Monte Carlo method to simulate NBA matchups
- Led weekly meetings for a group of 10 to build an NBA analysis tool to predict team matchups and measure the impact of individual players on a team
- Scraped 100,000+ play-by-play data points from 800+ basketball games using BeautifulSoup and MySQL

Student Software Engineer, FLASH Parking – Ann Arbor, MI *Jan 2023 – Dec 2023*

- Designed, trained, and validated custom CNN, SVM, and LSTM models to recognize sentiment using video and audio data, achieving over 65% accuracy
- Developed and fine-tuned the YOLOv7 object detection algorithm to identify and extract faces from parking kiosk video data with above 90% accuracy
- Facilitated weekly meetings with faculty, sponsors, and other team members, created agendas, and provided follow-up on project progress

Projects

Multithreaded Filesystem | *C++, Boost* *Dec 2023*

- Designed and implemented a multithreaded architecture for efficient concurrent file operations, enabling parallel execution of read and write tasks using synchronization tools from the Boost library
- Implemented secure and scalable communication between different components of the multithreaded filesystem using Websockets
- Implemented comprehensive error handling and recovery strategies for enhanced system robustness

Reddit Comment Analysis | *Python, pandas, numpy, scikit-learn, matplotlib* *Feb 2023*

- Developed and validated multiple machine learning models in Python to perform sentiment analysis on Reddit comments, achieving over 90% accuracy
- Used asymmetric cost functions to address an imbalanced dataset, improving classification accuracy by 30%
- Conducted testing and validation, using techniques like k-fold Cross Validation, improving model generalization

Mock SQL Database | *C++* *Dec 2022*

- Created a relational database management system with commands for creating tables, adding/deleting rows, joining tables, and querying columns with a specific value or specific ranges of values
- Implemented an indexing tool to speed up queries that the user will heavily use; reduced runtime by 90%