David Lin

Website: lindavid1998.github.io/portfolio | GitHub/LinkedIn: lindavid1998 | lindavid1998@gmail.com

Education

Georgia Institute of Technology (Remote)	**Jan 2024 – 2026 (expected)**
Master of Science: Computer Science w/ Machine Learning Specialization	GPA: 4.0

University of California, San Diego	**Graduated: June 2021**
BS/MS: Chemical Engineering	GPA: BS – 3.93 (Magna Cum Laude)	MS – 3.86

Work Experience

Illumina (Medical Device Manufacturing)	**San Diego, CA**
Process Development Engineer I, II	June 2021 – Present

- Developed Python scripts using pandas and NumPy to effectively parse large volumes of data from tool logs, enabling extraction of critical information to facilitate data-driven decision making
- Integrated scripts with Tableau for dynamic data visualization, collaborating with cross functional stakeholders to identify opportunities for dashboarding.
- Leveraged SQL to query manufacturing databases and extract relevant data, facilitating the investigation of production issues

School Projects

Warehouse Path Planner (CS7638, Robotics for AI)	**Jul 2024**

Python

- Modeled a 2D grid warehouse environment where a robot moves to pick up and deliver boxes to a designated drop-off point.
- Implemented the A* search algorithm to find optimal and efficient paths while avoiding obstacles such as walls and boxes.
- Accounted for collision and uneven motion costs, as well as stochastic motion for realistic robot behavior.
- Used dynamic programming to develop an optimal policy for the robot to follow from any starting location to deliver a single box.
- Integrated additional floor costs on top of motion costs into the policy to model the challenges of uneven terrain.

Indiana Drones GraphSLAM (CS7638, Robotics for AI)	**Jul 2024**

Python

- Implemented linear GraphSLAM techniques to accurately localize a robot and map obstacles in a 2D grid system.
- Designed and implemented a path planning algorithm to route a robot to a known treasure location using the map generated from SLAM.
- Successfully accounted for noise in motion and measurement data, ensuring reliable localization and mapping.
- Modeled robot motion with a bicycle model to reflect realistic movement patterns.
- Integrated physical constraints, including maximum turning angles and distances, into the model to ensure realistic motion.
- Successfully extracted the treasure within the given time limit, efficiently avoiding obstacles and handling noise in sensor data.

Machine Learning Financial Trading Strategy (CS7646, ML for Trading)	**Apr 2024**

Python

- Developed a machine learning-based trading strategy using real-world financial data and technical stock indicators
- Used Python to implement a bag learner with random forest classification algorithms to predict optimal trading actions based on standardized and labeled indicator data
- Evaluated strategy against a manual rule-based approach by comparing returns across both training and test datasets
- Tuned learner and indicator parameters through meticulous analysis of performance metrics such as returns and training time
- Successfully achieved a 5% return over an unseen 1-year dataset

Personal Projects

Shredders	**May 2024 - Present**
PostgreSQL, Express, React, Node, Tailwind CSS, Supabase, Render, Vite, React Router	https://shredders-client.onrender.com/

- Developed a PERN stack web application to help snowboarders plan trips and identify overlapping trips with friends.
- Implemented JWT user authentication, friend search, and trip creation features, allowing users to manage RSVPs and discuss trip plans.
- Integrated PostgreSQL to support complex queries for structured data retrieval, ensuring efficient management of user, friend, and trip information.

- Designed a responsive UI using React and Tailwind CSS, optimized for both mobile and desktop screens.
- Deployed the frontend and backend to Render, with the database hosted on Supabase.

AllFields   **Aug 2023 – Nov 2023**
JavaScript, HTML, CSS, React.js, Firebase   https://allfields-570a5.web.app/

- Developed a CRUD web app inspired by AllTrails for soccer enthusiasts where users can look up soccer fields, post reviews about field conditions, and share images
- Created an interactive and responsive frontend with React and Styled Components, with filter views and a map display through integration with the Google Maps API
- Integrated user profiles with avatar customization, favoriting, and recent activity
- Utilized Firebase for the backend, including Authentication, Realtime Database for data management, and Cloud Storage for images

Where's Waldo   **May 2023 – Jul 2023**
JavaScript, HTML, CSS, React.js, Jest   https://lindavid1998.github.io/wheres-waldo

- Developed an interactive photo-tagging web game based on Where's Waldo
- Implemented Jest for comprehensive testing, ensuring robust functionality and minimizing bugs
- Leveraged React Redux for centralized state management

Skills

• JavaScript	• JWT	• Python
• HTML/CSS/Tailwind	• Git	• Pandas/Numpy
• React	• Tableau	• CART
• Jest	• Jira	• Bag Learning
• Express/Node	• PgAdmin	• Q Learning
• Mongoose	• Supabase	• A*
• MongoDB	• Render	• GraphSLAM
• PostgreSQL	• Firebase	• Java