LEO LIU

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 @leonliur

Education

University of Michigan — College of Engineering   Ann Arbor, MI
B.S.E. in Computer Science
- **GPA**: 4.00/4.00 | **Courses**: Data Structures & Algorithms, Discrete Math, Computer Science Theory
- **Activities:** V1 Michigan, UpRound Ventures, MASA Rocketry Team, Michigan Data Science Team

Experience

SynnaxLabs   Ann Arbor, MI
Software Engineer   *September 2023 - Present*
- Devised features for Synnax, a real-time **distributed telemetry database** used to transfer and store sensor data capable of processing up to 6,000,000 samples per second.
- Engineered a **deletion** and **tombstoning** algorithm in the distributed storage system with **GoLang** to support data removal concurrently with millions of read/write operations.

FIRST Robotics Competition Team 610   Toronto, ON
Executive Robotics Software Engineer   *January 2022 - April 2023*
- Devised a Computer Vision bounding-box algorithm to automatically align a robot to a target using **PID-control** with **Java** and **LimelightCV** while autonomously setting the power output to score a ball in the target.
- Built a full-stack data collection and analysis application with **Next.js** and graph-based database **Neo4j**. Maintained and led CI/CD using **DigitalOcean** and **Vercel**.
- Researched and created a Java-based **state-space simulation** algorithm to simulate motion based on current and voltage outputs.
- Won international finalists' award at the FIRST World Championship.

Canadian Young Physicists' Tournament   Toronto, ON
Information Team Lead   *March 2021 - March 2023*
- Built an online tournament management system using **Flask** and **SQLite** for more than 1000 users over three years.
- Handled over 100,000 annual traffic for more than 50 teams across Canada and led the information team to work with the nation-wide tournament planning committee to power administrative operations.

Personal Projects

Project: Manu.AI   November 2023
- Founded and shipped a B2B startup company providing service for companies to turn their user manuals into digital knowledgebases.
- Built and launched a full-stack application using **Next.js**, **FastAPI**, **AWS S3**, and **Pinecone** vector database.
- Deployed the app with Docker.

Research: Housing Proximity to Amenities in the U.S.   February 2023
- Spearheaded research of a novel algorithm to quantify the impact of proximity to amenities of houses with **NumPy**, **Pandas** and mapping APIs such as **Google Maps** and **ArcGIS**.
- Wrote a research paper with data visualization using MatPlotLib and Seaborn and presented it to experts in the field of sustainable development.
- Won 1st place out of 160 teams in a national Big Data Challenge and pending publication.

Kaggle: Prediction CO_2 emission in Rwanda   August 2023
- Engineered an algorithm to predict CO2 emissions in Rwanda and placed in top 9% of 1440 competitors.
- Published Notebook of a baseline prediction pipeline involving Exploratory Data Analysis with **Numpy** and prediction with **LightGBM** and **ScikitLearn**.

Technical Skills

Programming Languages: Java, Python, C++, HTML/CSS/JavaScript, Golang
Technologies/Frameworks: Git, React.js, Next.js, NumPy, Pandas, SQL, Neo4j, MatPlotLib, SciKit-Learn, Tensorflow, AWS S3, Docker, Kubernetes, JDBC, Supabase
Spoken Languages: Trilingual in English, French, Mandarin
Interests: Poker, Philosophy, Physics, Music, Chess, Basketball, Baseball, Film