Longpan Zhou

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Education

McMaster University Hamilton, ON
Bachelor of Engineering: Software Engineering *Sep. 2020 – May. 2025*
Awards: McMaster Honour Award (Dec 2020) | Dean's Honour List (Fall 2020 - Spring 2022)

Experience

Terrestrial Energy Inc. May. 2023 – Dec. 2023
Engineer Intern *Oakville, ON*

- Implemented and consistently maintained a **Java**-based workflow management system for the engineering and physics team, achieving a ∼**20%** reduction in design approval life cycle time, from an average of 101 to 78 days, while concurrently enhancing usability and garnering a 87% satisfaction rate among 70+ employees.
- Configured **VMware** workstations and established a shareable server infrastructure for executing analytical software and computations, managed **Linux clusters** for optimal performance of analytical workflows.
- Restructured corporate website to meet standards of CNSC(Canadian Nuclear Safety Commission) for auditing.

McMaster Rocketry Dec. 2021 – May. 2023
Ground Control Team member *Hamilton, ON*

- Designed and built a rocket recovery system by visualizing avionics data in real-time via a Lora telemetry stream using **TypeScript**, **React.Js**, and **Rust**.
- Successfully achieved goal of **10,000 ft** altitude and recovered rocket after landing in Launch Canada Competition.

Projects

Israel-Palestine War Map | *Backend: Flask, Pandas, Requests - Frontend: Javascript, React, Vite, Bootstrap*

- Used **JavaScript** and **React** in the frontend to create an interactive map interface, integrating **Google Maps API** for map rendering and interaction, and **Bootstrap** for css.
- Utilized **ACLED API** for Israel-Palestine conflict event data, and implemented a **Flask** backend for geo-spatial data processing, providing up-to-date information on conflict events and locations.
- Designed a map illustrating the Israel-Palestine conflict, visually depicting key locations, territories, and historical events to enhance understanding and awareness of the complex geopolitical dynamics involved.

Trading Crew | *Python: Numpy, TensorFlow, Matplotlib, Pandas, yFinance*

- Utilized **TensorFlow** and **Keras** with **LSTM** neural networks in **Pandas**-based data analysis for stock price prediction, employing standard training techniques for optimization and validation.
- Developed **Python** scripts utilizing **NumPy**, and **Matplotlib** libraries to calculate and visualize performance indices such as beta, variance, covariance and correlation etc for stock analysis purposes.
- Built a tool provides automated download of stock information from stock exchanges(NYSE, Nasdaq, TSX etc) via **Pandas** & **yFinance API** and enables comparison of index with selected stock.

London Subway Station | *Python: Numpy, Matplotlib, Flake, Pytest*

- Applied graph theory concepts to build the system, implementing **strongly connected components** and **TSP**.
- Improved performance by optimizing system structure design and algorithm through benchmark using **Pytest**.
- Implemented adjacency matrix/directed weighted graph based **Dijkstra's** and **A* algorithm** to compute the shortest paths between two subway stations using real public London subway station dataset.

Recycle Sorting | *Python: Numpy, Pandas, Matplotlib*

- Designed a sorting algorithm to that uses optical sensor readings (FTIR & Raman) to help identify and recycle 7 different types of plastics: HDPE, LDPE, PP, PS, PC, PVC, Polyester, PET and PU.
- Achieved ∼**92%** accuracy sorting between plastics with the algorithm implemented. All optical spectrum are saved and plotted with **Matplotlib** and **Pandas** for manual inspection to help reaching higher accuracy.

Technical Skills

Languages: Python, C++, Java, Rust, HTML, CSS, JavaScript, MATLAB, Verilog, SQL
Tools: Git, Bash, Linux, IDA Pro