

# Zhenlin Wang

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## EDUCATION

### Carnegie Mellon University (CMU)

Master of Science in Machine Learning

Pittsburgh, PA

December 2023 (Expected)

### National University of Singapore (NUS)

Bachelor of Science in Applied Mathematics (1st Class), Double Major in Computer Science

Singapore

June 2022

GPA: 4.75/5.0 | Dean's List (Fall 2020, Fall 2021)

**Courses:** Data Structure & Algorithms, Design & Analysis of Algorithms, Database Systems, Computer Organizations, Operating Systems, Software Engineering, Machine Learning and Artificial Intelligence, Deep Reinforcement Learning

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## SKILLS

**Programming Languages:** Python, C++, JavaScript, SQL, NoSQL, Java, YAML, Git, CSS, HTML, Shell script

**Frameworks and Tools:** C++ STL, Pandas, Scikit-learn, PyTorch, Keras/Tensorflow, MySQL, MongoDB, Postman, Elasticsearch, Redis, AWS Cloud, React, Node.js, GraphQL, REST, Spring Boot/Cloud, RabbitMQ, Nginx, Docker/Kubernetes

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## PROFESSIONAL EXPERIENCE

### Emporio Analytics (Eyos)

Singapore

Data Science Intern

May 2020 – August 2020

- Proposed a kernel density estimation model for price-quantity estimation via analysis over 20 million grocery e-receipts stored in MSSQL server and implemented model's real-time, scalable version with PySpark Streaming and MLlib
  - Designed and deployed the model in AWS EC2 and S3 for sales report generation, achieving 3 times better pipeline efficiency and improved prediction accuracy by 14.5% on real-world transaction data
  - Parallelized a price anomaly detection process using Python multiprocessing and reduced runtime from 8 hours to 2 hours
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## PROJECT EXPERIENCE

### Twitch Recommendation Engine

August 2022 – Present

- Designed and built web-based recommendation engine for users to search twitch resources using React and Ant Design
- Developed RESTful APIs using Java servlets, retrieved real Twitch resources using Twitch API and stored data in MySQL
- Extracted game information from cloud and applied Recommender System algorithms on it via AWS EC2 and SageMaker
- Supported user authentications with social logins and implemented grouping/favourite collection features

### FeedCMU

CMU | September 2022

- Designed a free food finder web application integrating Google Map Platform's APIs and SDKs at a hackathon (HackCMU)
- Reduced team's food finding problems into shortest path problems, solved them with Dijkstra's/Floyd-Warshall algorithms

### Smarte-Mall

NUS | May 2022 – August 2022

- Created web app's backend with distributed system and microservices via Java Spring Framework and Docker/Kubernetes
- Achieved resources separation, reverse proxy, and load balancing with Nginx. Registered and configured services with Nacos
- Accelerated data search, retrieval, and synchronization with MySQL, Redis, Elasticsearch and Spring Session
- Solved concurrency problems during heavy network traffics via Redisson locks, Java Thread Pools and maintained transaction reliability and consistency using RabbitMQ message queue cluster

### CLI-nic

NUS | August 2020 – November 2020

- Led the development of a GUI-based medical supply monitor app on Linux in Java with Agile and Test-Driven Development
- Implemented deletion and search modules in the app with Object-Oriented Design and enhanced GUI's visual using JavaFX
- Automated unit/integration testing in Continuous Integration/Deployment via JUnit Test and Travis CI

### MyPal

NUS | May 2019 – August 2019

- Developed a loosely coupled website for students for relationship management, event scheduling and connection analysis
- Built the user interface of the app using HTML, CSS, React, Node.js and applied D3.js for data visualization
- Implemented backend system with Express and Node.js, integrated cloud-hosted NoSQL databases from MongoDB Atlas and engineered REST/GraphQL APIs to handle front-end/back-end connections and asynchronous data requests
- Awarded Orbital Software Development Apollo 11 (Advanced) Level