

Education Background

Carnegie Mellon University Information Networking Institute Pittsburgh, U.S. | Aug. 2021 - Dec. 2022
M.S. in Mobile and IoT Engineering; GPA: 4.00 / 4.00
Courses: Introduction to Computer System, Storage Systems (ongoing), Advanced Real-World Data Networks (ongoing)

Zhejiang University College of Computer Science and Technology Hangzhou, China | Sep. 2016 - Jul. 2021
B.Eng. in Computer Science and Technology, B.Sc. in Statistics (double degree); GPA: 3.63 / 4.00
Courses: Database Systems, Operating System, Computer Networks, Artificial Intelligence, Advanced Practices on Big Data Applications

Technical University of Munich Department of Informatics Munich, Germany | Apr. 2019 - Sep. 2019
TUMexchange Program - Informatics; GPA: 3.60 / 4.00
Courses: Compiler Construction, Machine Learning and Natural Language Processing for Opinion Mining, Seminar Data Mining

Professional Experience

Apple Information Systems & Technology (IS&T) Shanghai, China | Feb. 2021 - Jul. 2021
IS&T Intern, IT Development Program (ITDP)

- Conceptualized and implemented a proof-of-concept continuous evaluation and monitoring framework for machine learning models.
 - Developed the **database schema** and **REST API** with Postgres and Flask, with support for horizontal scalability on **Kubernetes**.
 - Created a two-step machine learning metric calculation mechanism with intermediate result storage as **time series data** in **InfluxDB** and the second step calculation with flux query language, empowering fast on-demand metric query and low storage cost.
 - Built the frontend with **React** for metrics configuration management. Adopted **Grafana** for metrics visualization and real-time alerting.
 - Packaged the framework as a **helm** chart for easy installation. Setup the pipeline for **automated testing and deployment**.
 - Communicated and collaborated with **3 other teams** on integrating and testing the framework on existing deployed machine learning evaluation services, including use cases on Apple Trade In and Apple Store.
 - Presented the project to the **IS&T Management Team** (senior director level, **CEO -3**).
- Refactored and migrated business teams' offline supply chain allocation logic to **AWS** using CloudFormation, EC2, Lambda, and RDS.

Amazon Supply Chain Optimization Technologies (SCOT) Beijing, China | Jun. 2020 - Sep. 2020
Software Development Engineer Intern, Direct Fulfillment Team

- Engineered and launched the shipping capacity hard constraint feature for direct fulfillment warehouses.
 - Conducted the table design in **DynamoDB** that supports constraint record edition history tracking.
 - Developed the backend service in **Spring** with full unit test coverage. Implemented the corresponding frontend interface in **jQuery**.
- Conducted ship method allocation analysis for direct fulfillment warehouse shipments.
 - Synthesized **terabytes** of data archives from **multiple data warehouses** for recalculating intermediate results of the business logic.
 - Analyzed the impact of fulfillment network capacity settings against the shipping costs and delays with **AWS Redshift** and **Jupyter Notebook**, provided algorithm and operational optimization insights for the management team.

Massachusetts Institute of Technology Langer Research Lab Cambridge, U.S. | Sep. 2019 - May. 2020
Visiting Student Researcher

- Developed a computer vision and deep learning based food carbohydrate estimation system.
 - Trained and optimized the **semantic segmentation** model for food region recognition based on U-Net.
 - Took the initiative of developing the **iOS application** and **Flask backend** service that realized the whole process of data capture, scene reconstruction and understanding, carbohydrate estimation, result visualization, and user interaction.
- Worked with Boston Dynamics on the healthcare-focused SPOT robot system responding to COVID-19.
 - Researched and built the facial temperature and respiration rate monitoring system with **openCV**, **insight face**, and **GigE vision**.
 - Configured the **CUDA** environment and improved **MATLAB** array's memory layout compatibility with Python, improving the system's frame rate by nearly **8 times** compared to the standard implementation.

Selected Projects

- **NikiSQL** (3 person team): A **database system** with support for data types, B+ tree index, block buffering, and conditional query.
 - **Reversi Zero** (individual): A reversi AI player with a simplified **AlphaGo Zero** algorithm, ranked top 5% in the corresponding course.
 - **Malloc Lab** (individual): A **memory allocator** with **C** implementation of segregated list, measured 74.3% utilization and 8486 KOPS.
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Technical Skills

- **Languages:** Python, C, Java, Swift, Javascript, Shell script, SQL, HTML.
- **Frameworks:** Flask, React, jQuery, UIKit, pthread, unittest, Spring, TensorFlow, Keras, numpy, OpenCV.
- **Tools:** Docker, Kubernetes, AWS (CloudFormation, EC2, Lambda, S3, DynamoDB, VPC), Jenkins, Postgres, MySQL, git.