YANQING LU

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EDUCATION

University of Southern California — Jan 2024–Dec 2025 (Expected)
Master of Science in Computer Science (Artificial Intelligence) — Los Angeles, CA

Southern University of Science and Technology — Aug 2019–Jun 2023
Bachelor of Science in Mathematics and Applied Mathematics — Shenzhen, China

- Relevant Coursework: *Machine Learning, Convex Optimization, Principles of Database Systems, Operating Systems*
- GPA: 3.68/4.0 (Weighted Average Score: 88.75)
- Awards: Excellent Freshman Scholarship, *Special Award*; Merit Student Scholarship, *3rd Class*; Excellent Graduation Thesis

RESEARCH EXPERIENCE

Mean Field Multi-Agent Reinforcement Learning Based Edge Caching — Jul 2022–May 2023

- Contributed paper to *2023 IEEE Global Communications Conference* as the **lead author**.
- Proposed a mean field multi-agent reinforcement learning framework and a practical algorithm (mean field Actor-critic) for the neural network model caching problem in a large-scale edge intelligence system.
- Implemented the proposed algorithm using PyTorch and conducted extensive simulations; experiment results show that the proposed algorithm outperforms several benchmark algorithms on both the convergence rate and training time.

INTERNSHIP EXPERIENCE

Baixing.com — Sep 2023–Dec 2023
Software Development Engineer Intern — Shanghai, China

- Crafted a management system for diverse LLM APIs, incorporating support for API keys distribution and auto-updating. Successfully averted service outage caused by invalid API keys in the company's LLM-based services.
- Established a state machine-based workflow orchestration system that enables a chatbot to talk according to predefined processes. Implemented intent recognition using LLMs to determine the state transitions between nodes, which achieve diverse functionalities, including LLM-based text responses, drawing images, and controlling the main workflow.
- Transitioned the network protocol of the company's main product from HTTP to WebSocket, enabling the server to proactively push messages. This enhancement significantly improved the extensibility of product features.

PROJECTS

Stock and Contract Management System — May 2022

- Designed database for the management of supplier transaction and inventory data based on PostgreSQL; set up a series of APIs (e.g., inventory update, stock and contract information search, staff and supply center management) used for the manipulation of database.
- Utilized Spring Boot to construct back-end server encapsulating all APIs with a multi-layers structure; developed separate front-end with web-based GUI implemented by HTML.

Beijing PM2.5 Diagnosis and Forecast — Apr 2022

- Utilized Python to extract 5 years' data on PM2.5 concentrations and several meteorological indices in Beijing; completed data statistics, visualization and preprocessing.
- Trained long short-term memory (LSTM) using TensorFlow to model the relationship between PM2.5 concentration and those meteorological indices; predicted PM2.5 using the trained model and achieved $R^2 = 0.4623$ on test set.

Mathematical Contest in Modeling — Feb 2022

- Completed project schedule, effectively delegated tasks to group members and made key contributions to final paper.
- Designed exponential regression model to identify optimal gold and bitcoin daily trading strategies.
- Achieved rate of return exceeding 6000% on test set thanks to effective application of model.

Gitlet: A Version Control System — Jul 2021

- Implemented the basic features of Git as a local version control tool using Java; Gitlet supports 13 git-style commands, able to backup and backdate files in local repository, display backup history and merge different backup branches.
- Designed system hierarchy based on object-oriented programming and adopted various data structures for different needs, including HashMap and LinkedList.

TECHNICAL SKILLS

Languages: Java, Python, C/C++, SQL, MATLAB, HTML
Technologies: Git, Redis, Linux, Docker, NumPy, Pandas, PyTorch, TensorFlow, Spring Boot