TIANZE LIU (OWEN)

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EDUCATION

University of Southern California
Master of Science, Spatial Data Science; GPA 4.0/4.0 Expected May 2025

Chinese University of Hong Kong
Bachelor of Science, Data Science and Big Data Technology August 2019

CONTESTS AND REWARDS

- 10th NVIDIA Sky Hackathon (Builting LLM based Agent Rank 11/50) July 2024
- Generative AI Contest by China Merchants Bank Co., Ltd. (Rank 143/2000) May 2024
- Li-Yun Scholarship August 2019

RECENT RESEARCH AND WORK EXPERIENCE (SELECTED)

China Mobile Research Institute – Generative AI Intern June 2024 – September 2024
Research Institute Attached to China Mobile that incorporates AI tech into specific fields and daily workflows

- Built **Multi-Agent** conversational framework to generate industrial reports via searching documents, writing sections, normalizing articles
- Implemented **Text2SQL Agent** based on VannaAI and **TAG**, which used natural language to generate error-free SQL commands to retrieve databases
- Implemented **Multi-Agent Collaborative WorkFlow** to automate a programming lifecycle including identifying work division, pre-writing the codes, executing and finally debugging if necessary to achieve the natural language programming

University of Southern California – Machine Learning Engineer April 2024 – Present

- Applied multiple machine/deep learning algorithms including **XGBoosting, NNM, Mixture NN** etc. to predict travel time based on travel mode and distances and reduce the MSE to 200 on 4M data better than baseline model (MSE = 1700)
- Predicted structured note value-at-risk using **LSTM, ARIMA, XGboosting**, and multiple deep learning algorithms, with an MSE of 251 on 4M test data, significantly outperforming baseline model (MSE = 517)

Shenzhen Research Institute of Big Data – Machine Learning Engineer November 2022 to May 2023
Institute that focuses on research and applications of Big Data. Developed enhanced spatial operational algorithms.

- Implemented a variable neighborhood search **sim-heuristic** algorithm to solve the multi-period inventory routing problem under stochastic spatial distribution and demands in 30 minutes on small scale
- Constructed a **distributed decision model** based on the stochastic demands, fulfilling regular deliveries on the service level and tracking inventory with a preset standard
- Implemented a branch and bound algorithm based on the **Hungarian method** in combination with a simplex method for complex networks to minimize the costs of a project to build a decision model for the project managers, decreasing the time cost by around 15%

Byte Dance (TikTok) - AI Engineer Intern May 2022 to June 2022

- Built an Intelligent Agent based on **LangChain**, **RAG** and **LLM** to accomplish tasks such as parsing and understanding fund announcement data, answering user questions by multi-modality and accomplished the **Prompt Engineering** based on **CO-STAR** principles.
- Implemented handwritten digits recognition with **TensorFlow**, the Sequential model in **Keras**