Kuan-Ru Liou

•(623)212-5468 •kliou@asu.edu •https://www.linkedin.com/in/kuan-ru-liou-a7b055291/

EDUCATION

Master of Computer Science **Expected May 2025**
Arizona State University, Tempe, Arizona **GPA: 3.89/4**
Relevant Courses: Data Mining, Database Management, Data Visualization, Data Intensive system in Machine Learning.
Bachelor of Computer Science **May 2023**
National Defense University, Taoyuan, Taiwan (Military Academy) **GPA: 3.83/4**
Features: Leadership, Teamwork, Communication, Social Skills, Presentation and Discipline.

TECHNICAL SKILLS

Programming languages: C++/C, Java, JavaScript, Python, SQL, HTML, CSS, PHP, R.
Tools & Framework: NoSQL, Hadoop, Azure, Scala, Spark, Hive, Power BI, Excel, Outlook, ETL, Git, Tableau, DynamoDB, Oracle, MATLAB, SAS, Docker, Linux, HuggingFaces, LLM API, MySQL, PostgreSQL, Perl, Snowflake.
Areas of Expertise: Database, Data Science, Machine Learning Forecasting, NLP Dataset, LLM fine tuning, LLM agent.

PROFESSIONAL EXPERIENCE

DaRL Lab Intern - Data Mining and Reinforcement Learning Group | *Arizona State University* **Oct 2023 – Present**
- Assisted PhD students in conducting experiments and analyzing results for ongoing research projects.
- Presented research papers and findings at weekly lab meetings, facilitating group discussions and knowledge sharing.
- Mentored fellow interns, providing guidance and support in dataset creation and problem-solving to ensure success.

Data Analysis Intern | *Edplus Arizona State University* **Aug 2024 – Present**
- Analyzed and managed student information to predict at-risk students, reducing the failure rate by 20% and improving graduation outcomes.
- Developed a conversational AI tool that improved student comprehension of the Zaixian Program handbook, enhancing engagement by 30%.
- Evaluated phone recordings, improving the quality of interactions with prospective students by 50%.

Squad Leader | *National Defense University* **Jan 2021 – Dec 2021**
- Mentored and supervised students to ensure tasks were completed on time while fostering teamwork and responsibility.
- Facilitated clear communication between supervisors and students to achieve team objectives successfully.

PROJECT

Bank System with database | *Python, PostgreSQL*
- Developed a comprehensive banking system that enables users to create and manage accounts, perform secure transactions, and apply for loans
- Led the design and implementation of the database schema, ensuring efficient data management and integrity.

Optimizer - Trading at the Close | *Python, Machine Learning*
- Collaborated in a team to develop machine learning models predicting NASDAQ stock closing prices during the closing auction using historical data from the NASDAQ order book and the Closing Cross Auction.
- Conducted exploratory data analysis (EDA) using Principal Component Analysis (PCA) and Recursive Feature Elimination (RFE) to reduce dimensionality and extract important features, improving prediction accuracy by 15%.
- Implemented advanced machine learning models like Long Short-Term Memory (LSTM) networks and Gradient Boosted Trees (LightGBM, XGBoost), leading to a 35% increase in prediction performance by capturing temporal patterns and handling large, high-dimensional datasets.

PUBLICATION

Abg-Sci: Benchmark and Enhance Ambiguity Detection and Clarification in Language Models May 2024 -Aug 2024
- Listed as the co-first author of this paper and this paper currently under reviewed by AAAI 2024.
- Developed Abg-Sci, a novel dataset aimed at evaluating and enhancing the ability of LLMs to detect and resolve ambiguities in natural language.
- Conducted experiments using both closed-source and open-source LLMs, demonstrating significant improvements in model performance, with the F1 score of Llama2-7b in Ambiguity Detection improving from 40.9% to 92.2% after fine-tuning on Abg-Sci.

Open-TI: Open Traffic Intelligence with Augmented Language Model | github | paper Oct 2023 – Dec 2023
- Listed as the second author of this paper Accepted by ICRL 2024 LLM Agent Workshop and IJMLC journal (IF=5.6).
- Optimized Open-TI, which is a traffic intelligence using LLMs agent to help users scratch the data they need, through prompt design to increase the accuracy of the LLMs agent's performance from 83% to 94.5%.
- Specialized in Python to improve the efficiency and stability between functions and the LLMs agent.

AWARD

TSMC AZ Fellowship **Fall 2024 – Spring 2025**
ASU Travel Award **May 2024**
ASU Experimental Award **May 2024**
New American Scholar Fellowship **Fall 2023 – Spring 2024**