David, Ta-Wei, Kuo

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EDUCATION

The University of Chicago, Chicago, IL

M.S. in Applied Data Science December 2024 (Expected)

B.S. Computational and Applied Mathematics, B.A. Geophysical Science 2018-2023

Relevant Courses

- Quantitative Trading Strategies, Financial Analytics, Stochastic Processes, Time-Series, Statistical Analysis, Machine Learning and Large-Scale Data Analysis, Analysis in Rn, Theory of Algorithms, Probability Math

Awards

- Eka International Scholarship, Rudolf Scholarship for Advanced Scholar, Dean's List

SKILLS

- Languages: C/C++, Python (NumPy, SciPy, Scikit-learn, PyTorch, Matplotlib, Pandas, PySpark), SQL, (MySQL, SQLite, Postgre SQL, HQL), R, Matlab, Racket
- Tools and Environment: Git, SVN, DVC, Airflow, MLFlow, Linux/Unix system, Databricks, Google Cloud Platform, AWS Cloud, Hive, Flask, Docker, Kubernetes, Tableau, PowerBI, Langchain, Latex

EXPERIENCE

TipTop Technologies, *Software Engineering Intern* March 2024 ~ July 2024

- Utilized Langchain to create an API that converts video content into textual descriptions. Successfully integrated this API with the existing Flask-based web application, enhancing functionality and improving user experience.
- Redesigned architecture for user data collection, storage, and transformation under supervision. Improved query performance by 30% by revising the table structure and optimizing SQL query logic

Institute of Economics, Academia Sinica, *Full-time Research Assistant* September 2020 ~ June 2021

- Executed advanced quantitative analysis on the correlation between climate change and Taiwan's agricultural & economic performance with machine learning and general equilibrium models, leveraged comprehensive climate, price, and production datasets with over 100 Gb size, and established data transformation and storage pipeline to optimize execution time by 50%.
- Performed advanced risk modeling on agricultural product prices utilizing time-series climate data with Python and R, showcased findings through matplotlib and ggplot and contribute significantly during annual grant report conference host by Taiwanese Board of Agriculture.

SELECTED PROJECTS:

Foreign Exchange Trading Simulation

- Implemented algorithmic trading simulation with 20+ foreign currencies sourced from yfinance, analyzed distributions of currency spread, momentum, and implemented trading strategies based on carry trade and momentum-based algorithms.
- Back-tested strategies with historic data, optimized trading parameters, and experimented hedging and stop-loss mechanisms.

Position Neutral Delta Option Trading Simulation

- Predicted trading volatility of AAPL, MSFT, TSLA options with LGBM, Random Forest, and RNN networks and implemented position neutral delta trading strategies.
- Simulated trading strategies with 2022-2023 historic data, analyzed the Sharpe ratio, VAR to study robustness of strategies.