Chen-Hao Wu

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EDUCATION

Duke University, Pratt School of Engineering **Durham, NC USA**
Master of Engineering, Financial Technology expected May 2026

National Yang Ming Chiao Tung University **Hsinchu Taiwan**
Bachelor of Science, Information Management and Finance | GPA 3.9/4.0 Sep. 2020-Jan. 2024

- Relevant Coursework: Selected Topics in Reinforcement Learning, Data Mining, Machine Learning and FinTech

EXPERIENCE

VICI Holdings **Taipei, Taiwan**
Quantitative Research Intern Sep. 2023-Mar. 2024

- Developed high-frequency day trading strategies using rule-based entry identification and feature engineering with LightGBM classifiers, achieving a Sharpe ratio above 2 after transaction costs
- Independently designed proprietary features, market embeddings, and labels for tick data, leveraging advanced exploratory data analysis and visualization skills
- Built and backtested different strategies, creating a system to evaluate profit and loss potential

Yuanta Securities **Taipei, Taiwan**
Full-time Quantitative Research Intern Jul. 2023-Aug. 2023

- Created neural networks with PyTorch to predict the probability distributions of selected stock returns; compared to the linear model, this model provided more statistics of return for decision-making while maintaining the ability to predict point estimates of returns
- Built and deployed a new predictive model in stock lending operations, resulting in a 15% increase in returns and enhanced stability over existing models
- Maintained a database with Neo4j and a website for the department's knowledge graph utilizing Flask and JavaScript; Implemented web crawling methods using PyAutoGUI and Selenium to update the content automatically

SELETED PROJECTS

Reinforced Market Making using Multi-Agent Generative Adversarial Imitation Learning **Sep. 2022-Jan. 2024**

- Developed PyTorch neural networks to clone existing market-making strategies without relying on core pricing models, improving strategy identification accuracy by 7% though advanced imitation learning techniques
- Processed 700,000+ limit order book entries and created custom indicators for high-frequency options market analysis, with sophisticated feature engineering approaches to synthesize complex market information
- Generated and optimized new trading strategies based on the cloned network outputs and deployed them in simulated trading environments to iteratively transform initially unprofitable models into profitable strategies

Realized Volatility Prediction | Data Mining **Sep. 2023-Dec. 2023**

- Developed an ensemble model combining LGBM, Neural Network, and TabNet to predict stock price volatility, achieving a 0.22 RMSPE and ranking in the top 4% on the leaderboard
- Engineered custom financial indicators, used K-means clustering to group similar stocks, and integrated three regressors with weighted outputs into the ensemble model

Finding trading signals in Bitcoin market using machine learning technique **Sep. 2022-Jan. 2023**

- Utilized classification methods to predict future trading signals (whether the price will rise or fall); predicted though different clustering and classification/boosting approaches (KNN, XGBoost, etc.) based on technical analysis indicators; optimized method generated 300% excess return and 75%-win rate with backtests

SKILLS

Programming Languages	Python, C/C++, HTML/CSS/JavaScript, PHP
Machine Learning	Regression, Clustering, Scikit-Learn, LightGBM, Reinforcement Learning, PyTorch
Database Management	SQL, Neo4j, MySQL