Hou Un (Howie) IAO

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EDUCATION

The University of Chicago   **Chicago, IL**
Master of Science in Financial Mathematics (GPA: 3.9/4.0)   **Expected December 2024**
- Courses: Quantitative Trading Strategies, Monte Carlo Simulation, Numerical Methods, Option Pricing, Stochastic Calculus, Algorithmic Game Theory, Fixed Income Derivatives, Portfolio and Risk Management

Shanghai Jiao Tong University   **Shanghai, China**
Bachelor of Economics   **June 2023**
- Courses: Optimization Methods, Data Structure, Machine Learning, Reinforcement Learning, Forecasting Analysis, Microeconomics, Macroeconomics, Applied Econometrics, Algorithmic Trading and Quantitative Investment
- Awards: First Prize Scholarship; Special Prize Scholarship; Excellent Student Award, ACEM Alumni Association

EXPERIENCE

BMO Financial Group   **Chicago, IL**
Quantitative Analyst Summer Intern   **June 2024 – Present**
- Develop XGBoost classifier to detech customer hard attrition with redefined target variable; tune hyperparameters of the model -and the look-back windows of features; measure the model performance from different perspectives
- Consturct features with raw large-scale panel data of customer transactions data and profiles; Identify the feature importance in terms of impurity decrease and mean absolute SHAP value; provide actionable insights with tags
- Communicate with teams to ensure alignment on project goals and methodologies, tracking and reporting progress through detailed updates and presentations to keep all stakeholders informed and on the same page

Flow State Investment, LP   **Chicago, IL**
Quantitative Researcher – University of Chicago Project Lab   **March 2024 – May 2024**
- Developed a momentum strategy for equity in future index by measuring momentum and indentifying market regime
- Analzed signals for interest rate futures by examing the slope and convexity of the yield curve with PCA

AlphaROC   **Chicago, IL**
Quantitative Researcher – University of Chicago Project Lab   **October 2023 – March 2024**
- Leveraged daily survey data to create high-frequency macroeconomic indicators and forecast lower-frequency official releases, e.g. the CPI release of the U.S. Bureau of Labor and Statistics
- Created uncertainty factor for spending, home value, employment and inflation to measure economic expectation

Trexquant   **Stamford, CT**
Global Alpha Researcher (Remote)   **August 2022 – October 2022**
- Developed and backtested medium-frequency futures alpha strategies in bond, currency and commodities markets; some alphas yielded significant IR of more than 0.7 with acceptable turnover and maximum drawdown
- Designed trading strategies by combining strong Alphas within similar themes resulting in tradeable signals through filter, fit, post-progress functions in Python

RESEARCH

Quantile Trading Strategy on the Deviation of Put-Call Parity   **February 2024 – March 2024**
- Generated daily long-short signals on stocks within the S&P 500 index by ranking put-call implied volatitlity spreads out of each stock's selected option pair, ensuring consistency in target maturity and strike distance
- Implemented quantile variation in back-testing with diverse weighting methods and various trading cost assumptions

Application of Machine Learning for Calibration in Regime-Switch Model   **February 2023 – May 2023**
- Utilized clustering methods to identify the number of regimes in a CEV model and verified with simulation in Python
- Accelerated the computation of option prices and the calibration of model parameters using a neural network; the run time reduced from 4625s to 18s for 60000 samples with two regimes, from 7020s to 24s with three regimes

SKILLS

Computing: Python, C++, R, Stata, MATLAB, MS Office
Knowledge: Statistical Modeling, Econometrics, Machine Learning, Reinforcement Learning, Financial Markets