SEONGMIN JO

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EDUCATION

Sungkyunkwan University   Seoul, Korea
Bachelor`s degree of Global Economics and Mathematics   ***GPA 3.9/4.5***   Mar/20 – Oct/25
- ***Coursework:*** Statistical Analysis for Economics, Intermediate Macroeconomic, Intermediate Microeconomic, Mathematics for Economics, Introduction to Algorithms, Linear algebra*, Calculus I*, Econometrics*, Financial Management*, Statistics*
- ***Leadership: Vice President of FBA Quant student research group***
  FBA Quant is a student research group that aims to learn the fundamentals of quantitative finance and market microstructure and its application with machine learning techniques.

*Denotes course of fall 2022

RESEARCH/PROJECTS

NH Big Data Competition | Prediction Stock Holding Period   Oct/21 – Nov/22
- Cleaned and visualized customer information data via python to detect outliers. Calculated expected shortfall and individual profit rate for feature engineering and utilized VIF to check the correlation between features.
- Classified customers by dividing the holding period using Decision Trees, LGBM, SVM, XGBoost, k-Nearest Neighbor, and ensembled models via soft voting. Utilized greedy search for tuning hyperparameters and examined feature importance.

DB Investment Competition | Allocate Global ETFs and Manage Virtual Portfolio   Jun/21– Aug/21
- Predicted asset performance through Black-Litterman and improved portfolio performance by incorporating momentum factor of MSCI as an investor's view. Plotted efficient frontier and allocated assets maximizing returns under target volatility.

DB Financial Competition | NLP and Correlation Analyses   Jan/21 – Mar/21
- Preprocessed unstructured 10-K/Q document from SEC and applied NLP techniques (dictionary approach with Loughran and Mcdonald wordlists and TF-IDF*/Cosine similarity) on MD&A sector to extract sentiment score
- Examined the correlation between sentiment score and ETF categorized by same GISC sector to predict USA stock market using sentiment of 10-K/Q

* TF-IDF: Term Frequency–Inverse Document Frequency

EXPERIENCE

QVEST TECHNOLOGIES   Seoul, Korea
Quant Research Intern | Python, Django, MongoDB, VBA, C#   Oct/21 – Jan/22
- **Data Engineering:** Automated scrapping unstructured data via Html Agility of C# to prevent recognized as a robot on the website and designed data storage in MongoDB database and automated inserting scrapped data for quant development.
- **Portfolio Management:** Developed portfolio analyzing logic calculating sector & factor diversification using PCA, risk contribution, and developed optimization logic calculating risk parity, min risk strategy, retrieved data from MongoDB.
- **Multifactor Strategies & Dynamic Scoring:** Developed customizing multifactor logic which ranked stocks with weighted averaged z-scores and modeled stock scoring by combining factors considering economy cycle and factor`s momentum.
- **Back-testing Multifactor Strategies:** Developed back-testing website via Django where people can combinate subfactor and test performance of customized multifactor strategy via Zipline.

QRAFT TECHNOLOGIES   Seoul, Korea
RL Research Assistance | Python   Jun/21 – Sep/21
- **Valuation and Risk management:** Modeled discounted cash flow of various companies using S-RIM and calculated Expected Shortfall of the trajectory using Monte-Carlo simulation for feature state feature engineering of state.
- **Offline RL:** Demonstrated that offline reinforcement learning can eliminate the need for market simulators for agent learning and reproduced all algorithms of offline reinforcement learning thesis to find the best algorithm for optimal execution.

FBA Quant Student Research Group   Seoul, Korea
Head of Market Microstructure & Reinforcement Learning | Python   Jan/21 – Present
- **Optimal Execution:** Simulated a trading environment of Almgren and Chriss model and the optimal trading trajectory/list, tuned hyperparameters like risk aversion based on the optimal trade strategy to reduce implementation shortfall
- **Reinforcement Learning:** Exploited DDPG algorithm to generate optimal trading trajectories and compare with the benchmark of Almgren and Chriss model

COMPUTATIONAL SKILL/OTHERS

- ***Programming Language:*** Python (packages: Numpy, Pandas, Scikit-Learn, Selenium, bs4, Django), C#
- ***Other Software***: Excel VBA, Visual Studio, Microsoft Office, LaTeX, SQL, NoSQL
- Languages: English (Intermediate), Korean (Native)