MINSU YEOM, CFA, FRM

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Candidate for M.S. in Data Science with background in financial quantitative analysis and computer science. 8 years of experience in global portfolio management, quantitative research, and risk modeling. Ranked #1 vs institutional peers for managing ETF portfolio which outperformed benchmark. Skilled in applying machine learning to analyze structured or unstructured data for forecasting, portfolio management, and designing investment/trading strategies. Won the 2nd place in the ICCV 2019 Learn to Drive Challenge.

EDUCATION

Columbia University in the City of New York Expected Dec 2019
M.S. in Data Science, GPA 3.5

- Courses in Machine Learning (ML), Bayesian ML, Reinforcement Learning, Deep Learning, NLP, Algorithms, Statistical Inference.

Korea University, College of Informatics, Seoul, KR Aug 2006
B.S. in Computer Science and Engineering, GPA 4.1/4.5

WORK EXPERIENCE

Korea Investment Management, Seoul, Korea, 2010 – 2018
Hired as Risk Manager in 2010, performing risk management for hedge fund investments starting in 2012. Solely responsible for designing risk management system. Top-ranked Portfolio Manager overseeing ETFs portfolio.

Portfolio Manager, 2013 – 2018

- **Ranked #1 out of 5 institutional peers**. Managed portfolio of ETFs since 2014. **Outperformed benchmark by 4%** with IR of 2, annualized. Senior PM in charge of 5-person team. **Grew AUM to over US $1 billion**. Theorized investments in ETFs in my team.
- Generated alpha by fundamental analysis for sector/theme investment and macro analysis for country allocation. Built quant model.
- Managed separately managed accounts since 2013 by delegating PM roles to 10+ sub-managers globally through RFP process.
- Created statistically reliable investment cycle indicator using econometric techniques (vector autoregression, PCA).

Risk Manager, 2010 – 2013

- Analyzed portfolios' ex-ante market risk through lens of **multi-factor models** provided by BarraOne and Bloomberg PORT.
- Evaluated portfolio performances. Used SQL for Brinson or factor-based attribution, covering equity funds and hedge funds.
- Authored due-diligence report on 9 hedge funds in NY. Evaluated on 5 factors including NAV pricing, op. risk, and fund structures.
- Specified risk management system requirements for hedge fund investments after they were legalized in South Korea in 2012. Wrote and developed risk management modules for Volatility Decomposition, VaR Analysis, and Performances and Risk Reports.

PUBLICATION

Using Segmentation Masks in the ICCV 2019 Learning to Drive Challenge

- Won the **2nd place in the ICCV** Autonomous Driving Workshop, 2019. Predicted the future vehicle speed and steering angle.
- Augmented raw driving images with segmentation masks created using pre-trained NVIDIA's Cityscapes dataset. Features are extracted from pre-trained models as well. A sequence of features is fed into neural networks. An ensemble performed the best.
- Published in arXiv.org: https://arxiv.org/pdf/1910.10317.pdf

PROJECTS

Adversarial Reinforcement Learning for Portfolio Management

- Simulated competing investment strategies through continuous refinement in virtual stock market setting. Strategies based on Reinforcement Learning algorithms adjusted weights to different stocks over time to maximize profits.
- Used Deep Neural Network to represent Actor-Critic network, which takes input of current stock prices and portfolio weights, recommends the next portfolio weights, and completes trading accordingly.
- https://github.com/my2582/Adversarial-RL

Forecasting P/E Ratios in Small-Cap Tech Sector using Deep Neural Networks

- Built RNN to forecast forward Price-to-Earnings ratios in small-cap technology sector using TensorFlow.
- Collected fundamental data in financial statements such as balance sheets and income statements, and stock price momentum via Wharton Research Data Services (WRDS), Center for Research in Security Prices (CRSP) and Compustat.
- RNN significantly outperformed current methods for forecasting P/E ratios with a **65% improvement in MSE**.
- https://www.github.com/my2582/predicting-per

TECHNICAL SKILLS

Modern programming languages: Python, C/C++, Java, R, SQL.
Machine Learning: regression, classifications, clustering, PCA, SVM, deep learning, reinforcement learning, NLP, probabilistic ML.
Open Source: TensorFlow, PyTorch, scikit-learn, D3, Bokeh, Pyro, OpenAI Gym, XGBoost.
Applied Risk Modeling: VaR, ELS Pricing (Monte Carlo simulation), PCA, stress testing, operational risk, interest rate risk.
Financial Software: Bloomberg, BarraOne, FactSet, HOLT, Eikon(IBES).