Haoyu (Peter) Lei

Personal website | hylei@uchicago.edu | github

EDUCATION

THE UNIVERSITY OF CHICAGO — **Chicago, IL**
Master of Science in Financial Mathematics — **Expected December 2021**
- Current Courses: Portfolio Theory & Risk Management, Python, Option Pricing

THE UNIVERSITY OF HONG KONG — **Hong Kong SAR**
Bachelor of Engineering in Computer Science — **July 2020**
- Courses: Data Structures and Algorithms, Probability and Statistics, Differential Equations, Numerical Analysis, Econometrics, Empirical Asset Pricing, Mathematical Finance, Fixed Income Securities, Derivatives

THE UNIVERSITY OF CALIFORNIA, IRVINE — **Irvine, CA**
Visiting Student, Major in Computer Science — **June 2018**
- Courses: Design and Analysis of Algorithms, Machine Learning and Data Mining, Parallel and Distributed Computing, Multivariable Calculus, Linear Algebra

SKILLS

Computing: Python, R, SAS, SQL, C++, Jupyter, Java, Unix/Linux, LaTeX, MS Office
Database: Bloomberg, CRSP, Compustat, Datastream, I/B/E/S
Knowledge: Machine Learning, Regression Analysis, Software Development, CFA Level 2 Candidate

EXPERIENCE

KUBID RESEARCH — **Hong Kong SAR**
Summer Quantitative Researcher — **June 2019 – August 2019**
- Collected data from Bloomberg and SEC EDGAR for over 70 US equities using Python, and built SQL database;
- Back-tested and refined market-neutral, statistical arbitrage strategies in R with collected data;
- Documented data collection and back-testing processes to facilitate future intern onboarding.

JPMORGAN CHASE BANK, N.A., HONG KONG BRANCH — **Hong Kong SAR**
Summer Technology Analyst, Equity Derivatives Group — **June 2018 – August 2018**
- Designed logging message patterns, and implemented logging message aggregation in Spring Boot microservices;
- Researched, presented to teammates, and documented the use of Splunk to search for logging messages;
- Processed over 10,000 request-for-quote emails using VBA.

RESEARCH

THE UNIVERSITY OF HONG KONG — **Hong Kong SAR**
Research Assistant, Faculty of Business and Economics — **September 2019 – Present**
- Portfolio Optimization: Improve parametric portfolio policies with variable selection methods (in-progress);
- Asset Pricing Anomalies: Replicated 7 momentum factor-mimicking portfolios in SAS and used Fama-MacBeth regression to derive risk premiums. Factors include but not limited to standardized unexpected earnings, cumulative abnormal returns around earnings announcements, and revisions in analysts' earnings forecasts.

A REVIEW OF MEAN-VARIANCE OPTIMIZATION METHODS (Paper link) — **February 2020 – May 2020**
- Reviewed and back-tested 6 portfolio mean-variance optimization methods across groups of datasets consisting of Fama-French portfolios and individual stocks. The methods include sample covariance matrix, graphical lasso, non-negativity constraint, shrinkage covariance matrix, and industry factor model;
- Evaluated portfolio out-of-sample performance with 5 metrics: standard deviation, Sharpe ratio, Herfindahl index, portfolio turnover, and transaction-cost adjusted certainty equivalent returns;
- Concluded that graphical lasso delivers the most superior performance.

ADDITIONAL INFORMATION

Languages: English (fluent), Mandarin (native), Cantonese (native), French (elementary)
Interests: Volunteer work (worked as volunteer teaching project leader for 1 year), jogging, swimming, reading, singing