Ruilong Yue

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EDUCATIONAL BACKGROUND

Dept. of Industrial Engineering, Tsinghua University   Beijing, China

Industrial Engineering B.Eng., minor in Statistics   2015.8-present

- **GPA:** 3.66/4   **Rank：** 7/54   More than half of math courses > 90 (top 20%)
- **Scholarship:** National Endeavor Fellowship, Scholarship of Academic Excellence, Scholarship of Outstanding Volunteers
- **Courses:** Operations Research(1-3), Probability Theory, Statistical Inference; Introduction to Data Science, JAVA and Object-Oriented Programming, Numerical Analysis, Data Structure and Algorithm Analysis; Production Planning and Control, Engineering Economy, Database Concepts, Modeling and Simulation, Quality Control and Management; Multivariate Statistics Analysis, Linear Regression Analysis, Experimental Design, Applied Time Series Analysis, Financial Statistics, Reliability Data and Survival Analysis
- **Courses (taking):** Convex Optimization, Introduction to Machine Learning, Introduction to Mathematical Physics Equations, Statistical Calculation, Stochastic Process, Introduction to Bayesian Statistics

RESEARCH PROJECT

Approximation Error of Exchange Rate Based on Virtual Standard Currency (VSC)   undergraduate thesis

Instructor: Hongxuan Huang, Associate Professor, Department of Industrial Engineering, Tsinghua University

- VSC: derived from a rank-1 approximation for currency portfolio optimization; to get an objective criterion.
- Plan: study singular value decomposition, power method deeply to understand the papers; realize it by coding to find VSC, its errors, and the properties; study related time series models, and try to use them in research.

A Solution to Big-data Dynamic Portfolio Selection Problem with No-shorting Constraints   2018.7-2018.10

Instructor: Hoiying, Wong, Professor, Department of Statistics, Chinese University of Hong Kong

- Self-studied stochastic calculus, optimal control, high-dimensional statistics and other knowledge. Analyzed the viscous solution of the portfolio problem under short-selling constraints. Calculated the theoretical and estimated statistics of terminal wealth, and proved its convergence properties. Finding a key factor affecting convergence, a new method (NSLPO) was proposed to implement strategies with high-dimensional data.
- Used simulation and empirical methods to study the convergence and results of NSLPO, and compared it with LPO in markets with/without strict no-shorting restrictions. Am trying to organize the results to a paper.

Hollow Shaft Lifetime Modelling   2018.4-2018.7

Instructor: Yanfu Li, Professor, Department of Industrial Engineering, Tsinghua University

- Cleaned the provided hollow shaft data, obtained complete failure data and performed descriptive analysis. Used methods of MLE, Weighted MLE, OLS to analyze Weibull distribution and compared the results.
- Studied the data with mostly right censored data using non-parametric (Turnbull), parametric (Weibull, gamma, etc.) and semi-parametric (logarithmic spline) model. Compared the advantages and disadvantages.

COURSE PROJECT

Time Series Modeling Analysis of Beijing Housing Price,   2018.6-2018.7

Instructor: Dong Li, Associate Professor, Center for Statistical Science, Tsinghua University

- Crawled the monthly house price, commercial residential building transaction area and quarterly GDP in Beijing from 2009 to 2018 for descriptive statistical analysis. An ARIMA model was fitted and test for house price, and parameter estimation and model diagnosis were performed.
- Performed outlier detection on the model, extracted external interventions that have impacts on the model, and included them in the model. Forecasted future housing price change based on the model and explored the

relationship between house prices and GDP changes.

An Empirical Study of Asset Pricing Model in China, 2017.11-2017.12

Instructor: Dong Li, Associate Professor, Center for Statistical Science, Tsinghua University

- Selected CSI 300 Index in 2015 to verify the CAPM, APT and multi factor models. From the regression model, stock buying and selling operations, and the investment strategy was realized by python.
- Did the optimization on maximum Sharpe rate and minimum variance. Further analysis of 2009-2015 years' long-term retest was carried out to evaluate risk indexes, and the revenue of 200%-400% was obtained.

Study on the Factors of Drinking Behavior of Middle School students, *(with classmates)* 2017.4-2017.6

Instructor: Chen Wang, Assistant Professor, Dept. of Industrial Engineering, Tsinghua University

- Described data of alcohol consumption and other information of a middle school student abroad with R.
- Selected main factors affecting alcohol consumption with PCA, and did linear regression, factor analysis and error analysis. Lastly we showed our poster and questionnaires in the Department (being selected).

Optimal Location of Express Point in Tsinghua University, *(with classmates)* 2016.11-2016.12

Instructor: Tianhu Deng, Associate Professor, Dept. of Industrial Engineering, Tsinghua University

- With problem of the low efficiency of the campus express system, the operational research model was set to minimize the average time of express delivery. Much data of the cost, distance, distribution of students and express points were gathered. Optimal location of 3 express points, and sensitivity analysis was obtained.

Implementation and Verification of MT Algorithm, 2016.11-2016.12

Instructor: Pingke Li, Associate Professor, Dept. of Industrial Engineering, Tsinghua University

- Review the evaluation criteria and main methods of pseudorandom number generator, the details, advantages and disadvantages of MT algorithm and its parameter selection. Implement and verify the MT algorithm with C on some classical probability problems. And finally got an A+ in this course.

WORK EXPERIENCE

Beijing Shuwu Commercial Technology Co. Ltd Beijing, China

Stock Quantitative Strategy Intern 2018.1-2018.3

- Analyzed the historical data of some stocks in 2015. Extracted the characteristics including stock trading volume, transaction price, committee and their ma value when there are obvious trends in the stock tick data.
- Studied trading and stop conditions (including funds, price, volatility, etc.) in the trend trading strategy, and selected stocks with large day fluctuations in the last 3 months by standard deviation.
- Read more than 30 research reports. Realized the R-breaker strategy, and completed the optimization of the six price levels, avoiding the frequent losses caused by the unreasonable initial price. Both in/out-sample tests obtained good returns, which provided a new direction for trading strategy development of our team.

SOCIAL ACTIVITIES

CSTA of Dept. of Industrial Engineering, Vice President 2017.1-2018.2

- Organized the IE Comprehensive Skills Competition, micro Sharon and other activities. Undertook writing of WeChat articles, mail, summary and other documents. Assisted the Department to win the award of the Challenge Cup excellent organization. Effectively cultivated the research atmosphere in the department.

Global South Culture Immersion Program UGM-Tsinghua University Yogyakarta, Indonesia 2017.9

- In the lectures and visits, put forward insightful questions and suggestions. Investigated the theme of language and national unification. Got appreciations for the research ability and outstanding performance.

ADDITIONAL INFORMATION

English: with overseas experience, proficient in reading and writing, fluent listening and speaking ability

Skills: **R(10 projects), LaTeX, python,** MATLAB, SAS, C, Java, MySQL, CPLEX, Minitab, Microsoft Office

Extensive interest: swimming, table tennis (department team member), reading and "modern style" poetry, etc.