# Yue Ruilong

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## EDUCATIONAL BACKGROUND

**Tsinghua University, Dept. of Industrial Engineering**                      Beijing, China

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

- **GPA:** 3.66/4          **Rank**：7/54          Most 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 Mathematical Physics Equations, Statistical Calculation, Stochastic Process, Stochastic Analysis

## RESEARCH PROJECT

**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 portfolio problems 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 research methods to study the convergence properties and effects of NSLPO, and compared the results with LPO results in markets with and without strict short-selling restrictions.

**Hollow Shaft Lifetime Modelling**                      2018.4-2018.7

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

- Cleaned the provided hollow shaft fault data, obtained complete failure data and performed descriptive statistical analysis. Verified the results of distribution and detection point estimation, and used the methods of MLE, Weighted MLE, OLS to analyze the Weibull distribution and compared the results.
- Studied the data with a large number of right censored data using non-parametric (Turnbull), parametric (Weibull, gamma, etc.) and semi-parametric (logarithmic spline) model, and 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 realize and verify the CAPM, APT and multi factor models. From the regression model, the parameters were calculated, stock buying and selling operations were carried out, and the investment strategy was realized by python.
- From the theory of portfolio allocation of CAPM model, did the optimization on maximum Sharpe rate and minimum variance. Further analysis of 2009-2015 years' long-term retest was carried out to evaluate the returns and risk indexes of the model retest results, 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 multiple linear regression, factor analysis and error analysis. The regression model and conclusion of the relationships between alcohol consumption and performance, sex and family economic conditions were obtained, and lastly we showed our poster and questionnaires in the Department.

***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 optimization of the location of the express point was carried out, and the operational research model was set up with the constraints of cost and others to minimize the average time of express delivery.
- A large number of data related to the collection cost, distance, the spatial distribution of the students and the express point were gathered. The optimal solution and the sensitivity analysis was obtained by CPLEX. We got the optimal scheme for the location of the three express points: Zijing #14, Tingtao Yuan and the Northeast gate, and the optimal number of employment.

## WORK EXPERIENCE

**Beijing Shuwu Commercial Technology Co. Ltd**                                                    Beijing, China

**Stock Quantitative Strategy Intern**                                                                 2018.1-2018.3

- Analyzed the historical data of some stock in 2015. Use R to extract the characteristics including stock trading volume, transaction price, committee and their ma value when there are obvious trends in the stock tick data, to provide data support for the team to develop the T+0 trend strategy.
- Studied the conditions of trading and stop conditions (including funds, price, volatility and so on) 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, and tried to introduce the Dual Thrust strategy and the opening interval breakthrough. Finally I realized the R-breaker strategy, and completed the optimization of the dynamic adjustment of six prices according to the historical transaction, avoiding the frequent losses caused by the unreasonable initial price. Both data in and out of sample obtained good returns in 2015-2016, 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

- Planned and organized the IE Comprehensive Skills Competition, micro Sharon between teachers and students, and other activities. Undertook the writing of WeChat articles, mail and scheme, summary and other documents, and organized the specific work. Assisted the Department to win the award of the Challenge Cup excellent organization and effectively enhance the research atmosphere in the department.

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

- In the lectures and visits, I put forward some pertinent questions and suggestions. I investigated the theme of the Indonesian language development and national unification with classmates and the results are displayed.

Lastly I got appreciations of many professors for the research ability and outstanding performance.

## ADDITIONAL INFORMATION

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

Skills: **R, Java, python,** C, MySQL, SAS, CPLEX, Minitab, Microsoft Office

Extensive interest, like swimming, table tennis (department team member of Dept. of Industrial Engineering) and other sports, reading and "modern style" poetry, etc.