

Wei Hong (Barney)

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EDUCATION AND AWARDS

MSc Mathematical Sciences, St Peter's College, University of Oxford 09/2022 - 06/2023

- Ranking: 37%
- Core Courses: Probabilistic Combinatorics, Continuous Optimisation, Bayes Methods, Network, Advanced Topics in Statistical Machine Learning, Bayesian Statistical Probabilistic Programming, etc.

BSc Mathematics, University of Manchester 09/2019 - 06/2022

- Cumulative GPA: 87 (Graduate with *distinction*)
- Ranking: 1%
- Scholarship: 2020/2021 International Mathematics Scholarship, 2020/2021 International Mathematics Excellence Scholarship.
- Core Courses: Time Series Analysis and Financial Forecasting (96%), Numerical Optimisation & Inverse Problem (88%), Intro to Uncertainty Quantification (83%), Introduction to Financial Mathematics (93%), Numerical Analysis (89%), Statistical Methods (87%), Discrete Mathematics (83%), Machine Learning (80%), etc.

RESEARCH EXPERIENCE

Ranking Estimation 2022 - 2023

- Developed an innovative methodology for **partial order ranking** by integrating the Plackett-Luce model with Sequential Monte Carlo (SMC) and Markov Chain Monte Carlo (MCMC) resampling techniques.
- Conducted extensive simulations and **real-world case studies** to validate the methodology's effectiveness.
- Established a robust foundation for future research in ranking estimation, particularly in **complex systems**.

Improvements for the Nonlinear Filtering Algorithms and their Application 2021 - 2022

- Derived the fundamentals of Kalman Filter and Particle Filter and explored their **stability and optimisation methods**.
- Applied the sequential concept to **Gaussian Process Regression**, demonstrating that Sequential Monte Carlo is a thrift by contrast to Hamiltonian Monte Carlo for inferring hyperparameters in GPR.

WORK AND INTERNSHIP EXPERIENCES

Quantitative Research Analyst, China Great Wall Securities; Shanghai, China

02/2021 - 05/2021

- **Led project one:** Developed Market Timing Strategy based on Mahalanobis Distance, enhancing market trend identification with a 70% historical accuracy rate.
- **Contributed to project two:** Replicated Clifford S. Asness' Strategy for predicting future stock returns, reducing market/investment timing intervals to a weekly basis and employing R-squared for evaluation.
- Responsible for the weekly report writing with data extracted from Wind (including stock market indexes, futures exchange rates, etc) and utilised **R** for the follow-up data analysis.

Data Analyst, Shanghai LongYun Media Group Co., Ltd; Shanghai, China 05/2020 - 08/2020

- **Worked on the Philips Project:** Conducted web crawling and data cleaning, analysed customer satisfaction, and predicted future trends, facilitating marketing decisions.
- **Participated in company intranet construction:** Developed a back-end automatic data crawling system and built database-based visualisation modules for data analysis.
- Contributed to cross-platform data crawling for purchases from TaoBao.com, JD.COM, and TikTok, employing **NLP** analysis and trend prediction.

ADDITIONAL SKILLS

- **Languages:** Native Chinese Mandarin speaker, proficient in English (7.5 IELTS) and a Japanese learner.
- **Computer Skills:** Proficient in Python, R, MATLAB, Julia, C++, and statistical probabilistic programming (Anglican).
- **Statistics Analysis and Database Management:** Proficient in SAS, MySQL, PostgreSQL, and Microsoft SQL Server.
- **Interests:** Body building and basketball.