Mingwei Ma

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Education

2020-2025   **Doctor of Philosophy**, *University of Chicago, Booth School of Business*, Chicago, IL.
- Dissertation Areas: Financial Economics, Statistics, Econometrics, Machine Learning.

2019-2020   **Master of Mathematical and Theoretical Physics**, *University of Oxford*, Oxford, UK.
- Concentrations: Applied Mathematics, Theoretical Physics.

2016-2019   **BA** - **Physics and Philosophy**, *University of Oxford*, Oxford, UK.
- Grade: First Class Honors (1:1). GPA: 3.95/4.0.
- Overall Rank: Physics and Philosophy: 1/8, Physics Major: 2/182.

Work Experience

June–August 2019   **Summer Analyst, Long/Short Equity**, *Point72 Asset Management*, Hong Kong.
Ten-week internship: two-week training in New York + six-week rotation + two-week final project
- Conducted "quantamental" research on global semiconductors supply chain, analyzed industry themes and presented long/short trade ideas to international senior management on two Taiwanese names.
- Analyzed drivers for China's largest hot-pot chain, constructed financial model and pitched a short thesis.

June–August 2018   **Summer Analyst, Investment Banking**, *Credit Suisse AG*, Hong Kong.
- Worked on Shanghai Electric's RMB5.0bn exchangeable bonds offering to fund asset acquisition.
- Developed DCF BSM models for convertibles pricing, performed sensitivity analyses of issuance clauses.
- Analyzed companies and precedent transactions in Powers and Utilities for Investor Presentations.
- Cooperated with client to deliver roadshows, prepare valuation pages, selling memos and deal timelines.

Research Projects

October 2019–   **Textual Analysis for Predicting Stock Returns**.
Booth School of Business, University of Chicago. Supervisor: Prof. Dacheng Xiu.
- Apply linear regression to calculate sentiment scores of 20 years of 10Ks and news articles using the WRDS/CRSP database.
- Backtest sentiment score-based trading strategies (long only, long/short) using MATLAB.

October 2019–   **Deep Reinforcement Learning for Optimal Liquidation Strategy**.
Oxford Machine Learning Research Group. Supervisors: Prof. Steven Roberts, Prof. Jan Calliess.
- Compile a high-frequency limit order book simulator and wrap into an OpenAI gym environment.
- Combine imitation learning from Almgren-Chriss execution model with reinforcement learning algorithms, improving the implementation shortfall to >60 bps over the Almgren-Chriss benchmark.
- Work in progress for submission to *The Journal of Financial Data Science*.

May 2019–   **Deep Multi-Agent Reinforcement Learning for Agent-based Modeling**.
Facebook AI Research. Supervisor: Dr. Jakob Foerster.
- Design and apply multi-agent reinforcement learning models like centralized actor-critic and deep recurrent Q-learning to study general-sum games such as liquidity hoarding game and liquidation game.
- Work in progress for submission to 2020 ACM International Conference on AI in Finance.

August–October 2019   **Applied Informatics for UK Housing Price Data**.
Oxford Machine Learning Research Group, Supervisor: Prof. Jan Calliess.
- Develop an unsupervised model for record linkage between disparate housing databases, resulting in a 11% false positive rate, 19% lower than the best-performing benchmark method.
- Apply RNN with Attention to study factors affecting housing datasets with natural language descriptions.

March–May 2019	**Recurrent Neural Networks Quantile Regression for Time-series Forecasting**. Oxford Machine Learning Research Group, Supervisor: Prof. Jan Calliess. ○ Improve LSTM quantile regression with heavy-tail distribution for time-series forecasting by combining LSTM with convolutional layers to account for exogenous factors, reducing prediction loss by >10 bps. ○ Wrap the implementation and GARCH-type benchmarks into an API and delivered an oral presentation.
September 2018– February 2019	**FDTD Method for Superconductive Parametric Amplifiers**. Department of Physics, University of Oxford. Supervisor: Prof. Ghassan Yassin. ○ Use C/Cython to develop numerical ODE/PDE solvers with Fast-Fourier Transform to solve waveguides. ○ Write C codes to implement FDTD/leap-frog approximation for superconductive parametric amplifiers.

Prizes and Awards

October 2019	**Chandrasekhar Prize in Physics**, *University of Oxford*, Oxford, UK. Monetary value: £200. For highest graduation rank among all students in Physics and Joint Schools (i.e., physics double-majors).
July 2019	**Gibbs Prize for Best Performance**, *University of Oxford*, Oxford, UK. Monetary value: £600. For best overall performance in Final Honor Schools (third year) Exams in Physics.
August 2018	**Fung Leadership Scholarship**, *The Fung Foundation*, Hong Kong. Monetary value: £2,000. Merit-based scholarship for leadership impacting academic and community.
July 2018	**Styring Scholarship**, *University of Oxford*, Oxford, UK. Monetary value: £450. For obtaining Distinction in second year examinations.
July 2017	**Junior Research Scholarship**, *University of Oxford*, Oxford, UK. Monetary value: £300. For academic excellence and research potential.
October 2014 & 2015	**National First Prize in China Physics Olympiad**. Won the first prize twice in first and second year of high school.

Skills

Computing	Languages: Python, MATLAB, C++, Mathematica. Machine learning packages: Torch, Tensorflow, Sklearn, Gym. Database related skills: SQL, Elasticsearch, WRDS, CRSP, Bloomberg, Pandas.
Language	Native in Mandarin. Advanced reading ability in Japanese.

Teaching

2018-2019	Lecturer in Equity Research, Oxford Alpha Fund. Taught 24 hours of courses on fundamental research to junior undergrads at Oxford.
2016-2017	Private Tutor in Physics. Taught undergraduate-level physics to senior high-schoolers. Cumulated time: around 40 hours.

Other Extracurricular Activities

2017-2019	President of Oxford Deep Learning Society, a university-wide society focusing on discussion and research on AI and other frontier technologies, with 170 enthusiastic members.
2018-2019	Vice President of Oxford Alpha Fund, Oxford's largest student investment society. Worked as the principal contact for the fund's £6,000 sponsorship raising from banks and hedge funds.
Other Roles	Marketing Director, Schema (internet startup). Vice President, Oxford Investment Banking Society. Table Tennis Team, The Queen's College, Oxford.