Yiwen Shen

Contact

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Research Interests

Empirical Modeling, Healthcare Operations Management, Financial Engineering

Education

Columbia University, Graduate School of Business — New York, NY

- Ph.D. Candidate in Decision, Risk and Operations — 2016 – present
- Advisors: Paul Glasserman, Carri W. Chan, Fanyin Zheng, Harry Mamaysky

IEOR Department, Columbia University — New York, NY

- Master of Science in Financial Engineering (GPA: 4.2/4.0) — 2014 – 2015

School of Physics, Peking University — Beijing, China

- Bachelor of Science in Physics (GPA: 3.7/4.0) — 2010 – 2014
- Minor Degree in Computer Softwares

Publications and Working Papers

Structural Estimation of Intertemporal Externalities on ICU Admission Decisions
With Carri Chan, Fanyin Zheng, and Gabriel Escobar.
Major Revision at *Operations Research*. [Link]

Dynamic Information Regimes in Financial Markets
With Paul Glasserman and Harry Mamaysky.
Under review at *Journal of Financial Economics*. [Link]

Decomposition of Optimal Dynamic Portfolio Choice with Wealth-Dependent Utilities in Incomplete Markets
With Chenxu Li and Olivier Scaillet. Working paper. [Link]

Index-based Investing and Intraday Stock Dynamics
With Meiqi Shi. Under review at *Management Science*. [Link]

Publication before PhD

Pricing the CBOE VIX Futures with Heston-Nandi GARCH Model
With Tianyi Wang, et al.
Published on *Journal of Futures Market*. [Link]

Ongoing Projects

Operating Room Scheduling for Cardiac Surgery
With Carri Chan and Fanyin Zheng

- We use surgical and operational data from the cardiac department in a large hospital to identify potential opportunities for improving the system efficiency and patients' outcomes.

Pricing Model for Credit Default Swaps and Implication in Forecasting Capital Structure Change
With Harry Mamaysky

- We develop an empirical pricing model for credit default swaps (CDS) and estimate the model using a large panel dataset. We find the pricing anomalies are closely related to firm leverage measures constructed from news data, and forecast changes in firm capital structure.

Closed-form Expansion Approach for Optimal Portfolio Choice in Incomplete Markets
With Chenxu Li

- We establish a closed-form asymptotic expansion approach to approximate the optimal policy in general incomplete market models. Our approach can be applied to flexible dynamics and wealth-dependent utility functions.

Efficient Modeling of Financial Networks with Alternative Data
With Muye Wang and Jimmy Qin. Collaboration with Capital Funds Management

- We model financial networks using alternative data provided by CFM, e.g., supply chain, job offering, and credit card payment.

Teaching Experience

Instructor

- Small Business Operation Workshop (Columbia-Harlem Small Business Development Center)

Teaching Assistant for PhD Courses

- Foundation of Stochastic Models (Assaf Zeevi)
- Econometrics & Statistical Inference (Fanyin Zheng)

Teaching Assistant for MBA/EMBA Courses

- Operations Management (MBA)
- Applied Regression Analysis (MBA)
- Managerial Statistics (EMBA)

Course Assistant

- Machine Learning for OR & FE

Industry Experience

Cubist Systematic Strategies (Quant Unit of Point72) New York, NY
Summer Intern, Quant Researcher Jun – Aug 2018

- Developed soft and hierarchical clustering algorithms for US stocks based on factor loadings and idiosyncratic returns; the resulting clusters capture the fundamental similarity between stocks while being responsive to market events (e.g., trade wars)

Bank of America Merrill Lynch, Global Markets New York, NY
Off-cycle Intern, Quant Analyst at Algorithm Trading Group Jan – Apr 2017

- Studied correlation of US stocks with robust estimators in high-frequency setting; revealed the correlations change substantially during the day and show specific intraday patterns

Morgan Stanley, Fixed Income Division New York, NY
Full-time Analyst, Desk Strat at Sales Strat Group Jan – Jun 2016

- Developed a client P&L model for US interest rate swaps based on (i) identification of swap strategies from separate orders (ii) revaluation of trades with hypothetical hedging scheme; the model is more effective in attributing P&L and evaluating client profitability

Honors and Awards

- Chazen Research Grant, Columbia University 2020
- Paul & Sandra Montrone Doctoral Fellowship, Columbia University 2019
- Deming Doctoral Research Fellowship, Columbia University 2019
- Doctoral Fellowship, Columbia University 2016
- Robert Gartland Fellowship, Columbia University 2015
- Silver Medalist in China Physics Olympiad 2009

Conference Presentations

"Structural Estimation of Intertemporal Externalities on ICU Admission Decisions"

- Wharton Empirical OM Workshop, Online 2020
- Kellogg-Wharton OM Workshop, Online 2020
- INFORMS Annual Meeting, Seattle, WA 2019
- INFORMS Heahlthcare Conference, MIT, Cambridge, MA 2019
- MSOM Annual Conference, NUS, Singapore 2019

"Dynamic Information Regimes in Financial Markets"

- INFORMS Annual Meeting, Seattle, WA 2019
- SIAM Conference on Financial Mathematics & Engineering, University of Toronto, Toronto, Canada 2019
- International Workshop on Financial Markets and Nonlinear Dynamics, Paris, France, 2019
- INFORMS Annual Meeting, Houston, TX 2017

"Decomposition of Optimal Dynamic Portfolio Choice with Wealth-Dependent Utilities in Incomplete Markets"

- Third NUS-PKU Annual Conference on Quantitative Finance and Economics, Peking University, Beijing, China 2018

Skills

Programming: C/C++, Python, Java, Scala, R, MATLAB, Mathematica, Q/KDB, MySQL, Tableau

References

Professor Carri W. Chan
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