

Tianyi (Timothy) Li

Born **Jan. 1993** in **Harbin, China**

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Assistant Professor

<https://timothyli123.github.io/website/>

Department of Decision Sciences and Managerial Economics, CUHK Business School

Degrees

School of Earth and Space Science, School of Mathematical Sciences, Peking University, China

B.S., Geophysics, 2015

B.S., Applied Mathematics, 2015

Department of Geosciences, Princeton University, United States

M.A., Geophysics, 2017

Committee: Allan Rubin, Jeroen Tromp, Frederik Simons

Sloan School of Management, Massachusetts Institute of Technology, United States

M.S., Management Research, 2020

Ph.D., Management Science, 2021

Committee: Hazhir Rahmandad, John Sterman, Munther Dahleh, Rogelio Oliva

Positions

2014 Research Fellow, University of Tokyo, Japan

2015-2017 Research Assistant, Princeton University, USA

2017-2020 Research and Teaching Assistant, Massachusetts Institute of Technology, USA

2020-2021 Visiting Scholar, Institute of Theoretical Physics, Chinese Academy of Science, China

2020 Guest Lecturer, School of Public Health, Sun Yat-sen University, China

Research

--System Dynamics --Management Optimization/Algorithms --Industrial Engineering --Network science
--Control Theory --Graph Theory --Queueing Theory --Cryptography --Machine Learning

Math and physics trained, I am trying to contribute theoretical and algorithmic efforts to management, industrial and policy studies from a data-driven, network-oriented & dynamic-control perspective. I am interested in analyzing the underlying physics in social-economic processes, and more so in bringing them out through advanced math tools so as to guide real-world managerial practice as well as policy decision-making.

Publications

[06] Zhou, P., Li, T., & Zhang, P. (2020). Phase transitions and optimal algorithms for semi-supervised classifications on graphs: From belief propagation to graph convolution network. *Physical Review Research*, 2(3), 033325.

[05] Li, T. (2020). Simulating the spread of epidemics in China on multi-layer transportation networks: Beyond COVID-19 in Wuhan. *EPL (Europhysics Letters)*, 130(4), 48002.

- [04] Li, T., & Zhang, P. (2020). Self-falsifiable hierarchical detection of overlapping communities on social networks. *New Journal of Physics*, 22(3), 033014.
- [03] Li, T. (2019). Does the existence of "talented outliers" help improve team performance? Modeling heterogeneous personalities in teamwork. *Journal of Industrial & Management Optimization*, 13(5), 12-19.
- [02] Li, T. (2019). An Effort to Reconcile Time-and Slip-Dependent Friction Evolution. *Journal of Geophysical Research: Solid Earth*, 124(2), 1838-1851.
- [01] Li, T., & Rubin, A. M. (2017). A microscopic model of rate and state friction evolution. *Journal of Geophysical Research: Solid Earth*, 122(8), 6431-6453.

Conferences & Pre-prints

- [07] Li, T., & Dahleh, M. (2020). Automation of Data Acquisition Strategies in Model Calibration for System Models: Sensor Placement, *ssrn*, <http://dx.doi.org/10.2139/ssrn.3619653>. (2020 IC2S2)
- [08] Li, T. (2020). Structural Control Analysis of System Dynamics Models. *arXiv:2005.13179*. (2021 ISDC)
- [09] Li, C., Li, T., Liu, Y., & Cappellaro, P. (2020). Effective routing design for remote entanglement generation on quantum networks. *arXiv*, 2001.02204
- [10] Li, T., Rahmandad, H., & Sterman, J. (2020). Improving Parameter Estimation of Epidemic Models: Likelihood Functions and Kalman Filtering. (2021 ISDC)

Scientific Writings

- Li, T., (2020-2021). Scientific Talks on COVID-19 (I-V). *Beijing Documents* [ISSN 1005-9075], August 2020 – February 2021.

Teaching

Teaching Assistant, Introduction to system dynamics for MBA, EMBA
 Coach, Accenture-MIT Technology Leadership Trailblazers' Program
 Teaching Assistant, 2020 ISDC Summer School

Academic Awards & Honors

2017-2020	Fellowship, Sloan School of Management, <i>Massachusetts Institute of Technology</i>
2015-2017	Fellowship, <i>Princeton University</i>
2015	Undergraduate Speaker on the Graduation Ceremony (院本科生毕业代表), School of Earth and Space Sciences, <i>Peking University</i>
2015	Outstanding Undergraduate, <i>Peking University</i>
2015	Lv Lin Scholarship
2014	Daiwa Security Scholarship
2013, 2014	National Scholarship of China (国家奖学金), Outstanding Awardee
2013, 2014	Outstanding Student, <i>Peking University</i>
2012	Panasonic Scholarship