# Shuang Li

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## EDUCATION

**Georgia Institute of Technology** January 2015 - August 2019
- Ph.D. in Industrial Engineering (specification in Statistics, minor in Operations Research)
Advisors: Le Song, Yao Xie

**Georgia Institute of Technology** August 2013 - December 2014
- M.S. in Statistics

**University of Science and Technology of China** August 2007 - July 2011
- B.S. in Automation (Electrical Engineering)

## ACADEMIC EMPLOYMENT

**Harvard University** September 2019 - present
Postdoctoral Fellow, Department of Statistics
Research topic: Multi-agent reinforcement learning in mobile health.
Supervisor: Susan Murphy

## INDUSTRIAL EMPLOYMENT

**Google** June 2018 - August 2018
Research Intern
Research topic: User behavior modeling for recommender systems.

## RESEARCH INTERESTS

- Machine learning for *sequential data analysis* and *decision-making*
- New sequential *models*, reliable and efficient *learning* methods, and effective *inference* procedures
- Applications to *healthcare*, *smart cities*, and *social media*

## PUBLICATIONS

**Google Scholar:**
https://scholar.google.com/citations?user=HxCZsCUAAAAJ&hl=en

### Conferences

[C1]. **S. Li**, L. Wang, R. Zhang, X. Chang, X. Liu, Y. Xie, Y. Qi, and L. Song. "Temporal Logic Point Processes." *International Conference on Machine Learning* (ICML), 2020. (acceptance rate: 1,088/4,990 = 21.8%)

[C2]. **S. Li**, S. Xiao, S. Zhu, N. Du, Y. Xie, and L. Song. "Learning Temporal Point Processes via Reinforcement Learning." *Neural Information Processing Systems* (NeurIPS), 2018. **Spotlight** (acceptance rate: 164/4854 = 3.4%)

[C3]. **S. Li**, Y. Xie, H. Dai, and L. Song. "M-Statistic for Kernel Change-Point Detection." *Neural Information Processing Systems* (NIPS), 2015. (acceptance rate: 403/1838 = 21.9%)

[C4]. **S. Li**, Y. Cao, C. Leamon, Y. Xie, L. Shi, and W. Song. "Online Seismic Event Picking Via Sequential Change-Point Detection." *Allerton Conference on Control, Communications and Computing* (Allerton), 2016.

[C5]. X. Chen, **S. Li**, H. Li, S. Jiang, Y. Qi, and L. Song. "Generative Adversarial User Model for Reinforcement Learning Based Recommendation System." *International Conference on Machine Learning* (ICML), 2019. (acceptance rate: 774/3,424 = 22.6%)

[C6]. Y. Liu, **S. Li**, F. Li, L. Song, and J. Rehg. "Efficient Learning of Continuous-Time Hidden Markov Models for Disease Progression." *Neural Information Processing Systems* (NIPS), 2015. (acceptance rate: 403/1838 = 21.9%)

[C7]. M. Farajtabar, Y. Wang, M. Gomez-Rodriguez, **S. Li**, H. Zha, and L. Song. "COEVOLVE: A Joint Point Process Model for Information Diffusion and Network Co-evolution." *Neural Information Processing Systems* (NIPS), 2015. **Oral** (acceptance rate: 15/1838 = 0.8%)

[C8]. H. Dai, B. Dai, Y. Zhang, **S. Li**, and L. Song. "Recurrent Hidden Semi-Markov Model." *International Conference on Learning Representations* (ICLR), 2017.

[C9]. X. Chang, X. Liu, J. Wen, **S. Li**, Y, Fang, L. Song, and Y. Qi. "Continuous-Time Dynamic Graph Learning via Neural Interaction Processes." *The Conference on Information and Knowledge Management* (CIKM), 2020.

[C10]. M. Farajtabar, J. Yang, X. Ye, R. Trivedi, E. Khalil, **S. Li**, H. Xu, L. Song, and H. Zha. "Fake News Mitigation via Point Processes Based Intervention." *International Conference on Machine Learning* (ICML), 2017. (acceptance rate: 434/1676 = 25.9%)

**Journals**

[J1]. **S. Li**, Y. Xie, H. Dai, and L. Song. "Scan B-statistic for Kernel Change-point Detection." *Sequential Analysis*, 38(4):503-544, 2019.
- Finalist, INFORMS Quality, Statistics, and Reliability (QSR) Best Student Paper Award, 2018

[J2]. **S. Li**, Y. Xie, M. Farajtabar, A. Verma, and L. Song. "Detecting Changes in Dynamic Events over Networks." *IEEE Transactions on Signal and Information Processing over Networks*, Vol. 3, No. 2, June 2017.
- Finalist, INFORMS Social Media Analytics Best Student Paper Award, 2018

[J3]. **S. Li**, A. Psihogios, E. McKelvey, A. Ahmed, M. Rabbi, and S. Murphy. "Micro-Randomized Trials for Promoting Engagement in Mobile Health Data Collection: Adolescent/Young Adult Oral Chemotherapy Adherence as an Example." *Current Opinion in Systems Biology*, in press, 2020+.

[J4]. C. Shao, **S. Li**, H. Li, and J. Sheng. "Control for Time-Varying Delay Systems by Integrating Semi-Discretization and Hysteresis-Based Switching." *Asian Journal of Control*, 2018.

[J5]. M. Farajtabar, Y. Wang, M. Gomez-Rodriguez, **S. Li**, H. Zha, and L. Song. "COEVOLVE: A Joint Point Process Model for Information Diffusion and Network Evolution." *Journal of Machine Learning Research* (JMLR), 18(41):1-49, 2017.

[J6]. M. Farajtabar, Y. Wang, M. Gomez-Rodriguez, **S. Li**, H. Zha, and L. Song. "COEVOLVE: A Joint Point Process Model for Information Diffusion and Network Evolution." *The Web Conference, Journal Track*, 2018.

[J7]. S. Zhu, **S. Li**, Z. Peng, and Y. Xie. "Reinforcement Learning of Spatio-Temporal Point Processes." submitted to *IEEE Transactions on Knowledge and Data Engineering*.

**Book Chapter**

[B1]. Y. Liu, A. Moreno, **S. Li**, F. Li, L. Song, and J. Rehg. "Learning Continuous-Time Hidden Markov Models for Event Data." *Mobile Health*, Springer, 2017.

**Workshop**

[W1]. **S. Li**, L. Wang, R. Zhang, Y. Xie, N. Du, and L. Song. "Temporal Logic Point Processes." *NeurIPS Workshop on Learning with Temporal Point Processes*, 2019. **Oral**

[W2]. S. Zhu, **S. Li**, Z. Peng, and Y. Xie. "Interpretable Deep Generative Spatio-Temporal Point Processes." *NeurIPS Workshop on AI for Earth Sciences*, 2020.

[W3]. M. Farajtabar, M. Gomez-Rodriguez, Y. Wang, **S. Li**, H. Zha, and L. Song. "Co-evolutionary Dynamics of Information Diffusion and Network Structure." *Workshop on Activity and Events in Networks: Models, Methods Applications, in conjunction with International World Wide Web Conference (WWW), 2015.*

**Working Papers**

[P1]. **S. Li**, M. Feng*, L. Wang, J. Yan, and L. Song. "Learning Temporal Logic Rules from Event Data." In preparation.

[P2]. **S. Li**, M. Feng*, L. Wang, J. Yan, and L. Song. "Temporal Logic Guided Policy Learning." In preparation.

(*: M. Feng is currenlty an undergraduate student at Shanghai Jiao Tong University, China.)

[P3]. **S. Li**, and S. Murphy. "How to Manage Greedy Agents in Mobile Health?" In preparation.

## HONORS AND AWARDS

- **Finalist**, INFORMS QSR Best Student Paper Competition. 2018
- **Finalist**, INFORMS Social Media Analytics Best Student Paper Competition. 2018
- **Second Place**, Jarvis Award for Graduate Student Research in H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology. 2016
- **Hluchyj Fellowship**, School of Engineering, University of Massachusetts at Amherst 2011-2012
- **Outstanding Undergraduate Thesis**, Department of Automation, University of Science and Technology of China 2011

## TEACHING EXPERIENCES

**Teaching Assistant** Georgia Institute of Technology

- CS 7641 Machine Learning Fall 2014, Fall 2016, Spring 2018, Spring 2019
- CSE/ISYE 6740 Computational Data Analysis Fall 2014, Fall 2016, Spring 2018, Spring 2019
- CX 4240 Introduction to Computational Data Analysis Spring 2016, Spring 2017

**Preparing Course Materials for** Harvard University

- STAT 234 Sequential Decision Making Spring 2021

## PRESENTATIONS

- "Temporal Logic Point Processes."
  *Oral presentation (virtual)* at International Conference on Machine Learning (ICML), July, 2020.
- "Learning Temporal Point Processes via Reinforcement Learning."
  *Spotlight presentation* at Neural Information Processing Systems (NeurIPS), December, 2018.

- "Scan B-statistic for Kernel Change-point Detection."
  *Invited talk* at INFORMS QSR Best Student Paper Competition, November, 2018.
- "Detecting Changes in Dynamic Events over Networks."
  *Invited talk* at INFORMS Social Media Analytics Best Student Paper Competition, November, 2018.
- "Learning with Temporal Point Processes."
  *Invited tutorial* at Google Research, July, 2018.
- "M-Statistic for Kernel Change-Point Detection."
  *Poster presentation* at Neural Information Processing Systems (NIPS), December, 2015.
- "Efficient Learning of Continuous-Time Hidden Markov Models for Disease Progression."
  *Poster presentation* at Neural Information Processing Systems (NIPS), December, 2015.

## SERVICES

**Program Committee/External Reviewer for**

- ICML 2016, 2017, 2018, 2019
- NIPS 2017, 2018
- AAAI 2018, 2019, 2020, 2021
- ICASSP 2018, 2019
- AISTATS 2019, 2020 2021
- WWW 2020
- PLOS ONE
- IEEE Transactions on Neural Networks and Learning Systems
- Annals of Applied Statistics
- Transactions on Knowledge and Data Engineering
- Journal of American Statistical Association
- IEEE Transactions on Signal Processing
- IEEE Transactions on Information Theory