

Zhuoshu Li

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Research interests

Artificial Intelligence, Reinforcement Learning, Machine Learning, Multi-Agent Systems, Computational Economics, Algorithmic Game Theory.

Education

- **Washington University in St. Louis** **St. Louis, MO, USA**
Ph.D. in Computer Science 2013 - Expected 2018
- **Beihang University** **Beijing, China**
B.E. in Automation Science (GPA rank: 5 / 169) 2009 - 2013

Work Experience

- **Software Engineer Intern, Facebook Inc.** **New York, NY**
(Manager: Fei Huang) 09/2017 - 11/2017
Worked on machine learning and reinforcement learning for Instagram feed ranking.
 - Designed online algorithms for Instagram feed ranking to achieve a more balanced and fairer system.
 - First built a reinforcement learning framework for Instagram feed ranking infrastructure.
 - Explored and tuned reinforcement learning structures which improved the number of feed likes by a non-trivial margin.
- **Research Intern, Huawei Noah's Ark Lab** **Hong Kong**
(Hosts: Zhitang Chen and Yanhui Geng) 09/2016 - 02/2017
Developed new machine learning and reinforcement learning algorithms.
 - Developed a faster and more comprehensive reinforcement learning algorithm in non-stationary environments, based on Reproducing Kernel Hilbert Space embeddings.
 - Improved network throughput by using the above algorithm to manage network resource allocations.
- **Research Assistant, Washington University in St. Louis** **St. Louis, MO**
(Advisor: Sanmay Das) 08/2013 - current
Led multiple research projects in computational economics, game theory, and artificial intelligence.
 - Explored problems of designing information structures for better mechanism design in matching markets and auction markets.
 - Improved kidney exchange mechanisms and algorithms for more matched pairs and longer patient graft survival.
 - Studied the dynamics of the competition between multiple platforms in financial markets for eliminating the high-frequency trading arms race and enhancing liquidity for investors.
- **Research Intern, USC Information Sciences Institute** **Los Angeles, CA**
(Hosts: Yu-Han Chang and Rajiv Maheswaran) 08/2012 - 12/2012
Worked on game theory and agent-based modeling.
 - Built agent-based platforms and designed algorithms to analyze the impact of graph formation on the networked economy and resource allocation using game theory.

Publications

- **An Agent-Based Model of Competition Between Financial Exchanges: Can Frequent Call Mechanisms Drive Trade Away from CDAs?**
Zhuoshu Li and Sanmay Das.
International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2016.
- **Competing Dynamic Matching Markets.**
[author lists alphabetical] Sanmay Das, John P. Dickerson, Zhuoshu Li, and Tuomas Sandholm.
Conference on Auctions, Market Mechanisms and Their Applications (AMMA), 2015.
- **The Role of Common and Private Signals in Two-Sided Matching with Interviews.**
[author lists alphabetical] Sanmay Das and Zhuoshu Li.
Conference on Web and Internet Economics (WINE), 2014.
- **Graph Formation Effects on Social Welfare and Inequality in a Networked Resource Game.**
Zhuoshu Li, Yu-Han Chang, and Rajiv Maheswaran.
Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction (SBP), 2013.

Working Papers

- **Faster Policy Adaptation in Nonstationary Environments: A State Augmentation Approach.**
Zhuoshu Li, Zhitang Chen, Pascal Poupart, Sanmay Das, and Yanhui Geng. *Submitted, 2017.*
- **Equilibrium Behavior in Competing Dynamic Matching Markets**
Zhuoshu Li, Neal Gupta, Sanmay Das and John P. Dickerson. *Submitted, 2017.*
- **On the Design of Revenue-Enhancing Signal Structures in Common- and Interdependent-Value Second Price Auctions.**
Zhuoshu Li and Sanmay Das.
Submitted and also appeared at IJCAI Algorithmic Game Theory Workshop, 2017.

Technical Skills

- **Programming Languages:** Python, Java, C++, Matlab, Lua
- **Large-scale Data Analysis:** Hadoop MapReduce, Pig, Hive, Impala
- **Other Professional Skills/Tools:** Mercurial, SVN, Git, Linux/Unix
- **Languages:** Chinese(native), English(fluent)

Awards

- Travel grants: AMMA 2015, AAMAS 2016 ongoing
- Scholarships for Academic Performance (Top 5%), Beihang University 2010-2012
- National Scholarship (Top 1%), China Ministry of Education 2010