Xiaochen Zhang

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Research Interests

My research focuses on investigating how the technology impacts economic and social welfare using statistical and analytical modeling methods.

Method

- Large-scale randomized experiment design • Casual inference • Machine learning
- Econometrics • Analytical modeling • Science & technology policy analysis

Education

Carnegie Mellon University, Pittsburgh, PA
Ph.D., Engineering and Public Policy, 2016.
Fields: Business analytics with big data, IT policy

Dissertation title: "Welfare Properties of Recommender Systems."
Dissertation Committee: Pedro Ferreira (PhD Advisor & Committee chair), Marvin Sirbu (CMU), Miguel Matos (Católica Lisbon School of Business & Economics), Rodrigo Belo (Erasmus University Rotterdam)

Northwestern University, Evanston, IL.
M.S., Electrical Engineering, 2013.

Thesis Title: "First Mover Identification in Technology Diffusion Process."
Adviser: Randall Berry

Beijing Univ. of Posts & Telecoms., Beijing.
B.S.,Telecommunications Engineering with Management, 2011

Graduation Project: "Four-voice Music Composition by Genetic Programming"
Adviser: Chris Harte (Queen Mary University of London)

Publication

[1] "Personalization vs. Price Discrimination in a Monopolistic Recommender System" with Rodrigo Belo, Pedro Ferreira, Miguel Godinho de Matos (to be submitted)
[2] "Recommender Systems and Consumer Welfare: Results from a Randomized Experiment in Video-on-Demand" with Rodrigo Belo, Pedro Ferreira, Miguel Godinho de Matos. (to be submitted)

Workshops &attended

2015 Northwestern-Duke Causal Inference Workshop
Main Workshop, July 13-17, 2015
Advanced Workshop, July 19-22, 2015

Conferences

[1] Zhang, X., Ferreira, P., Belo, R., and Matos,M. "Welfare Properties of Recommender Systems: Results from a Randomized Experiment", Stern School of Business, New-York University, December 3, 2015, New York, NY
[2] Zhang, X., Ferreira, P., Belo, R., and Matos,M. "The Welfare Properties of Recommender Systems",Fox School of Business, Temple University, November 6, 2015, Philadelphia, PA.
[3] Zhang, X., Ferreira, P., Belo, R., Matos, M. "Welfare Properties of Recommender Systems: Evidence from a Randomized Experiment", Workshop on Information Systems and Economics (WISE), 12-13 December, 2015, Dallas, TX.
[4]Zhang, X., Ferreira, P., Belo, R., Matos, M. "Welfare Properties of Recommender Systems: Evidence from a Randomized Experiment", Conference on Digital Experiments, Massachusetts Institute of Technology, October 15-7 2015, Boston, MA.
[5]Zhang, X., F., Ferreira, P., Matos, M., Belo, R. "The Welfare Effects of Recommender Systems: Evidence from a Randomized Experiment with Video-on-Demand", Symposium on Statistical Challenges in eCommerce Research (SCECR), June 14-16, 2015, Addis Ababa, Ethiopia.

Research

Research Assistant **@iLab, Carnegie Mellon University**
Project: Recommender Systems & Consumer Welfare

- Analyzed the data from a large-scale randomized experiment with a major European telecommunication company on its recommendation section of TV VOD service.
- Proved empirically and theoretically that a profit-driven recommender system can introduce a conflict of interest between firm and consumers.

Project: Personalization vs. Price Discrimination in a Monopolistic Recommender System

- Built an analytical model of recommender systems, based on Salop's circular model for horizontally differentiated product and heterogeneous consumers.
- Used the model to prove the resemblance in welfare between price discrimination and personalization.
- Modeled trust in a two period repeated game, and showed that trust mediates the conflict between firm and consumers

Teaching

Teaching Assistant **Carnegie Mellon University**
19753-Managerial and Engineering Economics, Spring 2016
19819-Measuring Causal Effects in Online Platforms, Spring 2015

Internship

Ford Motor Company, Dearborn, MA, 6/2012 − 8/2012
Andoird app development

Consulting

CourseMatch, Columbia, OH, 9/2015 − 2/2016
Marketing analysis and business modeling for the mobile app start-up

Skills

Empirical Data Analysis: **R, Python, STATA, SQL**
Modeling and Graphical Tools: **Mathematica, Grapher, Illustrator**
Software Dev.: **JAVA**

Membership

- Information System Society
- Association for Information System

Service

Reviewer for JECR 2014

Activities

Carnegie Mellon University, 2015 −2016
Chair, 5th CMU SUMMIT on US-China Innovation & Entrepreneurship
Vice President, CMU Chinese Students & Scholar Association
Vice President, CMU Students for Science & Technology Club

Carnegie Mellon University, 2014 −2015
Director of Innovation & Entrepreneurship Panel,
Co-director of New Venture Competition,
4th CMU SUMMIT on US-China Innovation & Entrepreneurship

References

Pedro Ferreira
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Engineering & Public Policy
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