**Application to Tutorial of 2017 NBER Economics of Digitalization**

Xiaochen Zhang

Contact Information

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Education

**Carnegie Mellon University, Pittsburgh, PA**

Ph.D. Engineering and Public Policy, expected 2017

*Dissertation Title:* “Welfare Properties of Recommender Systems.”

*Dissertation Committee:*

Pedro Ferreira (PhD Advisor & Committee chair,CMU),

Marvin Sirbu (CMU),

Miguel Matos (Catolica Lisbon School of Business & Economics),

Rodrigo Belo (Erasmus University Rotterdam).

**Northwestern University, Evanston, IL**

M.S. Electrical Engineering, 2013

**Beijing University of Posts and Telecommunications, Beijing, China**

B.S. Telecommunication Engineering with Management, 2011

Course of Study

* Major focus of study: **Business Analytics/Information Systems/Policy Analysis**
* Selected Courses:
  + Statistics, Econometrics, and Economics

**(Carnegie Mellon University, Pittsburgh, PA)**

90905 Statistical Theory of Social & Policy Research

90908 Microeconomics

19704 Applied Data Analysis

47745 Dynamic Structural Model in Marketing and Economic Analysis

90914 PHD Seminar in Information Systems

47952 Doctoral Seminar on Business Technologies II

90915 Fundamentals of Social Network Methods

10701 Introduction to Machine Learning

**(Northwestern University, Evanston, IL)**

MECS460-1 Optimization 1: Static Decision Models

MECS460-2 Optimization 2: Dynamic Decision Models

IEMS 460-1 Stochastic Models 1

IEMS 460-2 Stochastic Models 2

IEMS 313-0 Deterministic Models and Optimization

* Policy Analysis

**(CMU)**

19701 Introduction of Theory and Practices of Policy Analysis

19705 Workshop on Applied Policy Analysis

19702 Quantitative Methods for Policy Analysis

90860 Policy of Global Economy

* + Database

**(CMU)**

95703 Database Management

Research Interests

My research focuses I investigating how technology impacts economic and social welfare using statistical and analytical modeling methods. Specifically, I analyze the welfare properties of recommender systems in E-commerce settings during my Ph.D. study.

Research Projects

1. Recommender Systems & Consumer Welfare
   * Analyzed the data from a large-scale randomized experiment at 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 the firm and consumers.
2. 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 products 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 the firm and consumers

Teaching Experiences

Teaching Assistant, Carnegie Mellon University

* 19753-Managerial and Engineering Economics, Spring 2016
* 19819-Measuring Causal Effects in Online Platforms, Spring 2015

Manuscripts:

1. “Personalization vs. Price Discrimination in a Monopolistic Recommender System” with Rodrigo Belo, Pedro Ferreira, Miguel Godinho de Matos.
2. “Recommender Systems and Consumer Welfare: Results from a Randomized Experiment in Video-on-Demand”, with Rodrigo Belo, Pedro Ferreira, Miguel Godinho de Matos. Url: <https://ssrn.com/abstract=2856794>. Submitted to Information Systems Research (ISR).