Application for
Digital Economics and AI Tutorial

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1 Contact information

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2 Description of the course of graduate study

I'm currently in the fourth year of my PhD program. My focus during graduate study was on Economics (PhD, Master's) and Computer Science (Master's).

- Economics
  - Methods in Econometrics
  - Regression Analysis
  - Econometrics i, ii, iii
  - Advanced Econometrics
  - Industrial Organization A, B
  - Topics in Industrial Organization
  - Math Theory in Industrial Organization
- Computer Science (& Statistics)
  - High Dimensional Data Analysis
  - Bayesian and Modern Statistics
  - Theory and Algorithms for Machine Learning
  - Computational Microeconomics
  - Probabilistic Machine Learning
  - Computer Vision

3 Research

- Research Interests
  - Algorithmic Collusion, E-commerce Market Dynamics, Asymmetric Market Impacts, Reinforcement Learning
- Research Project (Dissertation)
  - Title: Implications of AI-Driven Algorithmic Pricing on Platform Competition and Consumer Welfare
  - Description: AI-based pricing algorithms, increasingly adopted on digital platforms, have raised concerns about their potential for collusive behavior and negative impacts on consumer welfare. This paper develops a framework to study price competition between platforms using AI-based algorithms, particularly Q-learning, in the presence of a dominant platform with loyal consumers and faster price detection capabilities. The findings show that AI struggles to optimize pricing in symmetric markets but learns to collude much faster when a dominant platform is present, as it reduces incentives to undercut prices. Price data analysis reveals strong interdependence in price changes across platforms, with dominant platforms often acting as price leaders and influencing smaller platforms' pricing decisions. This highlights the dominant platform's significant role in accelerating collusive behavior, leading to potential declines in consumer welfare in the e-commerce market.
- List of Committee Members
  - Brett Hollenbeck (Chair), Randolph Bucklin, Ashvin Gandhi, Tai Lam, Anand Bodapati