Elaheh Fata

Smith School of Business, Queen's University
143 Union Street (Goodes Hall)
Kingston, ON, K7L 3N6

Email: elaheh.fata@queensu.ca
Phone: (781)708-1520

Research Interests

Data-driven revenue management, online marketplaces, online matching, machine learning, fairness in machine learning

Education

Massachusetts Institute of Technology, Cambridge, MA — September 2020
PhD in Controls, Department of Aeronautics and Astronautics (GPA: 5/5),
Minor: Applied Finance,
Advisors: David Simchi-Levi and Georgia Perakis

University of Waterloo, Waterloo, ON, Canada — August 2013
Master of Applied Science in Electrical and Computer Engineering (GPA: 95.3/100),
Thesis: On Two Combinatorial Optimization Problems in Graphs: Grid Domination and Robustness,
Advisor: Stephen L. Smith and Shreyas Sundaram

Sharif University of Technology, Tehran, Iran — August 2010
Bachelor of Science in Mechanical Engineering (GPA: 18.7/20)

Employment

Smith School of Business Queen's University, Kingston, ON — January 2021
Assistant professor

Columbia University, New York City, NY — September 2020
Postdoctoral researcher, department of IEOR

Papers Accepted or Under Review

1. **Learning Optimal Online Advertising Portfolios with Periodic Budgets**
   -With Lennart Baardman, Abhishek Pani, and Georgia Perakis,
   Under review in Operations Research, under revision
   ***Finalist in George Nicholson Student Paper Competition (2018)**
   ***Finalist in IBM Best Student Paper Award (2019)**

2. **Multi-stage and Multi-customer Assortment Optimization with Inventory Constraints**
   -With Will Ma, and David Simchi-Levi,
   Under review in Operations Research

3. **A Game of Public Facilities on Networks**
   -With Soroush Alamdari,
   Conference on Decision and Control **(CDC 2018)**
   Journal version to be submitted soon to Mathematics of Operations Research

4. **A Notion of Robustness in Complex Networks**
   -With Haotian Zhang, and Shreyas Sundaram,
   IEEE Transaction on Control of Network Systems Journal **(TCNS 2015)**, 2(3), pp. 310-320

5. **Persistent Monitoring in Discrete Environments: Minimizing the Maximum Weighted Latency between Observations**
   -With Soroush Alamdari, and Stephen L. Smith,
   The International Journal of Robotics Research **(IJRR 2014)**, 33(1), pp. 138-154
   A preliminary conference version appeared in the Workshop on Algorithmic Foundations of Robotics **(WAFR 2013)**

6. **Distributed Dominating Sets on Grids**
   - With Stephen L. Smith, and Shreyas Sundaram,
   American Control Conference **(ACC 2013)**

Preprints and Working Papers

7. **Dynamic Creative Content Optimization in Online Display Advertising**
   -With Lennart Baardman, Abhishek Pani, and Georgia Perakis,
   To be submitted soon to Management Science

8. **Performance Guarantees for Revenue Maximization in Online Type Matching**
   -With Will Ma, and David Simchi-Levi
   Work in progress

9. **Comparison of Classical and Nonlinear Models for Short-term Electricity Price Prediction**
   -With Igor Kadota, and Ian Schneider,
   Working paper

Conference and Workshop Presentations

Learning Optimal Online Advertising Portfolios with Periodic Budgets,
RMP 2019, MSOM 2018, INFORMS 2018

Performance Guarantees for Revenue Maximization in Online Type Matching,
POMS 2019, RMP 2018, INFORMS 2018

Multi-stage and Multi-customer Assortment Optimization with Inventory Constraints
CORS 2021, Cornell ORIE Workshop on Data-driven Decision-marking 2019, INFORMS 2019

Dynamic Creative Content Optimization in Online Display Advertising
INFORMS 2020, INFORMS 2019

A Game of Public Facilities on Networks,
CDC 2018

Distributed Dominating Sets on Grids,
ACC 2013

Persistent Monitoring in Discrete Environments: Minimizing the Maximum Weighted Latency between Observations,
WAFR 2013

Honors and Awards

Finalist in IBM Best Student Paper Award	2019
Finalist in George Nicholson Student Paper Competition	2018
Conference on Decision and Control **(**CDC) Student Travel Grant	2018
MIT Graduate School Council **(**GSC) Student Travel Grant	2018
University of Waterloo Faculty of Engineering Graduate Scholarship	2012
University of Waterloo Special Graduate Scholarship	2012

Teaching Experiences

Massachusetts Institute of Technology, Cambridge, MA
-*Teaching Assistant* for Mathematics for Computer Science (6.042) Spring 2018
Enrollment: 165 (Undergraduate course)
Responsible for teaching weekly recitations, designing and grading exams and assignments

-*Teaching Assistant* for Advanced Undergraduate Research Program (6.UAR) Fall 2016
Enrolment: 150 (Undergrad course)
Responsible for mentoring students on their undergraduate projects

University of Waterloo, Waterloo, Ontario, Canada
-*Teaching Assistant* for Algorithm Design and Analysis (ECE406) Spring 2013
Undergraduate course
Responsible for teaching weekly recitations

Research Employments and Experiences

Adobe Systems Incorporated, San Jose, CA Summer 2018
Data Scientist
-Designed and implemented multi-armed bandit based learning algorithms for large-scale advertising portfolio optimization to help determine bidding policies for online advertising.

Massachusetts Institute of Technology, Cambridge, MA 2016-Present
Research Assistant 2013-2015
Advisors: David Simchi-Levi and, Georgia Perakis,
-Conducting research on multiple online advertising and online matching problems with the goals of learning the best targets for the advertiser to bid on, determining the set and order of advertisement items to be shown to online users as they visit the platform while complying with the business and inventory constraints of the advertiser.

Tangam Systems, Waterloo, Ontario, Canada Summer 2013
Algorithm Designer
-Designed carpooling algorithms for maximizing the revenue of the ride-sharing platform.

University of Waterloo, Waterloo, Ontario, Canada 2011-2013

Research Assistant
Advisors: Stephen L. Smith, and Shreyas Sundaram,
-Conducted research in vehicle routing for continual monitoring of features of interest, such as patrolling urban districts to avoid crimes, as well as, studying the problem of how robustness networks, such as social networks, are against malicious attacks. Moreover, I studied different versions of the dominating set problems on grids and how it can be used to place agents on a grid network to fully cover it.

Referee INFORMS Optimization Journal, CDC 2018, Systems & Control Letters, FAW 2015, CDC 2015, ACC 2013

Student Supervision

Milad Mirzaee, PhD student in Management, co-advised with Guang Li