

Parshan Pakiman

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OVERVIEW

I am a Ph.D. candidate in Information and Decision Sciences at the University of Illinois at Chicago. My research focuses on developing self-adapting algorithms to simplify the implementation and hand-engineering needed to solve sequential decision-making problems. My research advances machine learning, approximate dynamic programming, reinforcement learning (RL), inverse RL, online learning, and high-dimensional sampling. I employ state-of-the-art platforms such as TensorFlow, Gurobi, Nevergrad, and OpenAI Gym for large-scale computing.

EDUCATION

University of Illinois at Chicago (UIC), Chicago, IL

Ph.D. in: Information and Decision Sciences
Areas of research: Machine Learning and Operations Management
Co-advisors: Professors Selva Nadarajah and Negar Soheili

Spring 2017 -
(Expected) Fall 2021

University of Illinois at Chicago (UIC), Chicago, IL

M.Sc. in: Business Analytics

Spring 2017 -
(Expected) Fall 2021

University of Tehran (UT), Tehran, Iran

B.Sc. in: Applied Mathematics

Fall 2012 - Fall 2016

EXPERIENCES

- Working with a major technology provider in fast-fashion sector to adaptively learn changing customer demand and modify pricing strategies to maximize revenue (a related research paper is available upon request).
- Working with a major e-commerce company to optimize the dimension of cardboard boxes to reduce packaging waste and to ensure high worker throughput (a related research paper is in progress).
- Collaborated with Foresight ROI, Inc on a marketing lift forecasting and campaign optimization project (link to the resulting research paper: <https://dl.acm.org/doi/10.1145/3292500.3330788>).
- Teaching and implementation experience in graduate classes with data mining, statistical learning, machine learning, and operations management.
- Collaborator on a multi-university and industry initiative to develop an open-source approximate dynamic programming and reinforcement learning platform to solve business problems.

Spring 2019 -
Present

Spring 2019 -
Present

Fall 2017 - Summer
2019

Fall 2014 - Present

Fall 2019

RESEARCH INTERESTS

- Solving large-scale sequential decision making problems by combining techniques from approximate dynamic programming, randomized and high-dimensional sampling, and optimization.
- Developing data-driven algorithms that leverage forecasts to compute robust decisions in application domains such as pricing, retailing, e-commerce, and marketing.
- Deriving business insights and prescribing optimized decisions by developing new machine learning and reinforcement learning methods.

PUBLISHED OR SUBMITTED PAPERS

- *Self-adapting Robustness in Demand Learning*. Coauthors: Boxiao Chen, Selvaprabu Nadarajah and Stefanus Jasin. Submitted to Operations Research. <http://arxiv.org/abs/2011.10690>.
- *Self-guided Approximate Linear Programs*. Coauthors: Selvaprabu Nadarajah, Negar Soheili, and Qihang Lin. Major revision at Management Science. <https://arxiv.org/abs/2001.02798>.
- *SMOILE: A Shopper Marketing Optimization and Inverse Learning Engine*. Coauthors: Abhilash Reddy Chenreddy, Selvaprabu Nadarajah, Ranganathan Chandrasekaran, and Rick Abens. In Proceedings of the 25th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (KDD '19). <https://dl.acm.org/doi/10.1145/3292500.3330788>. Acceptance rate for oral presentation is 6.4%.

Fall 2020

Spring 2020

Summer 2019

WORKING RESEARCH PAPERS

- *Managing Packing Efficiency and Sustainability in E-commerce: A Semi-supervised Learning Approach*. Coauthors: Selvaprabu Nadarajah and Yun Fong Lim. **Work in progress**.
- *Convex Optimization using Random Features*. Coauthors: Selva Nadarajah and Negar Soheili. **Work in progress**.

Present

Present

AWARDS AND HONORS

Doctoral scholarship and fellowship:	Department of Information and Decision Sciences, University of Illinois at Chicago	Since Spring 2017
Top student award:	Department of Mathematics, Statistics and Computer Science, University of Tehran	Fall 2016
Technical qualification:	RoboCup Iran open, soccer 2D simulation league	Fall 2016
Technical qualification:	Khwarizmi international award, soccer 2D simulation league	Fall 2010

TECHNICAL SKILLS

Programming language:	Python, C++, C, R, Java, HTML, JavaScript
Python package:	NumPy, SciPy, Pandas, Matplotlib, SciKitLearn, PyTorch, GurobiPy, Nevergrad, Pyomo
Software:	Matlab, Tableau, Microsoft/Libre Office, RapidMiner
Operating systems:	Linux, MacOS, Windows

INVITED TALKS AND POSTER PRESENTATIONS

Self-adapting Robustness in Demand Learning		
Talk:	INFORMS Annual Meeting, Virtual	Fall 2020
Talk:	INFORMS Revenue Management and Pricing, https://youtu.be/DrioI3LiUc , Virtual	Fall 2020
Self-guided Approximate Linear Programs		
Poster:	NeurIPS 2020, Workshop on Self-Supervised Learning: Theory and Practice.	Fall 2020
Talk:	POMS 30th Annual Conference, Washington D.C.	Spring 2019
Talk:	INFORMS Annual Meeting, Phoenix, AZ	Fall 2018
Talk:	POMS 29th Annual Conference, Houston, TX	Spring 2018
SMOILE: A Shopper Marketing Optimization and Inverse Learning Engine		
Talk & Poster:	ACM SIGKDD, International Conference on Knowledge Discovery & Data Mining https://youtu.be/eWoBr3JDisc , Anchorage, AK	Summer 2019
Managing Packing Efficiency and Sustainability in E-commerce: A Semi-supervised Learning Approach		
Talk:	Symposium on Energy, Environment & Sustainability (SEES), Virtual	Spring 2020

SERVICE

Reviewer	
Annals of Operations Research	Since Fall 2020
Computers & Operations Research	Since Spring 2019
Electronic Commerce Research	Since Spring 2018
Information Systems and Operational Research	Since Fall 2018

TEACHING EXPERIENCES

Lecturer for statistical models and methods for business analytics		Spring 2019 - Fall 2019
Topic:	Applications of regression, classification and likelihood maximization	
Slides:	https://chicagodatascience.github.io/s19/575/	
Teaching Assistant, University of Illinois at Chicago		Since Spring 2017
Advanced text analytics for Business (IDS 566)		
Business data mining (IDS 472)		
Business forecasting (IDS 476)		
Data science for online customer analytics (IDS 594)		
Introduction to operations management (IDS 532)		
Statistical models and methods for business analytics (IDS 575)		
Teaching Assistant, University of Tehran		Spring 2014 - 2016
Introduction to numerical analysis and scientific computing		
Numerical linear algebra		