Parshan Pakiman

parshanpakiman.github.io/homepage | linkedin.com/in/parshan-pakiman | github.com/parshanpakiman | ppakim2@uic.edu | +1 312 493 1304 February 2021

OVERVIEW

I am a Ph.D. candidate in Information and Decision Sciences at the University of Illinois at Chicago. My research advances solution techniques to high-dimensional decision-making problems. I develop Reinforcement Learning (RL) algorithms that *self-adapt* to data by learning a model of the data generation process and using this model to deliver better decisions. My research contributes to the literature on RL, inverse RL, machine learning, online learning, and high-dimensional sampling. I employ state-of-the-art platforms such as Gurobi, PyTorch, and Nevergrad to test my RL algorithms on real-world applications.

EDUCATION

University of Illinois at Chicago (UIC), Chicago, IL — Spring 2017 - (Expected) Fall 2021
Ph.D. in: Information and Decision Sciences
Thesis title: Self-adapting Reinforcement Learning
Co-advisors: Professors Selva Nadarajah and Negar Soheili

University of Illinois at Chicago (UIC), Chicago, IL — Spring 2017 - (Expected) Fall 2021
M.Sc. in: Business Analytics

University of Tehran, Tehran, Iran — Fall 2012 - Fall 2016
B.Sc. in: Applied Mathematics

WORK EXPERIENCES

- Working with a major tech provider in fast-fashion sector to adaptively learn changing customer demand and modify pricing strategies to maximize revenue (**Link** to the resulting research paper). — Since Spring 2019
- Collaborated with Foresight ROI to design a framework for mining past marketing data and for optimizing future marketing campaigns (**Link** to the resulting paper). — Fall 2017 - Summer 2019
- Teaching and implementation experience in graduate classes with data mining, statistical learning, machine learning, and operations management. — Since Fall 2014
- Collaborator on a multi-university and industry initiative to develop an open-source reinforcement learning and approximate dynamic programming platform to solve business problems. — Fall 2019
- Reviewing research articles for multiple journals in the areas of Operations Research and E-commerce. — Since Fall 2019

RESEARCH INTERESTS

- Studying reinforcement learning problems that the available data for learning is generated from a decision making process and is useful to uncover the dynamics of the data generation process.
- Solving large-scale sequential decision making problems by combining reinforcement learning, approximate dynamic programming, randomized and high-dimensional sampling, and optimization techniques.
- Developing data-driven algorithms with online and offline data availability that leverage forecasts to compute robust decisions in application domains such as pricing, retailing, e-commerce, and marketing.

PUBLICATIONS

Journal Papers

- *Self-adapting Robustness in Demand Learning.* Coauthors: Boxiao Chen, Selvaprabu Nadarajah, Stefanus Jasin. **Submitted to Operations Research**. **Link**. — Fall 2020
- *Self-guided Approximate Linear Programs.* Coauthors: Selvaprabu Nadarajah, Negar Soheili, Qihang Lin. **First round major revision at Management Science**. **Link**. — Spring 2020

Conference Papers

- *Guiding Agents via Menus when Optimization and/or Learning Costs are High.* Coauthors: Selvaprabu Nadarajah, Yun Fong Lim. **Submitted to ICML 2021**. — Spring 2021
- *SMOILE: A Shopper Marketing Optimization and Inverse Learning Engine.* Coauthors: Abhilash Reddy Chenreddy, Selvaprabu Nadarajah, Ranganathan Chandrasekaran, Rick Abens. **Proceedings of the 25th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining**. *Acceptance rate is 6.4%.* **Link**. — Summer 2019

Workshop Papers

- *Self-guided Approximate Linear Programs.* Coauthors: Selvaprabu Nadarajah, Negar Soheili, Qihang Lin. **Accepted in NeurIPS workshop on Self-Supervised Learning – Theory and Practice, NeurIPS 2020**. **Link**. — Spring 2020

Work in Progress

- *Menu Optimization for Sustainable Warehousing.* Coauthors: Selvaprabu Nadarajah, Yun Fong Lim. — Present
- *Convex Optimization using Random Features.* Coauthors: Selva Nadarajah, Negar Soheili. — Present

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, Windows, MacOS

AWARDS AND HONORS

Doctoral 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

INVITED TALKS

Self-adapting Robustness in Demand Learning

- INFORMS Annual Meeting, Virtual — Fall 2020
- INFORMS Revenue Management and Pricing Student Live Paper Series, **Link**, Virtual — Fall 2020

Self-guided Approximate Linear Programs

- POMS 30th Annual Conference, Washington D.C. — Spring 2019
- INFORMS Annual Meeting, Phoenix, AZ — Fall 2018
- POMS 29th Annual Conference, Houston, TX — Spring 2018

SMOILE: A Shopper Marketing Optimization and Inverse Learning Engine

- ACM SIGKDD, International Conference on Knowledge Discovery & Data Mining, **Link**, Anchorage, AK — Summer 2019

POSTER PRESENTATIONS

Self-guided Approximate Linear Programs

- NeurIPS 2020, Workshop on Self-Supervised Learning – Theory and Practice, **Link**, Virtual — Fall 2020

SMOILE: A Shopper Marketing Optimization and Inverse Learning Engine

- ACM SIGKDD, International Conference on Knowledge Discovery & Data Mining, **Link**, Anchorage, AK — Summer 2019

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

- Applications of regression, classification and likelihood maximization, **Link**. — Spring 2019 - Fall 2019

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**

- Advanced text analytics for Business (IDS 566)
- Introduction to numerical analysis and scientific computing
- Numerical linear algebra