Parshan Pakiman

🏠 parshanpakiman.github.io ▪ linkedin.com/in/parshan-pakiman ⬡ github.com/parshanpakiman ✉ Parshan.Pakiman@ChicagoBooth.edu   ↻ Feb, 2024

Academic Employment

Booth School of Business, The University of Chicago, USA   2023 - Present

Position	Postdoctoral Principal Researcher
Mentor	Dan Adelman

Education

College of Business Administration, University of Illinois Chicago, USA   2017 - 2023

Ph.D.	Information and Decision Sciences
Thesis title	Self-guided Approximate Linear Programs: Randomized Multi-shot Approximation of Markov Decision Processes
Advisor	Selva Nadarajah

College of Business Administration, University of Illinois Chicago, USA   2017 - 2023

M.Sc.	Business Analytics

College of Science, University of Tehran, Iran   2012 - 2016

B.Sc.	Applied Mathematics

Research Interests

— Developing decision support for operating room scheduling by accounting for the temporal impact of decisions on costs, multiple sources of uncertainty, and competing objectives.

— Developing general-purpose reinforcement learning algorithms that deliver computationally tractable control policies with near-optimal performance guarantees across application domains.

— Modeling the data generation process underlying real-world business problems using reinforcement learning and machine learning techniques to design risk-sensitive operating policies.

Research Papers

Accepted Journal Paper

— P. Pakiman, S. Nadarajah, N. Soheili, Q. Lin. *Self-Guided Approximate Linear Programs: Randomized Multi-Shot Approximation of Discounted Cost Markov Decision Processes.* Accepted in **Management Science** (**Link**).

In-preparation Journal Papers

— D. Adelman, A. J. Mersereau, P. Pakiman. *Dynamic Assignment of Jobs to Workers with Learning Curves.* In preparation for submission to **Operations Research**.

— P. Pakiman, S. Nadarajah. *Randomized Multi-Shot Approximation of Average Cost Markov Decision Processes.* In preparation for submission to **Operations Research**.

— P. Pakiman, B. Chen, S. Nadarajah, S. Jasin. *Self-adapting Risk Management in Dynamic Pricing with Demand Learning.* In preparation for submission to **Manufacturing & Service Operations Management** (**Link**).

Working Journal Papers

— D. Adelman, C. Keceli, P. Pakiman. *Equitable and Data-driven Dynamic Matching.*

— D. Adelman, P. Pakiman. *Retrospective Approximate Dynamic Programming.*

— P. Pakiman, S. Nadarajah. *Randomized Multi-Shot Least Squares Monte Carlo for Option Exercise.*

Accepted Conference Paper

— A. Chenreddy, P. Pakiman, S. Nadarajah, R. Chandrasekaran, R. Abens. *SMOILE: A Shopper Marketing Optimization and Inverse Learning Engine.* **Proceedings of the 25th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining**, 2019 (**Link**). Acceptance rate 6.4%.

Industry Research Collaborations

— Interned with the Advanced Solutions team at *Guidehouse:* Developed a reinforcement learning algorithm to address a workflow scheduling problem.   2021

— Collaborated with *Foresight ROI*: Developed an inverse reinforcement learning framework to mine past marketing data and optimize future marketing campaigns across retailers (**Link** to the resulting research paper).   2017 - 2019

Honors and Awards

Doctoral fellowship:	College of Business Administration, University of Illinois Chicago, USA	2017 - 2023
BGS[1] membership:	College of Business Administration, University of Illinois Chicago, USA	2021
Direct master's recipient:	College of Science, University of Tehran, Iran	2016
Technical qualification:	Soccer Simulation League, RoboCup Iran open (**Link**), Iran	2016
Technical qualification:	Soccer Simulation League, Khwarizmi International Award, Iran	2010

Computational Skills

Programming languages:	Python, R, C++, C, Java, Matlab, HTML, JavaScript
Data science libraries:	Scikit-learn, Gymnasium, Numba, NumPy, Matplotlib, SciPy, Pandas
Optimization libraries:	Gurobi, CVXPY, Nevergrad, Autograd, PyTorch, Pyomo, OR-Tools
Operating systems:	Linux, MacOS, Windows

Teaching Experiences

Note: All teaching materials are available at **parshanpakiman.github.io/teaching**.

Teaching Assistant, University of Chicago   2023 - 2024

— Approximate Dynamic Programming (BUS 36905)

Course Co-Designer, University of Illinois Chicago   2021 - 2023

— Optimization for Analytics (IDS 435). Engaged in developing a new data science course, IDS 435, by designing curriculum, developing assignments, providing Python templates, and designing final project.

Guest Instructor, University of Illinois Chicago   2019 - 2023

— Supply Chain Management (IDS 552). Taught two sessions on warehouse management.

— Business Data Mining (IDS 472). Taught multiple refresher sessions on introduction to programming in R.

— Statistical Models and Methods for Business Analytics (IDS 575). Taught refresher classes on linear algebra, calculus, and probability.

— Statistical Models and Methods for Business Analytics (IDS 575).Taught sessions on regression, classification and likelihood maximization.

Teaching Assistant, University of Illinois Chicago   2019 - 2023

— Data Science for Online Customer Analytics (IDS 594)

— Statistical Models and Methods for Business Analytics (IDS 575)

— Advanced Text Analytics for Business (IDS 566)

— Introduction to Operations Management (IDS 532)

— Business Forecasting (IDS 476)

— Business Data Mining (IDS 472)

— Optimization for Analytics (IDS 435)

Teaching Assistant, University of Tehran   2014 - 2016

— Introduction to Numerical Analysis and Scientific Computing

— Numerical Linear Algebra

Invited Talks

Self-Adapting Risk Management in Demand Learning

— INFORMS Annual Meeting, Phoenix, AZ   2023

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[1]Beta Gamma Sigma (BGS) is an International Business Honor Society (**Link**).

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

Randomized Multi-Shot Least Squares Monte Carlo for Option Exercise

— INFORMS Annual Meeting, Phoenix, AZ	2023
— POMS 32nd Annual Conference, Virtual	2022

Self-Guided Approximate Linear Programs: Randomized Multi-Shot Approximation of Discounted Cost Markov Decision Processes

— Tuck School of Business, Dartmouth College, Hanover, NH	2022
— International Conference on Continuous Optimization (ICCOPT), Bethlehem, PA	2022
— INFORMS Optimization Society (IOS) Conference, Greenville, SC	2022
— INFORMS Annual Meeting, Anaheim, CA	2021
— POMS 30th Annual Conference, Washington D.C.	2019
— INFORMS Annual Meeting, Phoenix, AZ	2018
— POMS 29th Annual Conference, Houston, TX	2018

Decision Learning with Menu Optimization

— INFORMS Annual Meeting, Indianapolis, IN	2022
— POMS 32nd Annual Conference, Virtual	2022
— POMS 31st Annual Conference, Virtual	2021

SMOILE: A Shopper Marketing Optimization and Inverse Learning Engine

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

Poster Presentations

Note: All posters are available at **parshanpakiman.github.io/presentation**.

— **Self-Guided Approximate Linear Programs**, NeurIPS 2020, Workshop on Self-Supervised Learning, Virtual	2020
— **SMOILE: A Shopper Marketing Optimization and Inverse Learning Engine**, ACM SIGKDD, International Conference on Knowledge Discovery & Data Mining, Anchorage, AK	2019

Service

Conference Organization

— Session co-chair, *Risk Management in Reinforcement Learning*, INFORMS Annual Meeting	2023
— Session co-chair, *Learning and Sequential Decision Making*, INFORMS Annual Meeting	2022
— Session co-chair, *Large-scale Linear Programs and Applications*, INFORMS Optimization Society Conference	2022
— Session chair, *Recent Advances in Reinforcement Learning*, INFORMS Annual Meeting	2021
— Session co-chair, *Social Responsibility and Risk in Supply Chains*, INFORMS Annual Meeting	2021

Reviewer

— INFORMS Journal on Computing	2022
— Information Systems Research	2022
— International Conference on Learning Representations	2021
— Annals of Operations Research	2019 - 2021
— Computers & Operations Research	2019 - 2021
— Electronic Commerce Research	2018 - 2021
— Information Systems and Operational Research	2018

Membership

— Beta Gamma Sigma (BGS) Society	2021 - Present
— Production and Operations Management Society (POMS)	2018 - Present
— Institute for Operations Research and the Management Sciences (INFORMS)	2017 - Present
— INFORMS Chicago Chapter Ambassador	2022

References

— **Dan Adelman**, Charles I. Clough, Jr. Professor of Operations Management, Booth School of Business, The University of Chicago. Email: Dan.Adelman@ChicagoBooth.edu.

— **Selva Nadarajah**, Associate Professor of Operations Management, College of Business Administration, University of Illinois Chicago. Email: SelvaN@UIC.edu.