Parshan Pakiman

🏠 parshanpakiman.github.io   🔗 linkedin.com/in/parshan-pakiman   ⓞ github.com/parshanpakiman   ✉ Parshan.Pakiman@ChicagoBooth.edu   ⟳ Mar, 2024

Academic Employment

Booth School of Business, 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 (**Link**)
Committee	Selva Nadarajah (Advisor and Chair), Beryl Chen, Negar Soheili, Dan Adelman, Itai Gurvich

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

— Studying emerging problems at the core of operating room management and retailing, where the applicability of existing methods is limited, necessitating the development of new reinforcement learning and data-driven optimization methods for these problems.

— Developing general-purpose reinforcement learning algorithms that guarantee near-optimal control policies for a broad class of Markov decision processes and can be easily adopted across applications without requiring domain knowledge.

Working 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 **Management Science**.

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

Accepted and Published Papers

— 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**).

— 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%.

Work In-Progress

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

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

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

Industry 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

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

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

Invited Talks and Presentations

Dynamic Assignment of Jobs to Workers with Learning Curves
— Chicago Booth's Principal Researcher Workshop, Chicago, IL   2024

Self-Adapting Risk Management in Demand Learning
— INFORMS Annual Meeting, Phoenix, AZ   2023
— INFORMS Annual Meeting, Virtual   2020
— INFORMS Revenue Management and Pricing Student Live Paper Series, **Link**, Virtual   2020

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

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

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, University of Chicago. Email: Dan.Adelman@chicagobooth.edu.

- **Adam J. Mersereau**, Professor and Area Chair of Operations, Kenan-Flagler Business School, University of North Carolina. Email: ajm@unc.edu.

- **Selva Nadarajah**, Associate Professor of Operations Management, College of Business Administration, University of Illinois Chicago. Email: selvan@uic.edu.

- **Negar Soheili**, Associate Professor of Business Analytics, College of Business Administration, University of Illinois Chicago. Email: nazad@uic.edu.