Parshan Pakiman

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Overview

I am a Ph.D. candidate in Infomation and Decision Sciences seeking a research internship position. 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 — Spring 2017 - (Expected) Fall 2021

Ph.D. in: Information and Decision Sciences
Areas of research: Machine Learning and Operations Management
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 (UT), Tehran, Iran — Fall 2012 - Fall 2016

B.Sc. in: Applied Mathematics

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). — Spring 2019 - Present
- 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). — Spring 2019 - Present
- 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). — Fall 2017 - Summer 2019
- Teaching and implementation experience in graduate classes with data mining, statistical learning, machine learning, and operations management. — Fall 2014 - Present
- Collaborator on a multi-university and industry initiative to develop an open-source approximate dynamic programming and reinforcement learning platform to solve business problems. — 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 (Beryl) Chen, Selvaprabu Nadarajah and Stefanus Jasin. **Submitted to Operations Research**. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3734591. — Fall 2020
- *Self-guided Approximate Linear Programs.* Coauthors: Selvaprabu Nadarajah, Negar Soheili, and Qihang Lin. **Major revision at Management Science**. https://arxiv.org/abs/2001.02798. — Spring 2020
- *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%. — 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**. — Present
- *Convex Optimization using Random Features.* Coauthors: Selva Nadarajah and Negar Soheili. **Work in progress**. — Present

Awards and Honors

Doctoral scholarship and fellowship:	Department of Information and Decision Sciences, University of Illinois at Chicago	Spring 2017 - Present
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

Self-adapting Robustness in Demand Learning

INFORMS Annual Meeting, Virtual — Fall 2020
INFORMS Revenue Management and Pricing Student Live Paper Series [https://youtu.be/DrioI3lLiUc], 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

Conference on Knowledge Discovery and Data Mining [https://youtu.be/eWoBr3JDisc], Anchorage, AK — Summer 2019

Managing Packing Efficiency and Sustainability in E-commerce: A Semi-supervised Learning Approach

Symposium on Energy, Environment & Sustainability (SEES), Virtual — Spring 2020

Service

Reviewer

Computers & Operations Research — Spring 2019
Information Systems and Operational Research — Fall 2018
Electronic Commerce Research — Spring 2018 - Present

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 — Spring 2017 - Present

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