Soroush Akbarijokar

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Summary

PhD candidate with **years of experience** in **optimization**, **machine learning**, and **decision-making under uncertainty**. Develop **scalable algorithms** in **inverse optimization**, **reinforcement learning**, and **clustering** with applications to vehicle routing and production planning.

Education

University of Pittsburgh — PhD, Operations Research *Expected 2027*; GPA: 3.76/4.00
Adviser: Prof. Taewoo Lee

University of Tehran — B.S., Industrial Engineering *Feb 2022*; GPA: 18.09/20.00

Experience

University of Pittsburgh *Aug 2022 – Present*
Graduate Research Assistant

- Working on a manuscript on the stability of optimality-based clustering, an inverse optimization-based clustering method.
- Contributing to a manuscript on the inverse mixed-integer programming for the vehicle routing problem (VRP).
- Working on a project on inverse reinforcement learning for partially observable environments.

Bimax *May 2022 – Aug 2022*
Data Science Intern

- Built an MRP-MLCLSP optimization model for production planning, reducing scheduling computation time by 30%.

Skills

Research Focus – Data-driven Optimization / Inverse Optimization / Clustering Algorithms / Reinforcement Learning.
Programming Languages / Solvers - Python (Pandas, NumPy, PyTorch, Scikit-Learn, TensorFlow) / Gurobi, Hexaly.

Graduate Coursework

Linear / Non-linear / Convex / Integer / Stochastic / Network / Large-Scale Optimization,
Statistics, Machine Learning, Markov Decision Processes, Stochastic Processes, Design & Analysis of Algorithms.

Projects

Optimality-based Clustering (University of Pittsburgh)
Reframed a novel clustering problem to improve stability; built a column-generation solver that handles large datasets (*Python, Numpy, Gurobi*).
Inverse Mixed-integer Programming (University of Pittsburgh)
Transformed an intractable inverse mixed-integer problem into a scalable convex program; implemented an efficient algorithm that solves large instances in practice (*Python, Numpy, Gurobi*).
Causal & Graphical Models (Carnegie Mellon University)
Built a reproducible A→B→C DAG study that specifies an ATE estimand, derives back-door & front-door identification, implements plug-in/IPW/AIPW estimators and an EM routine for a missing mediator (*Python, NumPy, Pandas*).
Predictive Maintenance Scheduling (University of Tehran)
Explored deep learning for maintenance prediction and scheduling; investigated approaches to enhance failure prediction (*Python, NumPy, Pandas, PyTorch, TensorFlow*).

Publications & Manuscripts

- *On the Solution Structure and Stability of Optimality-Based Clustering* — Manuscript in preparation.
- *Convex Inverse Approximate MILP for Vehicle Routing Problem* — Manuscript in preparation.

Volunteer Experience

President, INFORMS Student Chapter (2023–2025) — Organized Python, Gurobi, and Git workshops; led K–12 OR outreach; received the 2025 INFORMS Student Chapter Award (Cum Laude)
Business Manager, International Engineering Students' Organization (IESO) (2023–2024) — Coordinated educational and social events for international students.