Fardin Ganjkhanloo

Health Care Policy Modeler, Ph.D.

Center for Health Systems and Policy Modeling · Department of Health Policy and Management
Johns Hopkins Bloomberg School of Public Health

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Research Areas

Operations Research, Health Economics and Policy, Healthcare Operations, Statistical Modeling

Research Experience

Johns Hopkins University *2025–Present*
Johns Hopkins Bloomberg School of Public Health, Department of Health Policy and Management
Health Care Policy Modeler, Center for Health Systems and Policy Modeling (CHSPM)

- Leading a structural microsimulation study of how bundled payment programs reshape hospital decisions around care delivery, patient outcomes, and spending; hospitals are modeled as multiobjective optimizing agents, with behavioral parameters estimated from national-scale CMS Medicare data.

Johns Hopkins University *2019–2025*
Johns Hopkins Whiting School of Engineering, Dept. of Civil and Systems Engineering
Ph.D. Researcher, Center for Systems Science and Engineering

- Member of the globally recognized Johns Hopkins COVID-19 Dashboard team; co-developed the data-collection automation pipeline enabling real-time global tracking of the pandemic that informed public health decisions worldwide.
- Led projects on optimizing clinical fall risk assessment and interpretable risk scoring, in collaboration with clinicians from Johns Hopkins School of Medicine, using patient EHR data.
- Contributed to a range of projects including: methodological research in inverse optimization; a longitudinal study of COVID-19 mortality disparities across U.S. counties; optimal hospital capacity management under demand surges; and robust network flow optimization in collaboration with MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL).
- Mentored junior researchers across these projects.

Education

Johns Hopkins University, Whiting School of Engineering *2019–2025*
Department of Civil and Systems Engineering
Ph.D. in Systems Engineering (2025); M.S. in Systems Engineering (2023)

Sharif University of Technology *2012–2018*
Department of Civil Engineering & Department of Computer Engineering
B.S. in Civil Engineering, Magna Cum Laude; B.S. in Computer Engineering (Software Engineering)

Publications

Peer-Reviewed

- Ganjkhanloo, F., et al. "An Interpretable Data-Driven Approach to Optimizing Clinical Fall Risk Assessment." *PLOS Digital Health* (accepted).
- Ganjkhanloo, F., et al. (2024). "Evolving Patterns of COVID-19 Mortality in US Counties: A Longitudinal Study of Healthcare, Socioeconomic, and Vaccination Associations." *PLOS Global Public Health*.
- Parker, F., Ganjkhanloo, F., Martínez, D. A., Ghobadi, K. (2026). "Optimal Hospital Capacity Management During Demand Surges." *Health Care Management Science*.
- Dong, E., et al. (2022). "The Johns Hopkins University Center for Systems Science and Engineering COVID-19 Dashboard: data collection process, challenges faced, and lessons learned." *The Lancet Infectious Diseases*.

Under Review

- Ganjkhanloo, F., et al. "Joint Score-Threshold Optimization for Interpretable Risk Assessment." *IEEE Journal of Biomedical and Health Informatics* (under review).
- Ahmadi, F., Ganjkhanloo, F., Ghobadi, K. "From Non-Identifiability to Goal-Integrated Decision-Making in Parametric Inverse Optimization." *Operations Research* (under review).
- Ahmadi, F., Ganjkhanloo, F. "Solution Prediction Dominates Parameter Prediction Under Generic Non-Identifiability: Connecting Inverse Optimization and Predict-then-Optimize." *European Journal of Operational Research* (under review).

Working Papers

- Ganjkhanloo, F., et al. "Statistical Inverse Linear Programming: One Framework for Stability, Vertex Recovery, and Tractability".
- Ganjkhanloo, F., et al. "How Do Hospitals Respond to Bundled Payments? A Structural Multiobjective Microsimulation Approach".

Honors and Awards

Excellence in Research Award Finalist, JHU Department of Medicine & Whiting School of Engineering Research Retreat *2024*

Recognized as an Outstanding Talent by Iran's National Elites Foundation *2014*

Invited Talks and Presentations

INFORMS Healthcare Conference 2026 *07/2026*

JHU Department of Medicine & Whiting School of Engineering Research Retreat *04/2024*

POMS 33rd Annual Conference, Orlando, FL *05/2023*

INFORMS Annual Meeting 2022, Indianapolis, IN *10/2022*

POMS 32nd Annual Conference, Virtual *04/2022*

INFORMS Healthcare Conference 2021, Virtual *07/2021*

Canadian Operations Research Society (CORS) Annual Meeting 2021, Virtual *08/2021*

POMS 31st Annual Conference, Virtual *04/2021*

INFORMS Annual Meeting 2020, Virtual *11/2020*

Teaching Experience

Johns Hopkins University *2021–2023*
Department of Civil and Systems Engineering

- *Operations Research* (Prof. Kimia Ghobadi) — Teaching Assistant, Fall 2021, Fall 2023
- *Introduction to Mathematical Decision Making* (Prof. Kimia Ghobadi) — Teaching Assistant & Guest Lecturer, Spring 2022

Sharif University of Technology *2014–2016*
Department of Civil Engineering

- *Structural Analysis II* (Prof. Kiarash Mohtasham Dolatshahi) — Teaching Assistant, Fall 2015, Spring 2016
- *Dynamics* (Prof. Ali Bakhshi) — Teaching Assistant, Spring 2014, Fall 2014, Spring 2015

Academic Service

Johns Hopkins INFORMS Student Chapter *2022–2025*
President & Former Vice President

INFORMS Healthcare Conference 2026 *07/2026*
Session Chair: "Impact of Financial and Insurance Systems on Healthcare"

POMS 33rd Annual Conference, Orlando, FL *05/2023*
Session Co-organizer

Reviewer

- npj Digital Medicine
- IISE Transactions on Healthcare Systems Engineering
- HICCS
- PCI Mathematical and Computational Biology

Technical Skills

Operations Research & Optimization: Mathematical Modeling, Linear/Integer Programming, Stochastic Optimization, Simulation, Heuristics

Statistical & Econometric Methods: Regression Analysis, Time Series Analysis, Hypothesis Testing, Causal Inference, Predictive Modeling

Programming: Python, Julia, Gurobi; AI coding agents (e.g., Claude)

Health Data Experience: Medicare claims, encounter, and enrollment data (CMS); Electronic Health Records (EHR)

Professional Affiliations and Research Center Involvement

- Center for Health Systems and Policy Modeling (CHSPM), Johns Hopkins Bloomberg School of Public Health
- Hopkins Business of Health Initiative (HBHI), Johns Hopkins University
- Center for Systems Science and Engineering (CSSE), Johns Hopkins University
- Malone Center for Engineering in Healthcare, Johns Hopkins University
- Institute for Operations Research and Management Sciences (INFORMS)
- Manufacturing and Service Operations Management Society (MSOM)
- Health Applications Society (HAS)

Media Mentions

JHU Coronavirus Resource Center (CRC), Johns Hopkins University and Medicine *March 2023*

One size doesn't fit all: An AI approach to creating healthy personalized diets, Malone Center News (myScience.org) *November 2022*

COVID-19 Dashboard Creator Lauren Gardner Wins Lasker-Bloomberg Public Service Award, The Hub (JHU) *September 2022*

New COVID-19 dashboard helps users make informed decisions regarding hospital care, The Hub (JHU) *February 2021*

Seeing Red, The Hub (JHU) *Summer 2020*