CURRICULUM VITAE, FARZIN AHMADI

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RESEARCH SUMMARY

My research develops AI-driven decision support systems for complex operational problems, with applications in healthcare management and public policy. I combine methods from operations research, machine learning, and optimization to create tools that improve managerial decision-making under uncertainty. My work has been published in leading medical journals (JAMA, Lancet) and is under review at top operations management venues (Management Science, INFORMS Journal of Optimization).

EMPLOYMENT

Towson University, College of Health Professions **August 2025 - Present**
Assistant Professor of Healthcare Management

- Research focus: Operations analytics, AI/ML for healthcare decision systems
- Teaching: Healthcare systems, health information management
- Courtesy appointments: Johns Hopkins Center for Systems Science and Engineering; Johns Hopkins Data Science and AI Institute (DSAI)

PREVIOUS APPOINTMENTS

Johns Hopkins University **March 2025 - September 2025**
Postdoctoral Fellow at the Center for Systems Science & Engineering

Massachusetts Institute of Technology **June 2024 - December 2024**
Ph.D. Researcher at Computer Science & Artificial Intelligence Laboratory (CSAIL)

EDUCATION

Johns Hopkins University, Baltimore, MD **2019 - 2025**
Ph.D. in Civil and Systems engineering
- Committee: Todd McNutt (chair), Kimia Ghobadi (advisor), Tinglong Dai, Yury Dvorkin, Takeru Igusa, Susu Xu, Ritu Agarwal

M.S. in Systems engineering

Sharif University of Technology, Tehran, Iran **2016 - 2018**
M.Eng. in Transportation Engineering

Sharif University of Technology, Tehran, Iran **2012 - 2016**
B.Sc. in Civil Engineering

RESEARCH INTERESTS

- Operations Management and Analytics
- AI and Machine Learning for Decision-Making in Healthcare
- Data-Driven Operations and Resource Allocation
- Inverse Optimization and Preference Learning
- Healthcare Technology Assessment and Implementation
- Business Analytics for Policy and Management

PUBLICATIONS

Papers published/in press in Refereed Journals

1. Tracking County-Level Measles Cases in the US,
   JAMA (2025)
   with Ensheng Dong, Lauren Gardner
2. Evolving Patterns of COVID-19 Mortality in US Counties: A Longitudinal Study of Healthcare, Socioeconomic, and Vaccination Associations,
   Plos Global Health (2024)
   with Fardin Ganjkhanloo, Ensheng Dong, Felix Parker, Lauren Gardner, and Kimia Ghobadi
3. 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 (2022)
   with Ensheng Dong, Jeremy Ratcliff, Tamara D Goyea, Aaron Katz, Ryan Lau, Timothy K Ng, Beatrice Garcia, Evan Bolt, Sarah Prata, David Zhang, Reina C Murray, Mara R Blake, Hongru Du, Fardin Ganjkhanloo, Jason Williams, Sayeed Choudhury, Lauren M Gardner

Papers Under Review/Preprints

1. Leveraging Expert Knowledge to Guide Inverse Optimization: The Case of Nutritional Adherence, *Under Review: Management Sciences*
   with Fardin Ganjkhanloo and Kimia Ghobadi
2. You Are What You Eat: A Preference-Aware Inverse Optimization Approach,
   Under Review: INFORMS Journal of Optimization
   with Tinglong Dai and Kimia Ghobadi
3. Improving Observed Decisions for Partially Known Optimization Problems Through Inverse Optimization with Application to Radiation Therapy Treatment Planning, *Under Review: European Journal of Operational Research*
   with Todd R. McNutt and Kimia Ghobadi
4. Optimal resource and demand redistribution for healthcare systems under stress from COVID-19, *Preprint (2020)*
   with Felix Parker, Hamilton Sawczuk, Fardin Ganjkhanloo, Kimia Ghobadi
5. An open-source dataset on dietary behaviors and dash eating plan optimization constraints, *Preprint (2020)*
   with Fardin Ganjkhanloo and Kimia Ghobadi

Non-Peer-Reviewed Publications

1. Near-Real Time Measles Surveillance: How Analytics Can Help Transform Public Health Response,
   OR/MS Today (2025) , Print and Online
2. Detecting and Mitigating Disparities in Preventive Care and Healthcare Delivery: The Role of Artificial Intelligence and Operations Research,
   OR/MS Today (2023) , Print and Online
   with Fardin Ganjkhanloo
3. Monkeypox: Another Public Health Crisis,
   OR/MS Today (2022), Print and Online, Selected and featured on the cover
   with Kimia Ghobadi

Extended Abstracts

1. Learning DVH Criteria in Radiation Therapy Treatment Planning,
MEDICAL PHYSICS (2022)
with Todd R. McNutt and Kimia Ghobadi

Articles

1. Navigating the Use of ChatGPT in Education and Research: Impacts and Guidelines,
OR/MS Tomorrow (Summer 2023)
with Saeedeh Dehghani Firoozabadi
2. OR/MS Tomorrow Industry Series: OR/MS in Finance,
OR/MS Tomorrow (Summer 2023)
with Frederick "Forrest" Miller
3. A Comprehensive Guide on INFORMS Student Chapters,
OR/MS Tomorrow (Winter 2022)
with Gulten Busra Karkili
4. Coverage of INFORMS Annual Meeting 2022 Keynote Speech, From the Battlefield to the Gig Economy: How Hybrid Optimization can Guide Decision Making in Highly Dynamic and Unpredictable Settings,
OR/MS Today (2022)
5. Coverage of INFORMS Annual Meeting 2022 Keynote Speech, Parallel Computing in Operations Research,
OR/MS Today (2022)

FUNDED RESEARCH PROJECTS

1. **Development of AI-Powered Decision-Support System for Healthy Eating**,
Amazon-Johns Hopkins University, 2026, $375,000 (Direct Costs)
Role: Co-Investigator (PI: L. Appel; Co-PI: K. Ghobadi)
Developing inverse optimization and machine learning methods for personalized dietary recommendations

WORKING PAPERS

1. Automated Radiation Therapy Treatment Improvement Through Optimization Models,
In Preparation with Todd McNutt and Kimia Ghobadi
2. Supervised Inverse Optimization,
In Preparation with Felix Parker, Fardin Ganjkhanloo and Kimia Ghobadi
3. Smart Surgical Scheduling Tool: An Optimization Model with Integrated Perioperative Information Input,
In Preparation with Diego Martinez, Jing liu, and Kimia Ghobadi

HONORS and AWARDS

- Selected for HICSS 59 Junior Faculty Consortium, Hawaii International Conference on System Sciences, 2026
- Teaching Assistant Award for excellence in teaching and dedication to engineering education, Johns Hopkins University, 2022
- Top 20 percent in Civil Engineering, class of 2012, Sharif University of Technology
- Straight Invitee to Participate in the M.Sc. program of Highway and Pavement Engineering, Department of Civil Engineering, Sharif University of Technology (2016)
- Honored as a "Brilliant Talented Student" by Iran's National Elites Foundation (2014)
- Ranked 221st (top 0.085%) among more than 260000 participants of National University Entrance Exam, Mathematics and Physics (2012)

- Ranked 171st (top 1.31%) among more than 13000 participants of National University Entrance Exam, Foreign Languages (2012)

CONFERENCE ORGANIZATION

1. Session Chair, Integrated AI and LLMs in Healthcare Modeling, *INFORMS Healthcare Conference, Raleigh, NC, USA, July 2026.*
   With Kimia Ghobadi
2. Session Chair, Data-driven Inverse Optimization, *INFORMS Healthcare Conference, Raleigh, NC, USA, July 2026.*
   With Kimia Ghobadi
3. Mini-track Chair, AI-DRIVEN HEALTHCARE: BRIDGING SYSTEMS SCIENCE AND CLINICAL PRACTICE MINITRACK, *Hawaii International Conference on System Sciences (HICSS) 59 , Maui, HI, USA, January 2026 .*
4. Session Organizer, *Production and Operations Management Society (POMS) 32nd Annual POMS-Conference, Orlando, FL, USA, May 2023 .*
   With Kimia Ghobadi and Fardin Ganjkhanloo

INVITED TALKS and PRESENTATIONS

Conferences

1. *HICSS-59 Symposium: Socio-Technical Ecosystems for Future Digital Health, Hawaii International Conference on System Sciences (HICSS) 59, Maui, HI, USA, January 2026.*
   Title: Real-Time Public Health Surveillance as a Socio-Technical Ecosystem
2. *Department of Health Sciences, Towson University, MD, USA, January 2025.*
   Title: Inverse Optimization for Personalized Nutritional Guidance: Aligning Preferences with Nutritional Needs
3. *Department of Medicine and Whiting School of Engineering Research Retreat, Poster Presentation, Baltimore, MD, USA, February 2024.*
   Title: Inverse Optimization for Personalized Nutritional Guidance: Aligning Preferences with Nutritional Needs
4. *Production and Operations Management Society (POMS) 32nd Annual POMS-Conference, Orlando, FL, USA, May 2023.*
   Title: Diet recommendations using hybrid inverse optimization methods
5. *Production and Operations Management Society (POMS) 32nd Annual POMS-Conference, Orlando, FL, USA, May 2023.*
   Title: Inverse Learning: An Inverse Optimization Method for Learning Optimal Decisions
6. *The Conference on Health IT and Analytics (CHITA), Washington D.C., USA, May 2023.*
   Title: Hybrid Artificial intelligence and Inverse Learning for Diet Recommendation
7. *Department of Medicine and Whiting School of Engineering Research Retreat, Poster Presentation, Baltimore, MD, USA, February 2023.*
   Title: Inverse Learning to Improve Radiation Therapy Treatment Plans
8. *INFORMS Annual Meeting, Indianapolis, IN, USA, October 2022.*
   Title: A Data-driven Framework to Recommend Improved Radiation Therapy Treatment Plans
9. *AAPM Annual Meeting, Poster Presentation, Washington D.C., USA, July 2022.*
   Title: Inverse Learning to Improve Radiation Therapy Treatment Plans
10. *Production and Operations Management Society (POMS) 32nd Annual POMS-Conference, virtual, May 2022.*
    Title: Inverse Learning to Improve Radiation Therapy Treatment Plans

11. *INFORMS Annual Meeting, Anaheim, California, USA, virtual, October 2021.*
    Title: Data-driven Inverse Optimization for Radiation Therapy Treatment Planning
12. *Canadian Operations Research Society (CORS), Virtual Presentation, August 2021.*
    Title: Inverse Learning: An Inverse Optimization Method for Learning Optimal Decisions
13. *Manufacturing and Service Operations Management (MSOM), Virtual Presentation, June 2021.*
    Title: Emulating Human Decision-Making Under Multiple Constraints: The Case of Precision Nutrition
14. *Manufacturing and Service Operations Management (MSOM), Virtual Presentation, June 2021.*
    Title: Inverse Learning: An Inverse Optimization Method for Learning Optimal Decisions
15. *ACM CHIL, Virtual Poster Presentation, 2020.*
    Title: Emulating Human Decision-Making Under Multiple Constraints
16. *INFORMS Annual Meeting, Virtual Presentation, October 2020.*
    Title: Hybrid Inverse Optimization and Machine Learning for Precision Nutrition and Medical Decisions

TEACHING and LECTURES

Teaching, Towson University

1. **HLTH207: Health System of U.S.**,
   Summer 2025, Fall 2025 (2 Sections), Spring 2026 (2 Sections, Upcoming)
   Course Evaluation:
   Enrollment: 55,
   Overall teaching effectiveness: 4.3/5.0,
   Overall demonstrated knowledge: 4.4/5.0,
   Overall response rate: 83%.
2. **HCMN435: Health Information Management**,
   Spring 2026 (Upcoming)

Teaching, Johns Hopkins University

1. **EN.500.111: Hopkins Engineering Applications & Research Tutorials (HEART): Healthcare System Engineering**,
   Fall 2023
   Course Evaluation:
   Enrollment: 10,
   Overall course quality: 4.75/5.0,
   Overall instructor evaluation: 5.00/5.0.

Teaching Assistant, Johns Hopkins University

1. **BU.920.624: Data Science: Artificial Intelligence (3 Semesters)**,
   Fall 2021, Fall 2022, Fall 2023
   Instructor: Prof. Tinglong Dai, Carey Business School
   - Supported MBA and MS students in applying AI/ML to business problems
   - Developed case studies on healthcare analytics applications
2. **EN.560.250: Introduction to Mathematical Decision Making**,
   Spring 2022

Instructor: Prof. Kimia Ghobadi, Department of Civil and Systems Engineering

3. **EN.560.650: Operations Research**,
   Spring 2021
   Instructor: Prof. Kimia Ghobadi, Department of Civil and Systems Engineering

Guest Lectures, Johns Hopkins University

1. **EN.560.650: Operations Research**,
   Fall 2025, Fall 2024, Fall 2023
   Guest lectures on computer solutions to optimization problems, focus on Gurobi.
   Instructor: Prof. Kimia Ghobadi, Department of Civil and Systems Engineering
2. **EN.560.250: Introduction to Mathematical Decision Making**,
   Spring 2022
   Guest lectures on computer solutions to optimization problems. *Instructor: Prof. Kimia Ghobadi, Department of Civil and Systems Engineering*
3. **EN.560.100: Civilization Engineered (2 Semesters)**,
   Fall 2020, Fall 2021
   Guest lecture on healthcare operations in civil engineering
   Instructor: Rachel Sangree, Department of Civil and Systems Engineering

Teaching Assistant, Sharif University of Technology

1. **Pavement Design and Lab. (5 Semesters)**,
   Fall 2015, Spring 2016, Fall 2016, Spring 2017, Fall 2017
   Instructor: Prof. Nader Tabatabaee, CE Department Instructor: Prof. Ehsan Haghighat Kharrazi, Department of Civil Engineering (Fall 2016)
2. **Structural Analysis 2 (2 Semesters)**,
   Fall 2015, Spring 2016
   Instructor: Prof. Kiarash Mohtasham Dolatshahi, Department of Civil Engineering

SERVICE and NOTABLE PROJECTS

Professional Service

- Peer Reviewer, *PLOS Global Public Health*, 2024, 2025, 2026
- President, *Johns Hopkins University INFORMS Student Chapter*, 2022 - 2024
- Editorial Board Member, *ORMS Tomorrow*, 2022 - 2024

Professional Affiliations and Memberships

- Institute for Operations Research and the Management Sciences (INFORMS), 2019 - present
- Manufacturing and Service Operations Management Society (MSOM), 2019 - present
- Health Applications Society (HAS), 2019 - present
- American Association of Physicists in Medicine (AAPM), 2022 - present
- Society for Industrial and Applied Mathematics (SIAM), 2022 - present
- Canadian Operations Research Society (CORS), 2020 - 2022
- Johns Hopkins University INFORMS Student Chapter, 2022 - 2025

Notable Projects and Experiences

- Data collection, maintenance and monitoring for the U.S. Measles Tracker by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University, 2025
  Developed and maintain a comprehensive county-level measles tracking system providing real-time epidemiological data and visualizations. The tracker serves as a critical public health resource during the ongoing measles outbreak, featured in JAMA and covered by major media outlets including CIDRAP, HuffPost, and public health podcasts.
- Data maintenance and monitoring for the COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University, 2020
  Early role in maintaining U.S. county and state level data in a timely and accurate manner, working simultaneously with different state level health organizations.

SELECTED MEDIA COVERAGE

- TU professor publishes study on measles tracking in Journal of the American Medical Association,
  Towson University News, October 2025
- Clinical Update with Dr. Daniel Griffin - TWiV 1254,
  This Week in Virology Podcast, September 2025
- JAMA Editors Summary: Platelet Transfusion in Preterm Infants, Pediatric Solid Organ Transplants, Measles Case Tracking,
  JAMA Network, September 2025
- Researchers introduce tool featuring timely county-level US measles data, maps,
  CIDRAP, September 2025
- RFK Jr. Boasts About Major Measles Outbreak Response Amid Criticism Over CDC Chaos,
  HUFFPOST, September 2025
- U.S. Measles Cases Hit Highest Level Since Declared Eliminated in 2000,
  Johns Hopkins Bloomberg School of Public Health, July 2025
- 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 for Engineering in Healthcare News, November 2022
- One size doesn't fit all: An AI approach to creating healthy personalized diets,
  myScience.org, November 2022
- eNews Daily Team ,
  ORMS Today, October 2022
- COVID-19 DASHBOARD CREATOR LAUREN GARDNER WINS LASKER-BLOOMBERG PUBLIC SERVICE AWARD,
  The Hub (Johns Hopkins University), September 2022
- New COVID-19 dashboard helps users make informed decisions regarding hospital care,
  The Hub (Johns Hopkins University), February 2021
- SEEING RED,
  The Hub (Johns Hopkins University), Summer 2020

REFERENCES Available upon request. Last Updated: January 2026