CURRICULUM VITAE, FARZIN AHMADI

Center for Systems Science and Engineering, Johns Hopkins University
Shaffer Hall, 3400 N. Charles St., Baltimore, MD 21218
E-mails: fahmadi1@jhu.edu—farzin.ahmadi1@gmail.com
https://farzin.wse.jhu.edu

EDUCATION

Johns Hopkins University, Baltimore, MD   **2019 - present**
Ph.D. in Civil and Systems engineering
- Advisor: Prof. kimia Ghobadi

M.S. in Systems engineering
(Currently on an ongoing internship at MIT Computer Science & Artificial Intelligence Laboratory (CSAIL), Conceptualizing, developing, and numerically validating a generalized mathematical optimization framework to improve the performance of large-scale systems.)

Sharif University of Technology, Tehran, Iran   **2016 - 2018**
M.Eng. in Transportation Engineering
- Advisor: Prof. Nader Tabatabaee

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

RESEARCH INTERESTS

- Data-Driven Constrained Optimization
- AI Solutions and Approaches in Healthcare
- Decision Making in Healthcare
- Personalized Medicine and Nutrition
- Parameter Estimation for Sequential Decision Making Problems

PUBLICATIONS

Papers published/in press in Refereed Journals

1. 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

2. 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. 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

2. 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)

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

- 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

Organization

1. Session Organizer, *Production and Operations Management Society (POMS) 32nd Annual POMS-Conference, Orlando, FL, USA, May 2023* .
Wirh Kimia Ghobadi and Fardin Ganjkhanloo

INVITED TALKS and PRESENTATIONS

Conferences

1. *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

2. *Production and Operations Management Society (POMS) 32nd Annual POMS-Conference, Orlando, FL, USA, May 2023.*
Title: Diet recommendations using hybrid inverse optimization methods

3. *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

4. *The Conference on Health IT and Analytics (CHITA), Washington D.C., USA, May 2023.*
Title: Hybrid Artificial intelligence and Inverse Learning for Diet Recommendation

5. *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

6. *INFORMS Annual Meeting, Indianapolis, IN, USA, October 2022.*
Title: A Data-driven Framework to Recommend Improved Radiation Therapy Treatment Plans

7. *AAPM Annual Meeting, Poster Presentation, Washington D.C., USA, July 2022.*
Title: Inverse Learning to Improve Radiation Therapy Treatment Plans

8. *Production and Operations Management Society (POMS) 32nd Annual POMS-Conference, virtual, May 2022.*
Title: Inverse Learning to Improve Radiation Therapy Treatment Plans

9. *INFORMS Annual Meeting, Anaheim, California, USA, virtual, October 2021.*
   Title: Data-driven Inverse Optimization for Radiation Therapy Treatment Planning

10. *Canadian Operations Research Society (CORS), Virtual Presentation, August 2021.*
    Title: Inverse Learning: An Inverse Optimization Method for Learning Optimal Decisions

11. *Manufacturing and Service Operations Management (MSOM), Virtual Presentation, June 2021.*
    Title: Emulating Human Decision-Making Under Multiple Constraints: The Case of Precision Nutrition

12. *Manufacturing and Service Operations Management (MSOM), Virtual Presentation, June 2021.*
    Title: Inverse Learning: An Inverse Optimization Method for Learning Optimal Decisions

13. *ACM CHIL, Virtual Poster Presentation, 2020.*
    Title: Emulating Human Decision-Making Under Multiple Constraints

14. *INFORMS Annual Meeting, Virtual Presentation, October 2020.*
    Title: Hybrid Inverse Optimization and Machine Learning for Precision Nutrition and Medical Decisions

TEACHING and LECTURES

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

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 2024
   Guest lectures on Healthcare Systems Engineering. *Instructor: Prof. Kimia Ghobadi, Department of Civil and Systems Engineering*

2. **EN.560.650: Operations Research**,
   Fall 2023
   Guest lectures on computer solutions to optimization problems, focus on Gurobi.

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

3. **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*

4. **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

- 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 - present

Notable Projects and Experiences

- 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.

- Kanoon Farhangi Amoozesh: Project Management and Data Provision and analysis 2016-2019
Project Management and Data Provision and analysis for https://WoW.kanoon.ir, an English Vocabulary Learning website in Iran with more than 100000 users alongside with managing different tasks such as data analysis, website debugging, board meetings, content Editing, database management while managing

and collaborating with a talented 6-member team. This role involved the need to effectively communicate with both technical and business partners.

IN THE MEDIA

- 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 References available upon request

Last Updated: September 2024