

Mohammad Zhalechian

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APPOINTMENT

Indiana University, Bloomington, IN

2023 - Present

Assistant Professor of Operations and Decision Technologies

Kelley School of Business

Harvard University, Cambridge, MA

2022 - 2023

Postdoctoral Fellow

Harvard Kennedy School

Michigan Medicine, Ann Arbor, MI

2018

Summer Research Intern

EDUCATION

University of Michigan, Ann Arbor, MI

Ph.D. in Industrial and Operations Engineering

2022

M.A. in Statistics

2019

University of Tehran, Tehran, Iran

M.Sc. in Industrial Engineering and Operations Research

2017

K. N. Toosi University of Technology (KNTU), Tehran, Iran

B.Sc. in Industrial Engineering and Operations Research

2014

RESEARCH INTERESTS

Big Data & Machine Learning, Sequential Decision-Making, Human-AI Interfaces;

Healthcare Operations, Service Operations Management, Public Policy, Medical Decision-Making

PUBLICATIONS

Published Papers

[1] **Contextual Learning with Online Convex Optimization with Applications to Medical Decision-Making**

Accepted at *Management Science*

Collaboration with Massachusetts Hospital

E. Keyvanshokoo, M. Zhalechian, C. Shi, MP. Van Oyen, P. Kazemian

- Finalist, CHOM Best Paper Competition (POMS), 2022
- Finalist, INFORMS MSOM Best Student Paper Competition, 2021
- Finalist, INFORMS Health Applications Society (HAS) Best Student Paper Competition, 2021
- Second Place, INFORMS Decision Analysis Society (DAS) Best Student Paper, 2020

[2] **Data-driven Hospital Admission Control: A Contextual Learning Approach**

Accepted at *Operations Research*

Collaboration with St. Joseph Hospital

M. Zhalechian, E. Keyvanshokoo, C. Shi, MP. Van Oyen

- [Winner of IOE Richard C. Wilson Best Student Paper Award on Service Systems, 2021](#)
- [Finalist, Seth Bonder Scholarship, INFORMS Health Applications Society, 2020](#)

[3] **Online Resource Allocation with Personalized Learning**

Accepted at *Operations Research*

Collaboration with Michigan Medicine

M. Zhalechian, E. Keyvanshokoo, C. Shi, MP. Van Oyen

[4] **Augmenting Kalman Filter Machine Learning Models with Data from Optical Coherence Tomography to Predict Future Visual Field Loss: The African Descent and Glaucoma Evaluation Study**

Accepted at *Ophthalmology Science*

Collaboration with Kellogg Eye Center and Shiley Eye Institution

M. Zhalechian, MP. Van Oyen, M. Lavieri, C. Andrew, J. Stein (M.D), et. al

Under Revision/Review Papers

[1] **Harmonizing Safety and Speed: A Human-Algorithm Approach to Enhance the FDA's Medical Device Clearance Policy**

Major Revision at *Management Science*

M. Zhalechian, S. Saghaian, O. Robles (Industry collaborator)

- [Media Coverage: Transforming FDA Clearance: How AI and Human Insight Can Improve Medical Device Safety](#)

[2] **Dynamic Care Unit Placements under Unknown Demand with Learning**

Minor Revision at *Manufacturing & Service Operations Management*

Collaboration with St. Joseph Hospital

A. Dean, M. Zhalechian, MP. Van Oyen

[3] **Validation of a Visual Field Prediction Tool for Glaucoma: A Multicenter Study Involving Patients with Glaucoma from Throughout the United Kingdom**

Major Revision at *American Journal of Ophthalmology*

Collaboration with Medisoft UK

A. Dean, DJ. Fu, M. Zhalechian, MP. Van Oyen, M. Lavieri, AP. Khawaja (M.D), J. Stein (M.D)

[4] **Learning Bundle Pricing of Reusable Products**

Under Review

A. Dean, M. Zhalechian, C. Shi

- [Finalist, Service Science Best Student Paper Competition, 2024 \(Awarded to Arlen Dean\)](#)

Working Papers

[1] **Interpretable Design of Multi-Agent Reinforcement Learning**

with Soroush Saghaian and Yoshimi Fukuoka

[2] **Patient-to-Bed Placement Optimization: Improving Coordination for a Hospital Command Center**

with Arlen Dean, Iman Attari, Max Garifullin (Industry collaborator), Jennifer Pardo (Industry collaborator), Mark Van Oyen

- [Implemented at Michigan Medicine](#)
- [Accepted at Michigan Medicine Quality Month Symposium, 2024](#)

[3] **Batching and Optimal Personalized Resource Allocation**

with Yiding Feng and Arlen Dean

[4] **The Impact of Early Referral on Overtreatment and Healthcare Waste: Evidence from Pain Management Practices**

with Buyun Li, Jonathan Helm, and Nick Vaughn (M.D)

Selected Published Papers Prior Ph.D.

[1] **Sustainable Design of a Closed-loop Location-routing-inventory Supply Chain Network Under Mixed Uncertainty**

Transportation Research Part E, 2016

M. Zhalechian, R. Tavakkoli-Moghaddam, B. Zahiri, M. Mohammadi

[2] **Hub-and-spoke network design under operational and disruption risks**

Transportation Research Part E, 2017

M. Zhalechian, SA. Torabi, M. Mohammadi

[3] **A Self-adaptive Evolutionary Algorithm for a Fuzzy Multi-objective Hub Location Problem: An Integration of Responsiveness and Social Responsibility**

Engineering Applications of Artificial Intelligence, 2017

M. Zhalechian, R. Tavakkoli-Moghaddam, Y. Rahimi

INVITED SEMINARS AND CONFERENCE PRESENTATIONS

Balancing Speed with Safety: An Analytical Approach to Improve FDA's Premarket Approval Pathway

- INFORMS Annual Meeting, Seattle, Washington *Oct. 2024*
- POMS Annual Conference, Minneapolis, Minnesota *Apr. 2024*
- INFORMS Annual Meeting, Phoenix, Arizona *Oct. 2023*
- INFORMS Healthcare, Toronto, Canada *Jul. 2023*

Interpretable Design of Multi-Agent Mobile Health (Mhealth) Applications

- INFORMS Healthcare, Toronto, Canada *Jul. 2023*

Data-Driven Learning and Resource Allocation in Service Operations Management

- Dartmouth College, Tuck School of Business *Jan. 2023*
- Indiana University, Kelley School of Business *Jan. 2023*

- Carnegie Mellon University, Tepper School of Business *Dec. 2022*
- Rice University, Jones Graduate School of Business *Dec. 2022*
- University of North Carolina at Chapel Hill, Kenan-Flagler Business School *Dec. 2022*
- University of Illinois Urbana-Champaign, Gies College of Business *Dec. 2022*
- Miami University, Herbert Business School *Dec. 2022*
- University of Illinois Chicago, College of Business Administration *Dec. 2022*
- Baruch College, Zicklin School of Business *Dec. 2022*

Personalized Hospital Admission Control: A Contextual Learning Approach

- INFORMS Annual Meeting, Indianapolis, IN *Oct. 2022*
- POMS Annual Conference, Online *Apr. 2022*
- INFORMS Annual Meeting, Online *Oct. 2021*
- POMS Annual Conference, Online *May 2021*
- INFORMS Annual Meeting, Online *Nov. 2020*
- INFORMS Annual Meeting, Seattle, WA *Oct. 2019*
- INFORMS Healthcare Conference, Cambridge, MA *July 2019*
- POMS Annual Conference, Washington, DC *May 2019*

Online Advance Appointment Scheduling with Personalized Learning

- INFORMS Annual Meeting, Online *Oct. 2021*
- INFORMS Annual Meeting, Online *Nov. 2020*

Joint Learning and Optimization for Healthcare Operations and Medical Decision-Making

- INFORMS Annual Meeting, Online *Nov. 2020*
(Seth Bonder Scholarship Session)

Kalman Filtering Based Machine Learning to Predict Future Mean Deviation Values for Patients with Glaucoma

- ARVO Annual Meeting 2020, Online *May 2020*

A Distributionally Robust Capacity Planning Model for Optimizing Access Delay in Surgical Services under Limited Information

- INFORMS Healthcare, Cambridge, MA *July 2019*
- INFORMS Annual Meeting, Phoenix, AZ *Nov. 2018*

HONORS AND AWARDS

- **Winner of Richard and Eleanor Towner Prize for Distinguished Academic Achievement, 2022**
Rackham Graduate School, University of Michigan, Ann Arbor, MI
- **Winner of Rackham Outstanding Graduate Student Instructor Award, 2022**
Rackham Graduate School, University of Michigan, Ann Arbor, MI
- **Finalist, CHOM Best Paper Competition (POMS), 2022**

- **Rackham Graduate Research Grant, 2021**
Rackham Graduate School, University of Michigan, Ann Arbor, MI
- **Winner of Richard C. Wilson Best Student Paper Award, 2021**
IOE Department, University of Michigan, Ann Arbor, MI
- **Second Place, INFORMS Decision Analysis Society (DAS) Best Student Paper, 2020**
- **Finalist, INFORMS Seth Bonder Scholarship for Applied OR in Health Services, 2020**
- **Winner of Joel and L. Brown Graduate Student Instructor of the Semester, 2020**
IOE Department, University of Michigan, Ann Arbor, MI
- **Rackham Travel Grant Awards, 2018-2021**
- **Graduate Student of the Year, 2017**
College of Engineering, University of Tehran, Tehran, Iran

TEACHING EXPERIENCE

Instructor, Indiana University, Bloomington, IN *Spring 2024*
Class: *Business Analytics and Modeling* (K353)

Instructor, University of Michigan, Ann Arbor, MI *Fall 2020*
Class: *Economic Decision Making* (IOE 201) Instructor Evaluation:

Recitation Instructor, University of Michigan, Ann Arbor, MI *Winter 2020*
Class: *Introduction to Markov Processes* (IOE 316)

Teaching Assistant, University of Michigan, Ann Arbor, MI

- Practicum in Hospital Systems (IOE 481) *Fall 2021-Winter 2022*
- Service Operations Management (IOE 419) *Winter 2021*
- Probability and Statistics for Eng. (IOE 265) *Fall 2018-Winter 2019- Fall 2019*

ACADEMIC SERVICE

Award Committees

- Judge, Public Sector OR Best Paper Competition, 2023

Faculty Recruiting Committees

- Kelley School of Business, Operations and Decision Technologies, 2024
- University of Michigan, Industrial and Operations Engineering (Graduate Student Committee), 2021

Referee for Journals

- Management Science
- Operations Research
- Manufacturing & Service Operations Management
- Production and Operations Management
- European Journal of Operational Research
- International Journal of Management Science (Omega)
- Health Care Management Science

Session Organizer & Chair for Conferences

- POMS, 2024
(Policies and Regulation in Healthcare)
- INFORMS Annual Meeting, 2021
(Sequential Decision Making and Machine Learning in Healthcare)
- POMS, 2021
(Healthcare Operations Management)
- INFORMS Annual Meeting, 2020
(Predictive Analytics & Sequential Decision-Making in Healthcare)