Melih İşeri

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Work Experience

2023–2026 Assistant Professor of Mathematics (non-tenure track), University of Michigan.

Education

2017–2023 Ph.D. in Mathematics, University of Southern California.
Advisor: Prof. Jianfeng Zhang.

2012–2017 B.S. in Physics, Boğaziçi University.
Advisor: Prof. Muhittin Mungan.

Research Interests

(Mean-Field) Games, Learning, Geometric Set-valued Analysis, Stochastic Controls, Mathematical Finance.

Publications & Preprints

2025 M. İşeri & E. Bayraktar. *The Learning Approach to Games*. arXiv:2503.00227. Submitted.

2023 M. İşeri & J. Zhang. *Set Valued HJB Equations*. The Annals of Probability (accepted, 2026).

2021 M. İşeri & J. Zhang. *Set Values for Mean Field Games*. Transactions of the American Mathematical Society (2024).

2016 M. İşeri, D. Kaspar & M. Mungan. *Depinning as a coagulation process*. Europhysics Letters.
(designated Editor's Choice; appeared on Highlights of 2016)

Awards & Fellowships

2025 MIDAS Postdoctoral Affiliate, Michigan Institute for Data & AI in Society, University of Michigan.

2022 USC Math Research Award (Edward and Dolores Blum).

Technical Skills

Programming	Python (NumPy, SciPy, pandas, Matplotlib).
Machine Learning	PyTorch; reinforcement learning theory and methods: multi-armed bandits, Thompson sampling, value-based and distributional methods, multi-agent RL.
Tools & Environment	Emacs, LaTeX, Git, Linux.
Python Package	D. Kaspar and M. İşeri. *kmtoy: Python package for "Depinning as a coagulation process"* (2016). DOI: 10.7301/Z0668B3H.
GitHub	github.com/melihiseri.

Presentations

2026	**Eastern Conference on Mathematical Finance**. *Set Valued PDEs: Stochastic Controls and Games*.
2026	**University of Central Florida**, School of Data, Mathematical, and Statistical Sciences. *Set Valued PDEs: Stochastic Controls and Games*.
2026	**Koç University**, Department of Mathematics. *Set Valued PDEs and Games*.
2026	**Bilkent University**, Department of Mathematics. *Set Valued PDEs and Games*.
2025	**SIAM** Conference on Financial Mathematics and Engineering. *Set Valued PDEs and Games*.
2025	**Byrne Conference** on Stochastic Analysis in Finance and Insurance. *The Learning Approach to Games*.
2025	**Temple University**, Department of Mathematics. *Set Valued PDEs and Games*.
2025	**University of Michigan**, Financial and Actuarial Mathematics. *The Learning Approach to Games*.
2024	**Rutgers University**, Equilibrium Summer School. *Set Valued HJB Equations*.
2024	**SIAM** Annual Meeting. *Set Valued HJB Equations*.
2024	**The University of British Columbia**, New Trends and Challenges in Stochastic Differential Games Workshop. *Set Valued HJB Equations*.
2023	**Florida State University**, Financial Mathematics Seminar. *Set Values for Mean Field Games*.
2023	**University of Michigan**, Financial and Actuarial Mathematics. *Set Valued HJB Equations*.
2023	**Western Conference on Mathematical Finance**. *Set Valued HJB Equations*.
2023	**Columbia University**, Mathematical Finance Seminar Series. *Set Valued HJB Equations*.
2022	**University of Michigan**, Financial and Actuarial Mathematics. *Set Valued HJB Equations*.
2022	**University of Southern California**, Probability and Statistics Seminar. *Set Valued HJB Equations*.
2022	**Bilkent University**, 5th International Conference on Set Optimization with Applications to Economics, Finance, Statistics and Game Theory. *Set Valued HJB Equations*.
2021	**University of Southern California**, Probability and Statistics Seminar. *Set Values for Mean Field Games*.
2021	**Humboldt-Universität zu Berlin**, 6th Berlin Workshop for Young Researchers in Math Finance. *Set Values for Mean Field Games*.
2021	**SIAM** Conference on Financial Mathematics and Engineering. *Set Values for Mean Field Games*.
2016	**Institute of Theoretical Physics**, 6th Warsaw School of Statistical Physics. *Depinning as a Coagulation Process* (poster).
2015	**APS Mirror Conference**, Istanbul. *Depinning and the Smoluchowski Equation*.
2014	**21st Statistical Physics Days**, Kayseri. *Numerical Study of Avalanche Sizes in a Model Exhibiting Dynamic Criticality*.
2014	**APS Mirror Conference**, Istanbul. *Study of Avalanche Sizes in a Model Exhibiting Dynamic Criticality*.

Teaching Experience

Lecture Notes	*Discrete State Stochastic Processes* pdf. *Stochastic Analysis for Finance* pdf.
Spring 2026	Instructor, *Mathematics of Finance*, Math 423.
Winter 2026	Instructor, *Discrete State Stochastic Processes*, Math 526.
Fall 2025	Instructor, *Introduction to Stochastic Analysis for Finance*, Math 474.
Winter 2025	Instructor, *Discrete State Stochastic Processes*, Math 526.

Fall 2024	Instructor, *Introduction to Stochastic Analysis for Finance*, Math 474.
Spring 2024	Instructor, *Mathematics of Finance*, Math 423.
Winter 2024	Instructor, *Mathematics of Finance*, Math 423.
Fall 2023	Instructor, *Discrete State Stochastic Processes*, Math 526.
Fall 2022	Teaching Assistant, *Fundamental Principles of Calculus*.
Fall 2020	Teaching Assistant, *Calculus I*.
Spring 2020	Teaching Assistant, *Fundamental Principles of Calculus*.
Fall 2019	Teaching Assistant, *Fundamental Principles of Calculus*.
Spring 2019	Teaching Assistant, *Calculus III*.
Fall 2018	Teaching Assistant, *Fundamental Principles of Calculus*.
Spring 2018	Teaching Assistant, *Statistics*, Psychology Department.
Fall 2017	Teaching Assistant, *Calculus II*.

Service

2025, 2026	Admissions Committee, Quantitative Finance and Risk Management M.S. Program, University of Michigan.
2025	Supervised Neil Mascarenhas on Algorithmic Collusion; now M.S. student at Cornell.

Refereed for

- SIAM Journal on Financial Mathematics
- Applied Mathematics and Optimization
- ESAIM: Control, Optimisation and Calculus of Variations
- Dynamic Games and Applications
- Stochastics and Dynamics
- Stochastics
- Numerical Algebra, Control and Optimization