

# Behrooz Moosavi

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## RESEARCH INTERESTS AND TOOLS

- **Research:**  $\left\{ \begin{array}{l} \text{Decision Theory} \\ \text{Econometric Theory} \\ \text{Optimization Theory} \end{array} \right.$   $\left. \begin{array}{l} \text{Axiomatic Foundations, Choice Data Models,} \\ \text{Partial Identification, Variable Selection} \\ \text{Sampling Algorithms with Gradient Flows} \end{array} \right\}$
- **Tools:**  $\left\{ \begin{array}{l} \text{Stochastic Choice Theory} \\ \text{Random Set Theory} \\ \text{Moments Inequalities} \\ \text{Concentration Inequalities} \\ \text{Calculus of Variations} \end{array} \right.$   $\left. \begin{array}{l} \text{Variational Analysis} \\ \text{Exponential Smoothing} \\ \text{Stochastic Control} \\ \text{Convex Optimization} \\ \text{Differential Privacy} \end{array} \right\}$

- [View Research Statement](#)
- [View Fully Detailed Explanation of Advanced Relevant Coursework](#)

## EDUCATION

- **University of Pittsburgh** Aug 2023 - Present  
Pittsburgh, PA, USA  
*Doctor of Philosophy in Economics*  
  
**Selected Coursework:** Mathematics of Finance 1 (A), Statistical Optimal Transport (A+), Advanced Topics in Mathematical Analysis: Calculus of Variations (A), Measure and Integration (A), Advanced Econometric Theory II (A+), Advanced Econometric Theory I (A), Microeconomic Theory I&II(A), Linear Optimization (A), Bayesian Analysis (A), Econometric Theory I (A+) Econometric Theory II (A), Statistics and Data Analysis (A).
- **Sharif University of Technology** Aug 2016 - Jan 2022  
Tehran, Iran  
*Bachelor of Science in Mathematical Sciences, Cum Laude, GPA: 3.78/4.*  
  
**Selected Coursework:** Real Mathematical Analysis I&II (A), Discrete Mathematics (A), Dynamical Systems (A), Linear Algebra (A+), Complex Analysis (A), Numerical Analysis I (A), Intermediate Microeconomics (A).
- **National Organization for Development of Exceptional Talents** Aug 2012 - Jun 2016  
Kerman, Iran  
*High School Diploma in Mathematics and Physics*

## WORKING PAPERS

- **Extended Set Difference: Inverse Operation of Minkowski Summation (2024)**  
*Proposed a framework for set-valued operations, joint with Arie Beresteanu. [arXiv:2412.19779]*
- **Optimal Control of an Epidemic With Intervention Design (2025)(Revise and Resubmit)**  
*Modeled epidemic control using optimal control theory to optimize interventions. [arXiv:2503.22928]*

## WORK IN PROGRESS

- **Partial Identification with Auxillary Moment Conditions** 2025  
*Joint with Arie Beresteanu.(To be appear Soon)*
- **Variable Selection for High Dimensional Linear Model under Parameter Instability** 2025  
*Joint with Mahrad SharifVaghefi.*
- **LoCoMC: A Novel Localized Convexification Approach to Nonconvex Sampling** 2025  
*Joint with Laura Liu.*
- **Zonotope-Valued Utility for Representation of Multidimensional Incomplete Preferences** 2025  
*[View Research Proposal on arXiv:2507.05844] Joint with Arie Beresteanu.*

# COURSE PROJECTS

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- **On the Conditions for Utilitarian Collective Decision-Making with Markov Processes** 2024  
[[View Research Note PDF](#)]  
Presented axiomatic foundations and modeling of group utility using Markov chains.
- **On the Question of Risk-Weighted Expected Utility Theory for Incomplete Preferences** 2024  
[[View Research Note PDF](#)]  
Explored the literature of decision Making under uncertainty when preferences are not complete.

# HONORS AND AWARDS

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- **Conference : Only Second Year Student Accepted for Presentation at MEG2025.** 2025  
*University of Illinois Urbana-Champaign, Chicago : [View Slides for Presentation](#)*
- **Andrew Mellon Fellowship Award For First Year Ph.D. Students in Economics** 2023  
*University of Pittsburgh*
- **Pitt Momentum Fund** 2022  
*University of Pittsburgh*
- **Distinguished Student (4th Rank among 80 Student)** 2021  
*Mathematics Department, Sharif University*
- **National University Entrance Exam (48th Place among 650,000 candidates)** 2016  
*Iran Nationwide*
- **Member of Iranian Elites Foundation** 2016  
*Iran Nationwide*
- **Gold Medal in Iranian Mathematical Olympiad** 2014  
*Iran Nationwide*

# MANUSCRIPT AND NOTES

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- **Topology** 2021  
[[View Lecture Note on GitHub](#)]  
Authored a lecture series as a Teaching Assistant for the Topology course.
- **Linear Algebra** 2019  
[[View Lecture Note on GitHub](#)]  
Authored a comprehensive lecture series as an Instructor.
- **Advanced Introduction to Basic Mathematical Logic and Set Theory** 2019  
[[View Lecture Note on GitHub](#)]  
Developed lecture notes on mathematical logic and set theory.

# PROFESSIONAL EXPERIENCE

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- **University of Pittsburgh**
  - **Teaching Assistant:** Applied Econometrics II (Fall 2025), Applied Econometrics I (Spring 2025); Intermediate Microeconomics (Fall 2024); Probability & Statistics I (Summer 2023); Graduate Stochastic Processes (Fall 2022)
  - **Research Assistant (Industrial Engineering):** Fall 2022–Spring 2023
- **Sharif University of Technology**
  - **Teaching Assistant:** Elementary Measure Theory (Spring 2022); Topology I (Spring 2021); Abstract Algebra I (Spring 2018)
  - **Instructor:** Intro to Linear Algebra for Engineers (Spring 2019)
  - **Mathematics Tutor (Volunteer), Yarigaran Center:** Tutored child laborers (2017–2018)

# TECHNICAL SKILLS

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- **Programming:** R, Python, Julia, Stata, L<sup>A</sup>T<sub>E</sub>X, Matlab
- **Languages:** English (Full Proficiency), Persian (Native)