

Suho Shin

Ph.D. Student at University of Maryland, College Park

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RESEARCH INTEREST

I am interested in mechanism design and market design, broadly construed. A core thread throughout my research is the development of the algorithmic foundations of delegated decision-making under uncertainty, a theme at the intersection of computer science, operations research, and economics. Across classical markets, modern digital platforms, and AI systems, decision-makers increasingly rely on autonomous or strategic agents to act on their behalf. For instance, non-experts delegate decision-making to experts, content platforms delegate high-quality production to creators, and individuals even largely delegate information-seeking to large language models these days. A critical challenge in such settings is that delegates may have ulterior motives, misaligned incentives, or incomplete information, which can lead to undesirable outcomes for the delegator. How can delegation be structured so that the resulting system remains efficient, fair, and economically sustainable? I study how a principal—such as a regulator, platform, or algorithm designer—can design mechanisms, learning procedures, and information structures that align the incentives of self-interested or bounded agents. My ultimate goal is to build a coherent framework of delegation mechanisms that unifies incentive design and decision optimization for human-AI systems, online marketplaces, and various organizations.

EDUCATION

University of Maryland, College Park

Maryland, USA

Ph.D. in Computer Science

Sep. 2022 –

- Advisor: [Prof. MohammadTaghi Hajiaghayi](#)

Korea Advanced Institute of Science and Technology

Daejeon, South Korea

M.S. in Electrical Engineering

Mar. 2016 – Jan. 2018

- Advisor: [Prof. Yung Yi](#)

Korea Advanced Institute of Science and Technology

Daejeon, South Korea

B.S. in Mathematical Sciences

Mar. 2011 – Feb. 2016

PUBLICATION

(α, β) denotes alphabetical order of authorship.

Optimal Contest for Recommender Systems

Working paper, [SSRN link](#)

α, β N. Golrezaei, M. Hajiaghayi, S. Shin

[MIW'25, 2025 PSOR best video competition \(finalists\) \(link\)](#)

Algorithmic Delegated Choice: An Annotated Reading List

[SIGecom Exchanges Vol 23.1, 2025](#)

α, β M. Hajiaghayi, S. Shin

Delegation with Costly Inspection

[EC'25](#)

α, β M. Hajiaghayi, P. Krysta, M. Mahdavi, S. Shin

Delegated Choice with Combinatorial Constraints

[EC'25](#), under review at OR

α, β K. Banihashem, M. Hajiaghayi, P. Krysta, S. Shin

Tokenized Bandit for LLM Decoding and Alignment <i>S. Shin, C. Yang, H. Xu, M. Hajiaghayi</i>	ICML'25 EC'25 workshops on Info/Econ/LLMs and Human-AI collab
Replication-proof Bandit Mechanism Design with Bayesian Agents <i>S. Shin, S. Esmaeili, M. Hajiaghayi</i>	AAAI'25 (oral)
Robust and Performance Incentivizing Algorithms for Bandits with Strategic Agents <i>S. Esmaeili, S. Shin, A. Slivkins</i>	AAAI'25
Gains-from-Trade in Bilateral Trade with a Broker α, β <i>I. Hajiaghayi, M. Hajiaghayi, G. Peng, S. Shin</i>	SODA'25
Online Advertisements with LLMs α, β <i>S. Feizi, M. Hajiaghayi, K. Rezaei, S. Shin</i>	SIGecom Exchanges Vol 22.2, 2025
Ad Auctions for LLMs via Retrieval Augmented Generation α, β <i>M. Hajiaghayi, S. Lahaie, K. Rezaei, S. Shin</i>	NeurIPS'24 EC'24 Workshop
Dueling Over Dessert, Mastering the Art of Repeated Cake Cutting α, β <i>S. Branzei, M. Hajiaghayi, R. Phillips, S. Shin, K. Wang</i>	NeurIPS'24, under review at MOR
Fairness and Efficiency in Online Class Matching α, β <i>M. Hajiaghayi, S. Jahan, M. Sharify, S. Shin, M. Springer</i>	NeurIPS'24
A Regret Analysis of Repeated Delegated Choice α, β <i>M. Hajiaghayi, M. Mahdavi, K. Rezaei, S. Shin</i>	AAAI'24
An Improved Relaxation for Oracle-Efficient Adversarial Contextual Bandits α, β <i>K. Banihashem, M. Hajiaghayi, S. Shin, M. Springer</i>	NeurIPS'23
Bandit Social Learning under Myopic Agents α, β <i>K. Banihashem, M. Hajiaghayi, S. Shin, A. Slivkins</i>	NeurIPS'23, under review at MOR EC'24 Workshop, AMLS'24 (best poster award)
Delegating to Multiple Agents α, β <i>M. Hajiaghayi, K. Rezaei, S. Shin</i>	EC'23
Multi-armed Bandit Algorithm against Strategic Replication. <i>S. Shin, S. Lee, J. Ok</i>	AISTATS'22
Power of Bonus in Pricing for Crowdsourcing. <i>S. Shin, H. Choi, Y. Yi, J. Ok</i>	SIGMETRICS'22

HONOR & AWARD

Outstanding Graduate Assistant Award AY 23-24 <i>University of Maryland</i>	USA Dec 2023
Graduate School Summer Research Fellowship <i>University of Maryland (declined)</i>	USA Summer 2023
Dean's Fellowship <i>University of Maryland</i>	USA Fall 2022 – Fall 2024

The National Scholarship for Science and Engineering
Korea Student Aid Foundation

South Korea
Spring 2011 – Fall 2017

Dean's Award for Entrance
Korea Advanced Institute of Science and Technology

South Korea
Spring 2011

Gold Medal, Korean Mathematical Olympiad
Korean Mathematical Society

South Korea
Fall 2008

VISIT & INTERNSHIP

Visiting Student
Host: Prof. Haifeng Xu

University of Chicago
Summer 2024

Visiting Student
Host: Prof. Piotr Krysta

University of Liverpool
Jul. 2023

Visiting Student
Topic: Mathematics and Computer Science of Market and Mechanism Design

SLMath, UC Berkeley
Jun. 2023

Research Intern
Host: Prof. Jungseul Ok

Machine Learning Lab, Postech
Summer 2022

INDUSTRY

LINE plus Corporation, LINE Advertisement Platform
Data Scientist, ML engineer

Seongnam, South Korea
Oct. 2020 – Apr. 2022

Coupang, Product, Search and Discovery Platform
Software Engineer

Jamsil, South Korea
Aug. 2018 – Sep. 2020

SERVICE

Program Committee
AAAI'26, WINE'25, AAAI'25

Reviewer
SODA'26, ICML'25, NeurIPS'24, ICML'24, NeurIPS'23, AISTATS'22

MENTORING/ADVISING

Mentoring
Gary Peng (Undergrad at UMD). Received CRA award ([link](#))

Dec. 2023 - WIP

Mentoring
Aya Sghiouar (High school student at Bouskoura High School)

HSRI'24
Summer 2024

TALK

Delegated Choice with Costly Inspection <i>INFORMS Annual Meeting, Auctions and Market Design Award Session</i>	Georgia, USA Oct. 2025
Tokenized Bandit for LLM Decoding and Alignment <i>INFORMS Annual Meeting, Invited Session</i>	Georgia, USA Oct. 2025
Optimal Contest for Recommender Systems <i>INFORMS Annual Meeting, PSOR Business Meeting Award Session</i>	Georgia, USA Oct. 2025
Delegation with Costly Inspection <i>ACM Conference on Economics and Computation (EC)</i>	Stanford, USA Jul. 2025
Delegated Choice with Combinatorial Constraints <i>ACM Conference on Economics and Computation (EC)</i>	Stanford, USA Jul. 2025
Replication-proof Bandit Mechanism Design with Bayesian Agents <i>Association for the Advancement of Artificial Intelligence (AAAI)</i>	Philadelphia, USA Feb. 2025
Gains-from-Trade in Bilateral Trade with a Broker <i>Symposium on Discrete Algorithm (SODA)</i>	New Orleans, USA Jan. 2025
Prophet Inequality, Posted Pricing, and Delegated Choice <i>Microecon Theory Seminar, Sungkyunkwan University</i>	Seoul, South Korea Sep. 2024
Combinatorial Delegated Choice <i>East Asia Game Theory Conference</i>	Jeju, South Korea Aug. 2024
Ad Auctions for LLMs via Retrieval Augmented Generation <i>EC'24 Workshop on Frontiers of Online Advertising: Autobidding, GenAI, and Beyond</i>	New Haven, USA Jul. 2024
Delegated Choice, Prophet Inequality, and Beyond <i>Sigma Lab, UChicago</i>	Chicago, USA Jun. 2024
Topics in Economics and Computation <i>Machine Learning Lab, Postech</i>	Pohang, South Korea Jan. 2024
Delegating to Multiple Agents <i>ACM Conference on Economics and Computation (EC)</i>	London, UK Jul. 2023
Mechanism Design and Multi-armed Bandits <i>Machine Learning Lab, Postech</i>	Virtual Feb. 2022

TEACHING

Advanced Topics in Theory of Computing; Algorithmic Game Theory (CMSC858J) <i>Guest Lecturer (4 full lectures)</i>	Fall 2025 UMD
Introduction to Computer Systems <i>Teaching Assistant</i>	Fall 2024 UMD
Introduction to Computational Game Theory (CMSC474) <i>Teaching Assistant</i>	Fall 2023 UMD

Design and Analysis of Computer Algorithms (CMSC451)

Teaching Assistant

Spring 2023

UMD

Introduction to Computational Game Theory (CMSC474)

Teaching Assistant

Fall 2022

UMD

Data Structure and Algorithms for Electrical Engineering (EE205)

Teaching Assistant

Fall 2017

KAIST

Computer Networks (EE323)

Teaching Assistant

Spring 2017

KAIST