MIT Economics

YING GAO

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DOCTORAL STUDIES

Massachusetts Institute of Technology (MIT)
PhD, Economics, Expected completion June 2024
DISSERTATION: "Essays on Signaling and Disclosure"

DISSERTATION COMMITTEE AND REFERENCES

Professor Drew Fudenberg
MIT Department of Economics
77 Massachusetts Avenue, E52-418
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Professor Stephen Morris
MIT Department of Economics
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Professor Robert Gibbons
MIT Sloan School of Business
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PRIOR EDUCATION

Massachusetts Institute of Technology (MIT) 2018
B.S, Math and Economics, Phi Beta Kappa

CITIZENSHIP USA **GENDER** Female

LANGUAGES English (native), Chinese (fluent)

FIELDS

Primary Fields: Theory

Secondary Fields: Organizational

TEACHING EXPERIENCE

14.122 Microeconomic Theory II 2020-22
Teaching Assistant to Professor Glenn Ellison
Course evaluations: 6.4/7, 6.3/7, 6.8/7
14.121 Microeconomic Theory I 2022

Teaching Assistant to Professor Jonathan Weinstein
Course evaluations: 6.9/7

14.127 Advanced Game Theory 2021
Teaching Assistant to Professor Drew Fudenberg
Course evaluations: 6.0/7

14.125 Market Design 2021
Teaching Assistant to Professor Parag Pathak
Course evaluations: 7.0/7

14.26 Organizational Economics 2021
Teaching Assistant to Professor Charles Angelucci
Course evaluations: 6.4/7

6.042 Mathematics for Computer Science 2015
Teaching/Lab Assistant (TLA) to Professor Albert Meyer

RELEVANT POSITIONS

Research Intern, Microsoft Research New England 2022
Research Assistant to Professor Robert Gibbons 2021
Research Assistant to Professor Drew Fudenberg 2020
Research Assistant to Professor Alex Wolitzky 2019
Research Assistant to Prof. Whitney Newey & Prof. Jerry Hausman 2016-20
Winter Intern, NERA Economic Consulting 2017
MIT-PRIMES Circle Research Mentor 2015-17

FELLOWSHIPS, HONORS, AWARDS

Jerry A. Hausman Fellowship, MIT 2020-23
MIT Presidential Fellowship, MIT 2018-20
Phi Beta Kappa 2018

PROFESSIONAL ACTIVITIES

Presentations
The European Summer Meeting of the Econometric Society (2022), The Stony Brook International Conference on Game Theory (2022)

Refereeing
Economic Theory

Service
MIT Economics Theory Lunch organizer, 2021-2022
MIT Graduate Economics Association Social Chair, 2020-2021
MIT PRIMES Circle Mentor, 2016-2018

PUBLICATIONS

"A Reputation for Honesty" (with Drew Fudenberg and Harry Pei)
Journal of Economic Theory, September 2022.

We analyze situations where players build reputations for honesty rather than for playing particular actions. A patient player faces a sequence of short-run opponents. Before players act, the patient player announces their intended action after observing both a private payoff shock and a signal of what actions will be feasible that period. The patient player is either an honest type who keeps their word whenever their announced action is feasible, or an

opportunistic type who freely chooses announcements and feasible actions. Short-run players only observe the current-period announcement and whether the patient player has kept their word in the past. We provide sufficient conditions under which the patient player can secure their optimal commitment payoff by building a reputation for honesty. Our proof introduces a novel technique based on concentration inequalities.

RESEARCH PAPERS

"Inference from Selectively Disclosed Data" (Job Market Paper)

We consider the disclosure problem of a sender with a large dataset of hard evidence. The sender has an incentive to drop observations before submitting the data to the receiver to persuade them to take a favorable action. We predict which observations the sender discloses using a model with a continuum of data, and show that this model approximates the outcomes with large, multi-variable datasets. In the receiver's preferred equilibrium, the sender plays an imitation strategy, under which they submit evidence that imitates the natural distribution under some more desirable target state. As a result, it is enough for an experiment to record data on outcomes that maximally distinguish higher states. A characterization of these strategies shows that senders with little data or a favorable state fully disclose their data, but still suffer the receiver's skepticism, and therefore are worse-off than they are under full information. On the other hand, senders with large datasets can benefit from voluntary disclosure by dropping observations under low states.

"Model (non-)disclosure in supervisory stress tests" (with Marc de la Barrera and Bumsoo Kim)

We study the Federal Reserve's problem of disclosing the models it uses in supervisory stress tests of large banks. Banks argue that nondisclosure leads to inefficiencies stemming from uncertainty, but regulators are concerned that full disclosure can lead to banks gaming the system. We formalize the intuition behind this trade-off in a stylized model where both the regulator and banks have imperfect, private ``models" about a risky asset, and the regulator uses its own model to `stress test' the investment. We show that if the regulator uses its model to test the banks' investment, full disclosure is suboptimal, and the regulator may benefit from hiding the model when the bank's model is more precise than the regulator's own model. The key idea is that hiding the regulator's model forces the bank to guess it using the bank's own models, effectively eliciting the bank's private information. We also show that if the regulator can fine-tune disclosure policies, the regulator can approximately enforce the first-best action of banks, as if the regulator fully knew all the private information held by banks. The intuition is closely related to the Cremer and McLean (1988) information rent extraction result.

RESEARCH IN PROGRESS

"Information Transmission in Hierarchies" (with Nicole Immorlica, Brendan Lucier, and Markus Mobius)

Middle managers in organizational hierarchies have local information about the projects they manage that can inform selection and funding decisions. We consider how managers who are aligned with the principal can use their private information via pre-selection or post-selection of projects/agents to vie for funding when the final selection process is a firm-wide, winner-take-all contest with the ability to influence outcomes via costly effort. In a case with nonproductive signaling effort, the costs of signaling are minimized by using the manager's information to post-select eligible projects after effort is fixed, rather than pre-selecting the projects eligible to exert effort to compete. The effect is driven by a steep increase in motivation to compete when the agent is informed that they will face less local competition.

"Competition and Coordination in Multi-Agent Delegated Search" (with Nicole Immorlica, Brendan Lucier, and Markus Mobius)

A principal has a problem to solve and delegates the search for solutions to multiple agents with distinct capabilities. Each agent's chance of success, given that they invest in the costly search, is private information. Such delegated search can suffer from miscoordination, in which agents can either underinvest or overinvest in search due to expectations about the potential for other agents to discover redundant solutions. We show that miscoordination can still occur when the agents' preferences are fully aligned with the principal, since the most productive agents can be crowded out by others' investment in inferior equilibria; however, the price of anarchy is bounded. When agents are instead privately motivated for the principal to implement their own solution, search intensity increases in aggregate. In other words, competition risks inefficient overinvestment. However, in some cases, the principal can design a targeted policy to allocate credit to successful agents such that the stronger incentives under competition can disrupt the worst equilibria and thereby reduce the cost of miscoordination.

"Ridge Esimation of Panel Average Effects" (with Ben Deaner, Jerry Hausman, and Whitney Newey)