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Updated November 2, 2023

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Education

Ph.D. Economics, Stanford University (Expected) 2024
M.A. Economics, Stanford University 2020
B.A. Economics, Bilkent University 2018

Dissertation Committee

Professor Matthew O. Jackson
Stanford Economics
jacksonm@stanford.edu

Professor Steven Callander
Stanford GSB
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Professor Robert Wilson
Stanford GSB
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Research Fields

Primary Field: Microeconomic Theory

Research Interests: Strategic Communication, Social Learning and Networks

Working Papers

Efficient Cheap Talk in Complex Environments with Steven Callander
(Job Market Paper)

Decision making in practice is often difficult, with many actions to choose from and much that is unknown. Experts play a particularly important role in such complex environments. We study the strategic provision of expert advice in a variation of the classic sender-receiver game in which the environment is complex, so knowledge of the sender's preferred action may not reveal the receiver's preferred action. We identify an equilibrium in which the action is exactly what the sender would choose if she held full decision making authority. This contrasts with the inefficient equilibria of the canonical model of Crawford and Sobel (1982) in their simple decision environment. Thus, strategic communication is not only more favorable to the expert when the environment is complex, it is also more effective. We explore the implications of this result on the size and structure of the choice set, the decision making mechanism, and how these vary in the complexity of the decision making problem.

Expertise and Experimentation with Steven Callander

Vast literatures have arisen showing how, in the face of uncertainty, a decision maker may benefit from expert advice or from strategic experimentation. Yet these literatures have largely treated these options as mutually exclusive. In practice, a decision maker has the choice of accepting expert advice, experimenting on his own, or doing both. This choice becomes particularly relevant in dynamic settings where the decision-maker can experiment during the initial periods and leverage the acquired information in subsequent ones. We develop a model that captures this possibility and show how experimentation

and expertise can both emerge on the equilibrium path. While experimentation and expert advice are complements for the decision-maker, they act as substitutes for the expert. Notably, while efficient communication is feasible in a single-period interaction (Aybas and Callander, 2023), over a longer horizon, the decision-maker's ability to experiment makes communication inefficient and the quality of decision-making deteriorates.

Persuasion with Coarse Communication with Eray Turkel
(Revise and Resubmit, Games and Economic Behavior)

In many real-world scenarios, experts must convey complex information using a limited number of messages. In this paper, we attempt to answer the question: how does an expert's ability to persuade change with the availability of messages? We develop a geometric representation of the expert's payoff when using a limited number of messages. The sender consistently performs worse with coarse communication and values additional signals. We identify bounds on this value. In a special class of games, the marginal value of a signal increases as the receiver becomes more difficult to persuade. Moreover, we show that an additional signal does not directly translate into more information in equilibrium, and the receiver might prefer coarse communication. This suggests that regulations on communication capacity have the potential to shift the balance of power from the expert to the decision-maker, ultimately improving welfare. Finally, we study the geometric properties of optimal information structures and show how they can be utilized to simplify the sender's problem into a finite algorithm.

Social Learning, the Countervailing Effects of Homophily, and Assortativity Patterns in Networks with Matthew O. Jackson

We introduce a model in which homophily in social networks affects both the qual- ity and diversity of the information to which people have access. Homophily provides higher-quality information about the actions that a group takes, since observing the payoffs of another person is more informative the more similar that person is to the decision maker. However, homophily can lead to observations about fewer actions if people similar to the decision maker choose a limited set of actions. This can lead to inefficiencies as well as inequalities across groups. We characterize conditions under which homophily hurts rather than helps social learning. Homophily lowers efficiency and increases inequality in sparse networks, but enhances efficiency and decreases in- equality in dense enough networks. Optimal (learning-maximizing) networks exhibit assortativity in payoff-determining characteristics, which results in incidental homophily on other innate characteristics, providing an explanation for some empirical patterns.

Social Microclimates and Well-being with Stanford Social Neuroscience Laboratory
(Published, *APA Emotion*)

Direct social ties bolster mental health; do ambient features of local communities also play a role? This work takes advantage of university students' assignment to different local networks—or "social microclimates"—to probe this question. We quantify the collective impact of individual, social network, and microclimate factors in the well-being of a cohort of first-year college students. Students who belonged to emotionally stable and tight-knit microclimates reported reduced psychological distress, even when controlling for factors such as personality and personal social ties. Although rarely discussed or acknowledged in the policies that create them, social microclimates are consequential to mental health, especially during life transitions.

Work in Progress

A Theory of Departmental Design: Specialization vs. Conflict with Spencer Pantoja
A Bandit Model of Trade with Two-sided Learning with Mitchell Watt
Strategic Disclosure of Attributes with Steve Callander and Spencer Pantoja
Second Order Homophily with Matthew O. Jackson and Ben Davies

Teaching Experience

Stanford University

TA for Ward Hanson, ECON 101: Economic Policy Seminar	2023
Instructor, Department of Public Policy Summer Boot Camp	2022
TA for Paul Milgrom, ECON 203: Graduate Microeconomics II	2022
TA for Chris Makler, ECON 50: Economic Analyis	2021 - 2022

Bilkent University

TA to Cagri Saglam, ECON 454: Topics in Growth Theory	2018
TA for Cagri Saglam, ECON 206: Macroeconomics II	2016 and 2017
TA for Refet Gurkaynak, ECON 102: Introduction to Macroeconomics II	2016

Honors, Awards and Scholarships

E.S. Shaw and B.F. Haley Fellowship for Economics, SIEPR	2023
Stanford University, Outstanding Teaching Assistant Award	2021 and 2022
UniCredit & Universities Foundation, US PhD Scholarship	2018
Economics Department Fellowship, Stanford University	2018

Invited Talks and Conference Presentations

Stony Brook Game Theory Festival	2023
INFORMS, Information Design in Markets (Session Organizer), Stony Brook Theory Seminar (Invited), Econometric Society European Winter Meeting, Stony Brook Game Theory Festival, Bilkent Theory Seminar (Invited)	2022
EEA-ESEM, Networks (Sunbelt and Netsci), Network Science in Economics, Econometric Society Meetings (Asia, Australasia, China, North America)	2021

Refereeing

Journal of Economic Theory	2022