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UNIVERSITY OF PENNSYLVANIA

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Personal Information

Birth Date: September 6, 1996
Citizenship: China
Languages: English (fluent), Mandarin (native)

Undergraduate Studies

B.A. in Economics, Peking University, with Honors, 2013-2017
B.Sc. in Mathematics, Peking University, 2014-2017

Graduate Studies

University of Pennsylvania, 2017 to present
Ph.D. Candidate in Economics
Thesis Title: "*Essays on Learning in Economic Theory*"
Expected Completion Date: May 2023

References:

George J. Mailath (Thesis committee chair)
Walter H. Annenberg Professor of Social Sciences
Professor of Economics
Department of Economics
University of Pennsylvania
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J. Aislinn Bohren (Thesis committee chair)
Associate Professor of Economics
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Research and Teaching Fields

Research fields: Microeconomic Theory, Information Economics, Behavioral Economics
Teaching fields: Microeconomics, Game Theory

Research Papers

Robust Misspecified Models and Paradigm Shifts **(Job Market Paper)**

VEST-WiET Best Paper Award

Abstract: Individuals use models to guide decisions, but many models are wrong. This paper studies which misspecified models are likely to persist when individuals also entertain alternative models. Consider an agent who uses her model to learn the relationship between action choices and outcomes. The agent exhibits sticky model switching, captured by a threshold rule such that she switches to an alternative model when it is a sufficiently better fit for the data she observes. The main result provides a characterization of whether a model persists based on two key features that are straightforward to derive from the primitives of the learning environment, namely, the model's asymptotic accuracy in predicting the equilibrium pattern of observed outcomes and the `tightness' of the prior around this equilibrium. I show that misspecified models can be robust in that they persist against a wide range of competing models—including the correct model—despite individuals observing an infinite amount of data. Moreover, simple misspecified models with entrenched priors can be even more robust than correctly specified models. I use this characterization to provide a learning foundation for the persistence of systemic biases in two applications. First, in an effort-choice problem, I show that overconfidence in one's ability is more robust than underconfidence. Second, a simplistic binary view of politics is more robust than the more complex correct view when individuals consume media without fully recognizing reporting bias.

A Multi-Agent Model of Misspecified learning with Overconfidence (with Alice Gindin)

Accepted subject to minor revision at Games and Economic Behavior

Abstract: This paper studies the long-term interaction between two overconfident agents who choose how much effort to exert while learning about their environment. Overconfidence causes agents to underestimate either a common fundamental, such as the underlying quality of their project, or their counterpart's ability, to justify their worse-than-expected performance. We show that in many settings, agents create informational externalities for each other. When informational externalities are positive, the agents' learning processes are mutually-reinforcing: one agent best responding to his own overconfidence causes the other agent to reach a more distorted belief and take more extreme actions, generating a positive feedback loop. The opposite pattern, mutually-limiting learning, arises when informational externalities are negative. We also show that in our multi-agent environment overconfidence can lead to Pareto improvement in welfare. Finally, we prove that under certain conditions, agents' beliefs and effort choices converge to a steady state that is a Berk-Nash equilibrium.

Over- and Underreaction to Information (with Aislinn Bohren and Alex Imas)

Abstract: Both over- and underreaction to information are well-documented empirically across a variety of domains. This paper explores how key features of the learning environment determine which bias emerges in a given setting. We first develop a two-stage model of belief formation. In the editing stage, limited attention leads the agent to use the representativeness heuristic to simplify the learning environment. In the evaluation stage, the agent forms subjective beliefs based on a noisy representation of the edited information structure. This model predicts underreaction when the state space is simple, signals are precise, and the prior is flat or diffuse; it predicts overreaction when the state space is complex, signals are noisy, and the prior is concentrated. A series of experiments provide direct support for these theoretical predictions. As a stark example, increasing the complexity of the state space from two to three states completely reverses the direction of the bias from underreaction to overreaction. The results highlight that both stages of belief updating are crucial, in that neither stage on its own can explain the observed patterns in the data. Our framework also rationalizes the disparate findings in prior work: the model predicts the prevalence of underreaction in laboratory studies—which typically use a binary state space, relatively informative

signals, and flat priors—as well as the predominance of overreaction documented in financial markets—which feature a more complex state space and noisier signals.

Research Papers in Progress

A Reputational Theory of Influencer Marketing

Abstract: The rapidly growing industry of influencer marketing has attracted wide attention from regulators with concerns about deceptive endorsements. This paper develops a reputation model in which social media influencers trade off profits from private paid endorsements and reputation for their honesty. While reputation concerns are crucial in incentivizing truth-telling when the influencer is offered private sponsorship opportunities, they also give rise to inefficient under-endorsement when the influencer does not have such an opportunity. Due to these countervailing forces, as sponsorships become more abundant, the quality of information transmission decreases at first but increases later. This result implies that new technology that matches influencers with sponsors more efficiently may end up improving consumer welfare. I also show that the Federal Trade Commission's mandatory disclosure policy benefits consumers without necessarily hurting the influencers.

Honors, Scholarships, and Fellowships

2023	Review of Economic Studies European Tour 2023
2022	VSET-WiET Best Paper Award
2022	The Maloof Family Dissertation Fellowship in Economics
2021	Sidney Weintraub Memorial Fellowship in Economics
2018	Distinction in Econometrics, University of Pennsylvania
2017	University Fellowship, University of Pennsylvania
2017	Graduate with Distinction, Peking University
2016	National Scholarship for Undergraduate Students, Chinese Ministry of Education
2014, 2015	Guanghua Scholarship, Peking University
2013	Freshman Scholarship, Peking University

Teaching Experience

Teaching Assistant (TA) at University of Pennsylvania:

Fall, 2019	Game Theory, TA for Professor Annie Liang
Summer, 2019	Game Theory, Instructor
Spring, 2019	Econometrics, TA for Professor Francis X. Diebold
Fall, 2018	International Finance, TA for Professor Enrique G. Mendoza
Fall, 2018	Foundations for Market Economy, TA for Professor Jesus Fernandez-Villaverde

Research Experience and Other Employment

Research Assistant (RA):

2020-2022	RA for Professor J. Aislinn Bohren, University of Pennsylvania
2020-2022	RA for Professor Annie Liang, University of Pennsylvania
2016	RA for Professor Rujing Meng, Hong Kong University
2015	RA for Professor Qiao Liu, Peking University

Professional Activities

Refereeing: Games and Economic Behavior

Conference and Seminar Presentations

2023	Stanford (scheduled), Oxford (scheduled), Ca' Foscari University of Venice (scheduled), CEMFI (scheduled), George Mailath's 65th Birthday, Boston

	University, Western University, NYU Shanghai, Bocconi University, LMU Munich, Virginia Tech, London School of Economics, University of Pittsburgh, University of Hong Kong, Simon Fraser University, University of Illinois Urbana-Champaign, Columbia University, New York University, Purdue University, Shanghai Jiao Tong University, CUHK-Shenzhen, Jinan University
2022	Conference on Web and Internet Economics (WINE), Virtual Seminars in Economic Theory (VSET), Women in Economics Theory Student Conference (WiET), Economics Graduate Student Conference (ESGC), Young Economist Symposium (YES), Stony Brook International Conference on Game Theory, Asian Meeting of the Econometric Society, China (AMES), Pennsylvania Economic Theory Conference (poster session)
2021	Midwest Trade and Theory Conference, North American Summer Meetings of the Econometric Society, briq Summer School in Behavioral Economics, Pennsylvania Economic Theory Conference (poster session)
2020	Weorg Mentoring Workshop (Boston University), Young Economist Symposium (YES), European Winter Meetings of the Econometric Society