I am an economic theorist studying models of information and learning. I use both theoretical and empirical tools to understand the implications of model misspecification and psychological biases on decision-making and belief formation. In a separate research agenda, I study models of reputation in repeated communication games.

Learning under model misspecification

Standard economic models assume that agents have a correct model of the decision-making environment. To explore how incorrect models and the associated underlying biases impact beliefs and behavior, the growing literature on misspecified learning focuses on the case of a dogmatic agent who always uses a particular misspecified model and never considers changing that model. While this yields tractable characterizations of long-run beliefs, it leaves open the question of whether it is realistic to expect an agent to stick with a wrong model.

My job market paper, "**Robust Misspecified Models and Paradigm Shifts**," develops a new framework for understanding which (if any) misspecified models are likely to persist and when. I consider an agent who uses models to learn about how actions affect the distribution of outcomes and make repeated decisions. In contrast to a dogmatic agent studied in the literature, the agent in my framework is aware of potential model misspecification and uses a threshold rule to switch between models according to how well they fit the data. I show that misspecified models can be robust against a wide range of competing models—including the true data-generating process—despite the agent having an infinite amount of data. I characterize robust models based on both the model-induced steady states and determinants of the switching dynamics such as priors and the switching threshold. I show that misspecified models with entrenched priors and simple structures may be more robust than correctly specified but more complex models. I use these results to provide learning foundations for the persistence of systemic biases in two applications. I show that in an effort-choice problem, overconfidence is more robust than underconfidence, consistent with the mounting empirical evidence that overconfidence is much more prevalent. In another application, I demonstrate that an oversimplified binary view in politics is more robust than a correct view when individuals consume media without fully recognizing the reporting bias, which leads to persistent polarization despite no built-in political bias.

Model misspecification leads to incorrect learning and welfare loss in individual decision problems, but it is unclear how strategic interaction may magnify or alleviate these consequences. In a joint paper with Alice Gindin, "**A Multi-Agent Model of Misspecified Learning with Overconfidence**" (*R&R* at Games and Economic Behavior), we study 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 agents create informational externalities for each other. When they learn about a common fundamental, informational externalities are typically positive and their learning

processes are mutually-reinforcing: one agent best responding to his overconfidence causes the other agent to reach a more distorted belief and take more extreme actions, generating a positive feedback loop. In contrast, when the agents learn about each other's ability, informational externalities are typically negative and the learning processes are mutually-limiting. We also show that overconfidence can lead to Pareto improvement in welfare in our multi-agent environment.

Both over and underreaction to information are well-documented empirically across a variety of domains. For example, research on beliefs in financial markets typically finds evidence for overreaction, while laboratory studies predominantly find underreaction. In joint work with J. Aislinn Bohren and Alex Imas, "**Over and Underreaction to Information: A Unified Approach**," we provide a unified approach for exploring how key features of the learning environment determine whether over or underreaction emerges. We first develop a two-stage model of belief formation that incorporates an editing phase and an evaluation phase, where elements of bounded rationality can potentially enter both stages, and derive its implications for belief formation. The model predicts underreaction when the state space is simple, signals are precise, and the prior is flat; it predicts overreaction when the state space is more complex, signals are noisy, and the prior is more concentrated. We conduct a series of experiments to substantiate these predictions and establish that *multiple* distinct psychological forces are important determinants of belief updating as neither force on its own can explain our results. Our model and empirical findings can rationalize the discrepancy in prior work, predicting underreaction in laboratory studies—which typically use a binary state space, precise signals, and flat priors—and overreaction in financial markets—which feature a richer, more complex state space and noisier signals.

Reputation games

Reputation concerns are critical in long-term relationships when parties have incentives to defect. My research in this area has studied the effectiveness of reputation mechanisms when the incentives to defect are private. An important application is the influencer marketing industry, where brands promote their products and services through endorsements of social media influencers. In ongoing work "**A Reputational Theory of Influencer Marketing**," I study how influencers optimally choose their endorsement strategy when sponsorship opportunities are private. I show that reputation concerns about honesty alleviate the over-endorsement of sponsored products but also cause inefficient under-endorsement of unsponsored products. As a result, as sponsorships become more abundant, the quality of information transmission decreases at first but increases later. This implies that new technology that matches influencers with sponsors more efficiently may improve consumer welfare. I find that the Federal Trade Commission's mandatory disclosure policy benefits consumers without necessarily hurting the influencers.