DISSERTATION PROPOSAL

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"Economics of the Platform Era"

With the rise of the digital platform economy, some of the most valuable companies on Earth are now platform-based, and numerous startups and smaller enterprises are experiencing significant growth. In this dissertation, I study how should platforms design their product; how would users interact with platforms; and the impact of platforms beyond their immediate scope.

In the first chapter, jointly with Maryam Saeedi and Ali Shourideh, we study the personalized recommender systems which play a crucial role in online news platforms by providing users with content tailored to their preferences and interests. Inspired by this, we study the problem of information disclosure by an expert (principal) who wishes to maximize engagement faced with an agent who wishes to collect information as quickly as possible. The principal can commit to dynamic information revelation strategies while the agent cannot commit to (irreversible) engagement strategies. We allow a general specification of discounting for the agent as well as disagreement in beliefs. There are two main results: First, we show that principal's optimal information revelation are catered to the bias in agent's beliefs relative to that of the principal. That is, the principal always reveals the state in which the agent is relatively more optimistic towards before revealing the state that she is pessimistic. Second, the dynamics of marginal cost of engagement of the agent relative to that of the principal determines how information is revealed over time. When this cost decreases over time, in- formation is revealed gradually while when it increases, it is revealed abruptly. Our model can be used to analyze the effect of personalized news on belief polarization, and the effect of regulatory policies on optimal information revelation.

In the second chapter, jointly with Bryan R. Routledge and Ariel Zetlin-Jones, we study the automated market maker, a platform that allows digital assets to be traded without an intermediary. The canonical mechanism for financial asset exchange is the limit-order book. In decentralized blockchain ledgers (DeFi), costs and delays in appending new blocks to the ledger render a limit-order book impractical. Instead, a ``pricing curve'' is specified (e.g., the "constant product pricing function") and implemented using smart contracts deployed to the ledger. We develop a framework to study the equilibrium properties of such markets. Our framework provides new insights into how informational frictions distort liquidity provision in DeFi markets.

In the third chapter, I study how the media responds to the prevalence of digital platforms and explore the potential impact of this reaction on public opinions and beliefs. Numerous articles and videos online discuss strategies for optimizing headlines to increase the likelihood of algorithmic recommendations. Research shows that media outlets, such as the New York Times and the Wall Street Journal modify headlines based on reader reactions post-publication, which is associated with an increase in negative sentiment and a potential liberal political slant. However, it remains uncertain whether this effect stems from the susceptibility of recommendation algorithms to manipulation or if media, equipped with advanced information techniques, simply better understands its audience. To address this question, I analyze New York Times headlines across various platforms—printed, electronic, YouTube video, and Instagram versions. Additionally, I identify and compare the persuasion techniques employed in the headlines and abstracts, examining variations across these platforms.