Application: Digital Economics and AI Tutorial

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Graduate Study

I am a third-year Ph.D. student in Operations, Information, and Decisions at The Wharton School, University of Pennsylvania, with a concentration in Information Systems. I began my doctoral studies in Fall 2023 and have completed two full years of coursework.

My training combines a strong foundation in economic theory (including Microeconomic Theory, Game Theory, and Experimental Economics) with rigorous quantitative methods such as Applied Econometrics, Advanced Statistical Inference, Bayesian Methods, and Observational Studies. Particularly relevant to digital economics and AI, I have completed a Research Seminar in Information Technology with an Economic Perspectives focus.

Research Interests and Projects

My research focuses on the **economics of artificial intelligence**, with a particular emphasis on how generative AI reshapes creative production, consumer decision-making, and firm strategy in digital markets.

Human-AI Collaboration in Creative Industries. My first line of research examines how generative AI can be integrated into creative workflows. In joint work with Professor Kartik Hosanagar, we conducted a field experiment modeled on the *New Yorker Caption Contest* to study human-AI collaboration across two stages of creativity: idea generation (divergence) and idea evaluation (convergence). We find that AI support improves both the quantity and quality of creative output, with the greatest gains occurring when AI assists in both stages. However, these benefits come with trade-offs: AI-generated content narrows semantic diversity, and full AI support benefits less creative individuals while potentially suppressing the originality of more skilled users. This paper was presented at the *Workshop on Information Systems and Economics (WISE) 2024* and recently received the *Best Paper Award at the INFORMS Conference on Information Systems and Technology (CIST) 2025*.

AI-Mediated Markets and Generative Engine Optimization. As AI transitions from a tool that assists human decisions to an agent that makes recommendations on behalf of consumers, new questions arise about firm strategy and market visibility. In joint work with Professor Kartik Hosanagar, I study how organizations can influence LLM recommendations in this emerging landscape. We show that firms can improve their visibility in AI-mediated discovery through content optimization, and we document how model-specific biases (such as position effects inherited from search rankings) shape the effectiveness of these strategies. This research contributes to an emerging literature on the economics of AI-mediated markets and has been accepted for presentation at *WISE 2025*.

Future Directions

My research agenda tracks the transition of the digital economy from human augmentation to autonomous agency. While my early work characterized Human-AI collaboration in creative production, my future agenda targets the emerging dynamics of AI-AI interaction, where LLMs act as both readers and writers in a machine-to-machine information economy.

This technological shift precipitates a fundamental change in market structure: the move from monopoly to fragmentation. Under the "blue link" paradigm, firms optimized for a single dominant gatekeeper (Google). The emerging AI-mediated landscape is a fragmented ecosystem of competing LLMs, each with distinct biases and architectures. In this context, I view Generative Engine Optimization (GEO) not merely as a marketing tactic, but as the strategic protocol for a market where firms must optimize for diversity across multiple algorithmic agents rather than dominance on a single list.

I plan to formally model the welfare implications of this transition. While AI-mediated search reduces information costs by synthesizing answers, it introduces new risks regarding opacity. Specifically, I aim to test whether the efficiency gains for consumers are negated by the homogenization of recommendations and the potential for invisible manipulation. This research asks if competitive markets can sustain informational diversity when discovery is mediated by a fragmented layer of AI agents.

Dissertation

My dissertation, tentatively titled **"The Economics of AI-Mediated Markets,"** investigates the industrial organization of the emerging AI economy.

Building on my initial exploration of human-AI interaction economics (which established the supply-side effects of generative tools), my thesis focuses primarily on the structural shift toward AI-mediated exchange. I study the transition from monopolistic search to a fragmented market of autonomous agents, analyzing how firms must adapt their strategies when consumption decisions are delegated to algorithmic intermediaries. My committee is chaired by Professor Kartik Hosanagar, with expected members including Daniel Rock, Sonny Tambe (Wharton), and Avi Goldfarb (University of Toronto).

Statement of Interest

The NBER Digital Economics and AI Tutorial represents an invaluable opportunity to engage with researchers shaping this frontier. Given my focus on the transition from platform monopolies to fragmented agent-based markets, I am particularly eager to learn from scholars studying market design and algorithmic decision-making. I hope to contribute my empirical findings on GEO and discuss how economic theory can adapt to a landscape where consumption decisions are increasingly delegated to AI intermediaries.