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Graduate Study

I started my PhD program in Fall 2023 and am now in my fourth year. I have completed two years of PhD courses centered on economics, econometrics, and machine learning:

- **Economics:** Microeconomic Theory I; Econometrics I and II; Behavioral Economics I; Empirical Strategies for Policy Analysis.
- **Machine learning and AI:** Advanced Machine Learning; Doctoral Seminar in Human–AI Dialogue.
- **Quantitative marketing:** Doctoral Seminar in Quantitative Models.

Advisory Committee: Omid Rafieian (co-chair), Vrinda Kadiyali (co-chair), Jura Liaukonyte, and Tommaso Bondi.

Prior to my PhD, I earned a B.S. in Industrial Engineering and an MBA from Sharif University of Technology.

Research

Before my PhD, I spent several years as a business director responsible for the P&L, budgeting, marketing, and growth of one of the largest startups in MENA. That experience shapes my research interests: digital platforms, digital marketing, personalization, and privacy. Building on these topics, I also study how knowledge is created in marketing and to what extent it is used in practice. My methods combine causal inference and economic frameworks with the latest advances in machine learning and AI.

Why This Tutorial

I hope to join this tutorial to connect my work more closely to the economics of digitization and AI. My two papers in progress, presented on the following pages, study the value of user tracking and the lasting effects of social movements, raising welfare and policy questions about data, privacy, and digital platforms. My future projects study how AI changes the production of information and knowledge, in prediction markets and in research itself.

Work in Progress

The Value of Perfect User Tracking in Ad Personalization (with Omid Rafieian)
Privacy regulations and platform policies limit how precisely advertisers can identify individual users, yet little is known about how much value is lost when user identifiers are imperfect. This paper examines the value of perfect user tracking in ad personalization and distinguishes two forms of imperfect tracking: fragmented identifiers, where one user appears under several identifiers, and aggregated identifiers, where several users share one identifier. We use data from a leading mobile in-app ad network in which a perfect user identifier can be compared with the IP address, a widely used imperfect identifier that exhibits both forms. Our framework combines a machine learning model that predicts click-through rates for every impression–ad pair under each identifier with a counterfactual policy evaluation that exploits the randomization in the network's quasi-proportional auction. We then classify impressions as perfect, fragmented, or aggregated to attribute the loss in targeting performance to each type of imperfection.

Do Social Movements Have Lasting Effects? Evidence from Black Lives Matter and Healthcare Evaluations (with Omid Rafieian and Vrinda Kadiyali)
Social movements can reshape marketplace behavior, but less is known about whether their effects last. This paper examines whether the 2020 Black Lives Matter movement, following George Floyd's death, durably changed how patients evaluate Black relative to White healthcare providers, a setting where clinical quality is hard to observe and evaluations rest heavily on trust. We collect patient reviews from Healthgrades.com, a leading U.S. patient-review platform, and infer providers' perceived race from their profile photographs by requiring agreement between two facial-analysis models. Because the movement was a national shock with no unexposed group, we use a two-way fixed effects difference-in-differences design that compares the change in ratings of Black providers with that of comparable White providers, together with event studies that trace persistence over five years. We then use structured patient feedback to separate shifts in how patients evaluate providers from changes in the reported office experience, and examine how the effect varies with local racial segregation and protest activity.

Future Projects

Do AI Traders Make Prediction Markets Smarter or More Fragile?

Automated and AI-powered traders now generate a substantial share of activity on prediction markets, but it is unclear whether they make prices more informative or simply faster. If many algorithms process the same public polls and news feeds, they may push markets toward a consensus more quickly while concentrating prices on a shared error. Using Polymarket, where every trade is linked to a public blockchain wallet, this project separates algorithmic from human wallets by their trading fingerprints and asks three questions. First, do markets dominated by bots move to a consensus faster after news but make the same mistakes together when an outcome is a surprise? Second, do bot-heavy markets only look more efficient, with tighter spreads, higher volume, and faster updating, while becoming less accurate in the high-uncertainty events where forecasts matter most? Third, as algorithmic trading spreads, do the remaining human traders with local or hard-to-automate information earn higher returns and move prices more, making the mix of traders, not just their number, a key design choice for platforms?

How Marketing Science Creates Knowledge

Business fields such as marketing grow by borrowing: they import ideas and methods from economics, psychology, statistics, and computer science, recombine them, and turn them into new knowledge. Because this knowledge is recorded in prose, we know little about how a field emerges, how it evolves, or how far its research travels into practice. This project builds a structured multi-AI workflow that systematically reads each paper, cross-checks the outputs of several AI models against one another, and records each paper's questions, phenomena, methods, and claims in a common format, linking papers, ideas, methods, and researchers in a single knowledge graph. The same workflow reads patents, policy documents, and industry reports, placing practice in the same graph. Using graph theory, it asks three questions. First, how did marketing emerge as a distinct field: which ideas and methods did it import from neighboring disciplines, and when did they become its own? Second, how does the field evolve: do new research areas arise from combining distant ideas or from extending established ones, and which combinations prove most influential? Third, how far is marketing research from practice in this graph, which kinds of knowledge close the gap, and has the distance widened or narrowed as the field's methods have become more technical?