Application for Digital Economics and AI Tutorial

Mostafa Khoshbash
University of California, Santa Barbara
Department of Technology Management

Contact information:
Email: mkhoshbash@ucsb.edu
Phone: 8058033587

1. Description of the course of graduate study

PhD Year and Status: Third Year, finished coursework, passed the qualifying exam, and in progress for defending the qualifying paper and run for cadency.

Anticipated doctoral program completion date: 9/28/2028.

My background and PhD program: I hold an undergraduate degree in Electrical Engineering and an MBA in Strategy. I am currently pursuing a PhD in Technology Management, where I build on this combined background to study the development and management of new technologies. In my PhD program, our core focus is on the development and adoption of technologies within organizational settings. My research primarily examines how firms developing new technologies can foster more diverse and far-reaching innovation, and how they can effectively capture value from these innovations. I have conducted research in several empirical settings, including digital platforms, nascent industries such as personal digital assistants (PDAs), and the emerging ecosystem around generative AI foundational models, both their development and their use in product innovation. Below is a list of the studies I have conducted.

Journal paper:

Miremadi, I., Khoshbash, M., & Saeedian, M. (2023). Fostering Generativity in Platform Ecosystems: How Open Innovation and Complexity Interact to Influence Platform Adoption. Research Policy, 52(6), 104781.

Working Papers

Khoshbash, M., & Tripsas, M. Innovation in Open-Source AI Ecosystems: Foundations Models and Depth and Breadth of Innovations Built on Top of Them.

Addis, J., Khoshbash, M., Tripsas, M., Kaplan, S. Consistency in an Emerging Category: How Firms Stay Consistent with the Market, Across the Portfolio, and at the Product Level.

Lepine, B., Khoshbash, M. Gürbüz, N., Morales, D., Beane, M., A Comparative Study of Generative AI's Influence on Software Development Practices.

Research Interests:

Open-Source Technologies, AI and Innovation, Emerging Industries

Interest in this Workshop

Attending the NBER Digital Economics and AI Tutorial would strengthen the economics-of-innovation foundation of my dissertation on open-source AI ecosystems. Engaging with frontier work in digital economics and AI, and interacting with researchers in these areas, will help me better situate my analysis of foundation model governance, openness, and ecosystem innovation within core economic debates on incentives, diffusion, and value capture; both from theoretical and empirical point of view.

2. Dissertation:

Title:
Open-Source AI Ecosystem Building: Foundational Models, Openness, and the Nature of Innovation
Dissertation Advisor: Dr. Mary Tripsas
Committee: In the process of choosing it, potential professors I have talked to about are Frank Nagle and Sukhun Kang

Open-source AI ecosystems extends the impact of open-source software by enabling rapid specialization and commercialization around foundation models, whose parameters (weights) serve as a reusable technological base for cumulative, recombinant innovation (e.g., fine-tuning, merging, architectural adaptation). This dissertation investigates, first, how governance levers, such as licensing choices, selective revealing, and community orchestration, shape the direction, intensity, and diversity of innovation within a model's ecosystem; and second, how these governance mechanisms and the resulting pattern of ecosystem innovation affect commercialization outcomes, particularly through startup entry, complementary products, and application-layer growth. Empirically, I construct a longitudinal panel of over 120,000 Hugging Face repositories, enriched with licensing and documentation metadata and linked to Crunchbase data on startups and funding. I triangulate these econometric analyses with industry sources and semi-structured interviews with sponsors, contributors, and complementors. The study develops new performance measures, advances theory on governance in managed AI ecosystems, and offers an integrated economics-of-innovation account of how the depth and breadth of innovation around foundation models shape downstream task diversification and firms' value capture through ecosystem design.

Keywords: **Open-Source**, **AI Ecosystems, Innovation**