Application for NBER Digital Economics & AI Tutorial

Title: AI, Managerial Information Processing, and Corporate Decision-Making

Applicant: Zhenkai Ran

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1. Contact Information

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2. Graduate Study and Enrollment

I am a fifth-year PhD candidate in Finance at the University of Cambridge (2020–2026), supervised by **Prof. Andrei Kirilenko** and **Prof. Raghavendra Rau**. I have completed all coursework requirements, passed my PhD viva with no corrections, and am in the final stage of completing the degree, and is expected to obtain PhD degree in March 2026. I also spent Spring/Summer 2024 as a **Visiting PhD Student at Cornell University** under Prof. Mao Ye.

Coursework includes advanced econometrics (covers machine learning topics), advanced microeconomics, advanced macroeconomics, corporate finance, asset pricing, and digital-finance modules. My PhD has consistently incorporated digital-data construction, large-scale text processing, and machine-learning tools in applied financial economics.

I have been supported by multiple competitive awards (CJBS Dean's Research Excellence Prize, Keynes Fund PhD Award, Weil Travel Award, AFA/EFA Travel Grants) and I serve as a teaching assistant for FinTech, Corporate Finance, Derivatives, and Behavioral Finance.

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3. Research Interests

My research lies at the intersection of:

- **Digital economics and information frictions**
- **Financial text and AI/LLM-based measurement**
- **Managerial attention, decision-making, and cognitive constraints**
- **Empirical corporate finance and machine learning**

I study how digital technologies—especially LLMs and generative AI—reshape information processing, attention allocation, and economic decision-making inside firms and financial markets. I combine large text corpora (earnings calls, transcripts, filings), machine-learning extraction of expectations and beliefs, and empirical strategies grounded in rational inattention and market microstructure.

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4. Dissertation & Current Projects

A. Dissertation: "Managerial (In)Attention to Financial Markets" (Job Market Paper)

My dissertation develops a **machine-learning measure of firm-level managerial attention** to financial markets using 327,000+ earnings-call transcripts from 2007–2023. Using modern NLP and topic-specific extraction, I quantify how much attention managers allocate to equity- and debt-market signals.

Key findings:

- Managers who devote greater attention to markets exhibit **higher investment–price sensitivity**.
- **Financing choices** (when to raise capital, and debt vs. equity mix) respond strongly to market conditions **only when managers are attentive**.
- I develop a **rational-inattention framework** showing why some managers optimally remain inattentive even when signals are informative.

The paper provides the first *direct* evidence on the real effects of financial markets via price feedback and market timing. It has been presented widely (Monash, PolyU, Guelph, Laurier, Durham Conference, Swiss Finance Institute Rising Scholars Conference, CEPR Paris Symposium, AFA 2026 Poster Session, and 21st Annual Olin Finance Conference at WashU).

B. Regulatory Clarity and Digital Finance (*Management Science* 2025)

Joint with Rau & Ziegler, this published paper studies how **regulatory uncertainty inhibits digital financing**. Using hand-coded global data across 202 countries, we show that clear, detailed crowdfunding regulations promote platform entry and expand digital credit supply. This work demonstrates how regulatory frictions constrain the scaling of digital financial innovations.

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5. Future Research Directions in Digital Economics & AI

Building on my dissertation, my future work will deepen the integration of AI and digital-economics methods into the study of managerial decision-making:

1. LLM-Based Extraction of Managerial Expectations & Beliefs

I aim to develop tools to extract **topic-specific managerial expectations**, beliefs about cost of capital, technological risk, macro conditions, and strategic priorities from earnings calls, following structured prompting methodologies. This will create belief indices comparable across firms and time, allowing tests of:

- expectation formation
- attention allocation
- belief updating in response to signals
- firm-level heterogeneity in information processing

2. GenAI Adoption and Real Corporate Decisions

I plan to study how firms (or firm managers) adopt GenAI internally, including:

- which divisions/functions adopt LLMs first
- how GenAI affects earnings forecast accuracy, guidance frequency, analyst interactions
- changes in capital-budgeting decisions when managers use AI-augmented insights
- complementarities with human expertise

This leverages new text-based AI-readiness indicators and digital job-posting datasets.

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6. Motivation for Attending the Tutorial

I hope to attend the NBER Digital Economics & AI Tutorial for three main reasons:

1. **Deepening technical foundations** My work relies extensively on machine learning, text analysis, and rational-inattention models. The tutorial's focus on frontier AI techniques would directly enhance the methodological core of my research agenda.
2. **Feedback from leaders in digital and computational economics** My dissertation and ongoing projects studying the interaction between managers and GenAI would greatly benefit from expert feedback on AI-based measurement, digital information design, and empirical strategies for identifying technology adoption.

I will cover my own travel and would appreciate accommodation support if provided.

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7. Dissertation Committee

- **Professor Andrei Kirilenko (Chair)**, Cambridge Judge Business School | Email: a.kirilenko@jbs.cam.ac.uk | Phone: +44 (0)1223 765484
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