University of CINCINNATI | CARL H. LINDNER COLLEGE OF BUSINESS

To:
Digital Economics and AI Tutorial Organizers
National Bureau of Economic Research

Application: Digital Economics and AI Tutorial

Dear Organizers,

I am writing to apply for the **NBER Digital Economics and AI Tutorial** to be held at Stanford University on February 11–12, 2026. I am a PhD candidate in Economics at the University of Cincinnati's Carl H. Lindner College of Business and expect to complete my dissertation by May 2026. My research lies at the intersection of urban and real estate economics, public economics, and **economics with AI**, with a particular focus on using artificial intelligence and digital data to construct new economic measures and embedding these in quasi-experimental and structural frameworks. This document provides the requested information on my contact details, graduate study, research interests and projects, motivation, and dissertation.

Contact Information.

Name: Saani Rawat
Current position: PhD Candidate in Economics, University of Cincinnati
Email: rawatsa@mail.uc.edu
Phone: +1 (513) 546–0601
Website: https://saannidhya.github.io

Graduate Studies.

I am currently in my **fifth year** of the PhD program in Economics at the University of Cincinnati. I have completed the full PhD sequences in microeconomics, macroeconomics, and econometrics, along with field courses in applied microeconomics and quantitative methods.

In parallel with my PhD, I completed an **M.S. in Mathematics** (2023) and an **M.S. in Applied Economics** (2018) at the University of Cincinnati, which strengthened my background in probability, analysis, and econometric theory. Prior to my doctoral studies, I

worked as a Quantitative Analyst in the financial industry, which gave me experience with large-scale datasets, risk modeling, and modern data-science tools that I now use in my research on digital economics and AI.

Research Interests.

My research is unified by the goal of using **AI and digital data as measurement technologies** in applied microeconomics. Specifically, I work in:

- Urban and real estate economics
- Public economics and local public finance
- Economics of education and human capital
- Economics with AI, especially AI-enabled measurement from imagery, text, and large-scale digital traces.

Across projects, I develop and validate AI-based measures (from satellite imagery, administrative data, and large language models) and combine them with causal inference and structural models to study how infrastructure, institutions, and technology shape markets and welfare.

Research Projects.

1. AI-enabled measurement of infrastructure and housing markets.

My paper with David Brasington, ***"The Effect of Local Road Maintenance Tax Cuts on House Values"***, uses close property-tax levy elections to study how cutting road maintenance funding affects neighborhood infrastructure and housing markets. I build an AI vision model to measure road quality from satellite imagery and show that jurisdictions narrowly failing to renew road taxes face sizable and persistent declines in road quality and house prices over the subsequent decade. I complement this empirical design with a Dynamic General Equilibrium (DGE) model to quantify the mechanisms through which public infrastructure and amenities are capitalized into real estate values. This work illustrates the trade-off between short-term tax relief and long-term property values, and demonstrates how AI-enabled measurement can yield new insights for urban and real estate economics and for asset pricing in housing markets.[1]

2. Large language models as measurement tools in education.

[1]This work was recently presented at the 2025 AREUEA National Conference, the 2025 UEA North American Meeting, and the 2025 APPAM Annual Fall Research Conference. Upcoming presentations include the 2026 Econometric Society meeting at the **ASSA 2026 Annual Meeting**.

In a second major line of work, I use **large language models (LLMs)** as measurement instruments in education. In ***"GPT Takes the SAT: Tracing Changes in Test Difficulty and Students' Math Performance"*** (with Vikram Suresh), we treat modern LLMs as "automated test-takers" and have them solve SAT Math sections from 2008–2023 to construct a model-based measure of exam difficulty over time. We then combine this with student performance data to separate changes in test difficulty from changes in student preparedness.

Dissertation and Committee. My dissertation is titled *Essays on Urban and Real Estate Economics*, and the dissertation committee consists of:

- **David Brasington** (Chair), Professor of Economics, University of Cincinnati
- **Gary Painter**, Professor of Real Estate, University of Cincinnati
- **Eunjee Kwon**, Assistant Professor of Real Estate, University of Cincinnati
- **Olivier Parent**, Professor of Economics, University of Cincinnati

Motivation for Attending the Tutorial.

The tutorial is generously supported by the Alfred P. Sloan Foundation. I had the opportunity to meet Daniel L. Goroff (Vice President and Program Director) and Dan Kashner (Program Associate for the Economics program) in person at Social Science Foo Camp at Meta's Menlo Park campus earlier this year, where I presented my LLM–SAT paper. Participating in the NBER Digital Economics and AI Tutorial, which they help support, would be a natural next step in developing this line of research and connecting it to the broader economics community working on digital economics and AI.

Thank you very much for considering my application.



Saani Rawat
PhD Candidate, Department of Economics
Carl H. Lindner College of Business
University of Cincinnati
rawatsa@mail.uc.edu
https://saannidhya.github.io