Eugenio Piga

Ph.D. Student, Department of Economics, University of California, San Diego

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Reference: Professor Gaurav Khanna (UC San Diego), gakhanna@ucsd.edu

January 2026

Re: Application to the NBER Innovation Research Boot Camp 2026

Dear Members of the Selection Committee,

I am writing to apply to the **NBER Innovation Research Boot Camp 2026**. I am a Ph.D. student in Economics at the University of California, San Diego. My research studies how data and prediction technologies change how firms decide which projects to pursue, which workers to hire, and which ideas to scale when outcomes are uncertain.

I view innovation as a process of experimentation and selection under uncertainty. Firms do not know in advance which projects, workers, or technologies will be successful, so they must learn by trying, observing outcomes, and reallocating resources. Investments in data infrastructure and predictive tools change this learning process: they affect which ideas are tested, how quickly failures are identified, and how aggressively promising projects are expanded. Through these channels, prediction technologies shape the pace, direction, and concentration of innovative activity.

My first line of research develops a theoretical framework to formalize these mechanisms. In *Prediction, Learning, and the Production of Human Capital*, I study employer learning in an environment where firms can invest in forecasting and data technologies that improve both screening and monitoring. Improved prediction raises match quality, reduces inefficient separations, and increases firm productivity. At the same time, it changes incentives to invest in skills: when firms learn faster and more precisely about worker ability, the returns to training and the timing of career investments shift. These forces generate implications for wage growth, job stability, human capital accumulation, and inequality.

A complementary project, *Agentic Screening and Firm Competition*, provides empirical

evidence using a large-scale field experiment on AI-mediated job interviews in Indonesia. The experimental variation in screening precision allows me to identify how automated evaluation affects hiring, productivity, and competition. The results show that while it improves match quality, it can also intensify competition for high-ability workers, eroding firms' rents in high-surplus segments of the labor market. This illustrates why technological progress does not always translate cleanly into economic value.

A second line of my research studies how ideas are produced across firms and locations. In *The Origin of Innovation Clusters* (with Gaurav Khanna and Yuhei Miyauchi), we use inventor–firm matched data and inventor mobility to decompose innovation into individual, firm, and place-based components. The goal is to separate the role of inventor talent from the role of firms and local environments, and to measure how mobility and organizational context shape long-run innovative output.

Across these projects, my goal is to understand how differences in information and learning technologies translate into differences in innovation, firm growth, and market concentration. Data-driven prediction is a powerful setting for studying these forces because it reshapes how firms process information internally and how they interact in the market.

The NBER Innovation Research Boot Camp is an ideal program for this agenda. I am especially interested in work on innovation measurement and on how ideas are produced within firms. I would value feedback on how to take these mechanisms to the data and how to link firm-level investments in prediction to aggregate productivity, welfare, and growth.

Thank you very much for your consideration.

Sincerely,
Eugenio Piga

One-Page Essay: Research Agenda and Motivation

My research studies how firms turn uncertain ideas into productive innovations. In particular, I focus on how differences in firms' ability to process information—through data, prediction, and learning technologies—shape which projects are pursued, which workers are hired, and which ideas are ultimately scaled. These choices determine not only firm performance, but also where innovation happens and who captures its returns.

Modern data and prediction technologies have changed how this process works. Firms no longer rely only on slow, trial-and-error learning; they increasingly use data and algorithms to forecast outcomes, screen opportunities, and decide where to invest. This affects the entire innovation pipeline: which ideas get tested, how quickly weak projects are abandoned, and how aggressively successful ones are expanded. As a result, these technologies reshape both the speed of innovation and the degree to which it becomes concentrated across firms and places.

My research studies these mechanisms using both theory and empirical evidence. One line of work develops models of employer learning in which firms can invest in prediction technologies that improve screening and monitoring. These models show how better information raises match quality and productivity, but also changes incentives to invest in skills, affecting wage growth, job stability, and inequality. In parallel, I test these mechanisms in a large-scale field experiment on AI-mediated job interviews. The experimental variation in screening precision allows me to measure how automated evaluation affects hiring, productivity, and competitive pressure across firms.

A second line of my research studies how ideas are produced across firms and locations. In joint work with Gaurav Khanna and Yuhei Miyauchi, I use inventor–firm matched data and mobility records to decompose innovation into individual, firm, and place-based components. This allows us to separate the role of inventor talent from the role of organizational and local environments, and to quantify how mobility and firm structure shape long-run innovative output and knowledge diffusion.

I am applying to the NBER Innovation Research Boot Camp to better connect firm-level innovation choices to aggregate outcomes. I am interested in measuring innovation with new data and understanding how it maps into productivity, growth, and inequality.

Sincerely,
Eugenio Piga

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Research Interests

Macroeconomics, Innovation, Firm Dynamics, Economics of Data and Ideas

Education

University of California, San Diego — San Diego, USA
Ph.D. in Economics — 2024–Present

Research Area: **Macroeconomics**
Fields: Macroeconomics, Econometrics

Bocconi University — Milan, Italy
M.Sc. in Economics and Finance — 2022

Dissertation: **"Modeling Salience, Stereotypes, and Social Identity in Financial Markets"**
Advisor: Nicola Gennaioli

Bocconi University — Milan, Italy
B.Sc. in Computer Science and Economics — 2020

Dissertation: **"Heterogeneous Borrowing and COVID-19 Monetary Policies"**
Advisor: Luigi Iovino

Research Positions

INSEAD, Department of Economics and Political Science — Fontainebleau, France
Pre-doctoral Research Associate — 2022 – 2024

- Project: "Do Gender-Neutral Job Ads Promote Diversity? Experimental Evidence from Latin America's Tech Sector," Link
  Sponsor: **Lucia Del Carpio**
- Project: "Using Divide-and-Conquer to Improve Tax Collection," Link
  Sponsor: **Lucia Del Carpio**
- Project: "Factor-Biased Outsourcing: Implications for Substitution between Capital and Labor." Link
  Sponsor: **Dimitrije Ruzic**

Bocconi University, Department of Economics — Milan, Italy
Pre-doctoral Research Associate — 2021 – 2022

- Project: "Levered Returns and Capital Structure Imbalances," Link
  Sponsor: **Claudio Tebaldi**

Bocconi University, IGIER — Milan, Italy
Visiting Student — 2019 – 2021

- Project: "Grantmaking, Grading on a Curve, and the Paradox of Relative Evaluation in Nonmarkets," Link
  Sponsor: **Marco Ottaviani**
- Project: "Information markets and nonmarkets," Link
  Sponsor: **Marco Ottaviani**

Shanghai Advanced Institute of Finance Shanghai, China
Visiting Student 2022

- Project: "Social Media, Sentiment, and Investments: NLP and Network Analysis of Twitter Data"
  Course: Machine Learning and Finance, Professor **Dacheng Xiu**

Publications

Comment on "Bottlenecks: Sectoral Imbalances and the US Productivity Slowdown" (with **John Fernald**), *NBER Macroeconomics Annual 2023, volume 38, National Bureau of Economic Research, Inc.* Link

Comment on "Bottlenecks: Sectoral Imbalances and the US Productivity Slowdown" (with **Jennifer La'O**), *NBER Macroeconomics Annual 2023, volume 38, National Bureau of Economic Research, Inc.* Link

Working Papers

Prediction, Learning, and the Production of Human Capital.

Agentic Screening and Firm Competition (with Brian Jabarian, Mariya Pominova, Pellumb Reshidi).

The Origin of Innovation Clusters (with Gaurav Khanna and Yuhei Miyauchi).

BEA–BLS Historical Accounts and NBER–CES Manufacturing Database: The Gap of Productivity Measures (with John Fernald).

Textbook

Timothy Van Zandt, "Firms, Prices, and Markets." *MBA managerial economics textbook*. Contributing on firm decision-making and market design chapters.

Other Papers

Modeling Salience, Stereotypes, and Social Identity in Financial Markets, Bocconi University Master's Thesis, 2022 (Advisor: **Nicola Gennaioli**)

Heterogeneous Borrowing and COVID-19 Monetary Policies, Bocconi University Bachelor's Thesis, 2020 (Advisor: **Luigi Iovino**)

Social Media, Sentiment, and Investments: NLP and Network Analysis of Twitter Data, Shanghai Jiao Tong University Master's Project, 2022

From Daniel Defoe's Coffee Houses to GameStop's Livestreaming Platforms: Investors Are Not Rational. Comment on "Behavioural Finance and Markets Efficiency: Is There a Dialogue?" *Law and Economics Yearly Review, Vol. 5, Part 2*

Teaching and Mentoring

Macroeconomics ECON 210B – Giacomo Rondina 2026
Ph.D. course, UC San Diego

Short Run Macroeconomics ECON 110B – Fabian Trottner 2025
Undergraduate course, UC San Diego

Business and Society – Philippe Aghion 2022-2023
Graduate course, INSEAD

Prices and Markets – Timothy Van Zandt 2022-2023
MBA course, INSEAD

Theory of Finance – Carlo Favero and Claudio Tebaldi 2020-2021
Graduate course, Bocconi University

Affiliations

Computational Social Sciences Affiliate, UC San Diego 2025-2026
Innocenzo Gasparini Institute for Economic Research (IGIER) 2019-2021

Presentations and Conferences

UCSD Macro Seminar Series UC San Diego, 2026
Machine Learning in Economics Summer Institute (MLESI) University of Chicago, 2025
Machine Learning in Economics Summer Conference (MLESC) University of Chicago, 2025
NBER 38th Annual Conference on Macroeconomics Boston, 2023
XVIII Seminario Internacional del Boletín Informativo Techint Buenos Aires, 2023

Awards & Honors

Regents Fellowship *(University of California, San Diego)* 2025
Regents Fellowship *(University of California, San Diego)* 2024
France Excellence Eiffel Scholarship *(French Ministry)* 2024
PerTe Prestito con Lode Grant *(Banca Intesa Sanpaolo)* 2018-2022
Distinction in my Master's Thesis *(Bocconi University)* 2022
International Mobility Award *(Bocconi University)* 2021
Teaching Improvement Award *(Bocconi University)* 2021
Distinction in my Bachelor's Thesis *(Bocconi University)* 2020
National Registry of Excellence *(Italian Ministry of Education)* 2017

Skills

Programming Languages Python, R, Stata, MATLAB, Julia, SQL
Languages Italian, English, French, Spanish

Ph.D. Coursework

University of California, San Diego (UCSD)

- **Microeconomics**: Microeconomics A, B, C
- **Macroeconomics**: Macroeconomics A, B, C
- **Econometrics**: Econometrics A, B, C, D, E
- **Other**: Mathematics for Economists, Computation, Special Topics in Economics, Macroeconomics of Development, International Macroeconomics, Firm Dynamics, Organizational Economics

Institute for Progress (IFP)

- **Economics of Ideas, Science, and Innovation** (Ph.D. Course, 2026)

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Dear NBER Innovation Research Boot Camp Selection Committee,

I am delighted to recommend Eugenio Piga, a second-year PhD student in Economics at the University of California, San Diego. I know Eugenio well as his advisor and as a coauthor on an ongoing research project. He is one of the most impressive and promising students I have worked with in many years.

In our joint work on innovation and patenting dynamics, Eugenio has contributed at a level that is unusual for someone so early in the program. He helped shape the core research question, contributed to the empirical strategy, and played a major role in interpreting the results. He has excellent technical skills, strong economic intuition, and a rare ability to see the big picture. Working with him already feels like working with a junior colleague.

Eugenio's research focuses on how predictive technologies such as AI are changing firm behavior and innovation. His proposed project on the rise of predictive firms is ambitious, timely, and directly aligned with the themes of the NBER Innovation Research Boot Camp. It asks important questions about how better prediction changes R&D, investment, and competition, and I believe it has the potential to become a very influential line of work.

In short, Eugenio is an exceptional young economist with a clear research vision and the ability to execute it. I recommend him with the highest enthusiasm.

Sincerely,



Gaurav Khanna
Associate Professor of Economics
University of California, San Diego

And NBER