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Graduate Study and Enrollment

Current Status: I am a third-year Ph.D. student in Economics at Boston University (Enrolled Fall 2023).

Coursework Completed: I have successfully completed the core Ph.D. sequence and relevant advanced field courses:

- **Core:** Advanced Microeconomic Theory (I & II), Advanced Macroeconomics (I & II), and Econometrics (I & II).
- **Electives:**
  - **Industrial Organization:**
    - Theory - Prof. Juan Ortner
    - Empirical – Prof. Jihye Jeon and Prof. Marc Rysman
  - **International Trade:**
    - Theory – Prof. Stefania Garetto
    - Empirical – Prof. Natalia Ramondo and Prof. Yuhei Miyauchi
  - **Economic History**: Prof. James Feigenbaum, Prof. Christophe Chamley, Prof. Bob Margo.
  - **Development Economics**: Prof. Ben Marx and Martin Fiszbein

Research Interests

My research lies at the intersection of **Industrial Policy, Spatial Economics, and Computational Methods (NLP & AI).**

I am specifically focused on the application of **Natural Language Processing (NLP)** and **Large Language Models (LLMs)** to unstructured economic data. My methodological interests involve traditional NLP text-as-data approaches and deploying complex AI agents (using frameworks like LangGraph) and fine-tuned Transformer models to identify causal mechanisms in political economy and development that were previously unobservable.

Current Research

1. The "Push" and the "Nudge": Industrial Policy, Spatial Inertia, and the Coordination Failure of Globalization (Job Market Paper Proposal) This project investigates why "Big Push" industrial policies failed in Colombia (20th century). I develop a quantitative spatial model with multiple equilibria to separate the effects of policy "Pushes" (changing fundamentals like trade costs) from "Nudges" (coordination devices).

- **AI/Digital Method:** To identify "Nudge" policies empirically, I am constructing a novel dataset of Colombian industrial policies (1920-1980). I employ NLP techniques to analyze digitized presidential decrees, annual reports, and national development plans. By classifying the semantic structure of policy language, I isolate policies designed as "coordination signals" versus those that are purely infrastructure investments.

2. Measuring Industrial Policy: A Text-Based Approach (Working Paper) *With Réka Juhász, Nathan Lane, and Emily Oehlsen.* This paper addresses the measurement of industrial policy by analyzing policy text rather than just expenditure.

- **AI/Digital Method:** We led a supervised machine learning workflow to annotate over 2,000 policy text observations. We designed and implemented a text-based methodology using a **fine-tuned BERT Large Language Model (LLM)**, achieving 94.1% accuracy in classifying complex policy texts. This model allows for the creation of a global database of industrial policy at the country-industry-year level.

3. The Spread of Political Ideas (Work in Progress) *With Prof. Tarek Hassan.* This project analyzes the diffusion of political ideas.

- **AI/Digital Method:** We are utilizing Large Language Models (LLMs) to analyze congressional speeches. Rather than relying on simple keyword frequency, we are using LLMs to understand political ideas across time.

Technical Proficiency & Methodology

My research relies heavily on advanced computational frameworks. I have extensive experience with:

- **Agentic Workflows:** I utilize **LangGraph** and **LangChain** to build autonomous research agents for data extraction and synthesis. I am currently implementing the new **ART (Agent Reinforcement Trainer)** implementation for Reinforcement Learning within LangGraph.
- **Machine Learning Frameworks:** PyTorch, TensorFlow, Scikit-learn, SpaCy, and Hugging Face Transformers.
- **Interdisciplinary Training:** I have been invited to attend *Neural Mechanics* (Spring 2026) in the Computer Science Department at Northeastern University (taught by Prof. David Bau). The course focuses on the internal mechanisms of Language Models and how they compute and represent concepts, aiming to submit research to top-tier ML conferences like NeurIPS.

Attending the NBER tutorial would provide invaluable guidance as I refine the methodological framework for my job market paper proposal and continue to bridge the gap between frontier computer science techniques and economic research.

Advisors/References

Prof. Stefania Garetto

Prof. Tarek Hassan

Prof. Réka Juhász.