Minjae Seo

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Education

University of Chicago **May 2026**
Master of Art in Public Policy with Certificate in Research Methods GPA: 3.6/4.0
Relevant Coursework: Game Theory(PhD), Advanced Microeconomics for Policy Analysis I (PhD), Applied Econometrics(PhD), Advanced Microeconomics for Policy Analysis(PhD) II, Applied Econometrics II (PhD)

University of California, Berkeley **Dec 2024**
Bachelor of Arts in Statistics GPA: 3.85/4.0
Relevant Coursework: Optimization Models in Engineering, Modern Statistical Prediction & Machine Learning, Principles & Techniques of Data Science, Data, Inference, & Decisions, Econometrics, Causal Inference

Skills

Languages / Tools: Python, R, C SQL, Stata, SAS, Tableau, PowerBI, Pytorch, Tensorflow, AWS, Git, Qualtrics, MS Excel
Databases / Web Technologies: MySQL, PostgreSQL, MongoDB**,** PHP, JavaScript, HTML, CSS, Mathlab

Highlighted Experience and Projects

Graduate Research Assistant, Understanding and Countering Criminal Governance, University of Chicago **Dec 2025- Present**
- Replicated empirical analysis from Gang Rule (Review of Economic Studies, 2025), implementing geographic regression discontinuity designs in R and Stata to examine strategic complementarity between state presence and criminal governance using Medellín's 1987 comuna border reforms as a natural experiment.
- Updated research dataset with 2024 administrative data, surveys, and crime statistics from Medellín, cleaning and merging multi-source datasets to test temporal validity of findings on how drug market proximity affects gang governance responses to state security expansion.

Graduate Teaching Assistant, Mathematical Foundations of Machine Learning, University of Chicago **Sep 2025- Dec 2025**
- Facilitated weekly technical recitations for 20+ students, utilizing interactive Python/NumPy demos to bridge theory and application across complex topics like SVD, Gram-Schmidt, and Least Squares.
- Mentored students through rigorous exam preparation by synthesizing matrix methods into accessible reviews, while resolving 100+ technical inquiries on Ed Discussion regarding subspace projections and algorithm implementation.

Data Labelling Analyst, Handshake AI, Remote **May 2025- July 2025**
- Developed math-specific prompts to my domain for Large Language Models by evaluating and revising responses
- Collaborated with 70+ members to minimize and decrease the responses error by utilizing Reinforcement Learning from Human Feedback(RLHF)

AI Intern, YCX, Remote **March 2025 - May 2025**
- Engineered an AI-powered Know Your Business (KYB) system that dynamically integrates multi-agent orchestration, enabling automated report generation and dataset enrichment using LLM's Groq Api and web scraping(Beautiful Soup in Python).
- Improved data complexity by designing a modular agent pipeline that increased data coverage across 300+ firms by 40%, integrating inputs from open web sources, company filings, and JSON-formatted LLM outputs.

Quantitative Research Intern, Global Key Advisors, Hybrid **July 2024 - March 2025**
- Analyzed insider trading profitability by merging and cleaning SEC Form 4, CRSP, and Refinitiv datasets, leveraging Python to develop alpha prediction models across Fama-French 48 sectors.
- Developed automated pipelines for data extraction, classification, and ROI tracking, facilitating downstream portfolio strategy testing by the research team.

Research Assistant: **Causal effects estimation: Evidence from Natural Experiments**, UC Berkeley **Jan 2024 - Feb 2025**
- Performed sharp regression discontinuity analysis at the 33˚N threshold to identify the causal relationship between the running/treatment variable and indoor air temperatures using matplotlib(Python) and rdrobust(R) packages.
- Cleaned and harmonized the Chinese Thermal Comfort Dataset, constructing a city-level panel of 32 northern (treatment) and southern (control) cities using Python.
- Identified a statistically significant 4.3˚C increase in operative temperature in northern cities(treatment) via weighted least squares, controlling for city fixed effects and polynomial trends.

Research Assistant: *Investigation of Sustainability in Durable Good Markets,* UC Berkeley **Jan 2024 - Jan 2025**
- Analyzed household-level expenditure(Consumer expenditure from BLS) through event study plot and regression analysis under a Difference-in-Differences/Synthetic Control framework to evaluate the causal effect of Massachusetts' Right to Repair Law on vehicle service and parts expenses.
- Identified a post-policy decline in repair costs attributed to increased third-party competition, supporting legislative impacts on market efficiency and consumer behavior.

Research Assistant: *Adaptive Cross-validation in Double Machine Learning,* UC Berkeley **July 2024 - Dec 2024**
- Developed and implemented an adaptive simulation framework for Double Machine Learning (DML) with continuous treatments, enabling dynamic model selection via cross-validation and information criteria.
- Collaborated with an Economics PhD candidate to reduce researcher-induced bias using Monte Carlo simulation pipeline particularly ensemble CV tuning indices through python scripts, achieving 90.8% accuracy.

Leadership and Extracurricular Activities

Undergraduate Economics Association, **Head of Research**, UC Berkeley Economics Department **Jan 2024 - Mar 2025**

- Directed biweekly research workshops to train new members in core econometric methods and statistical programming (R/Stata), enhancing analytical capacity across project teams.

Attendee, Econometrics Game, University of Chicago **March 30th, 2024 - April 1st, 2024**

- Delivered a high quality analysis report to the judges, including a Nobel prize winner in economics with a team of 4 (two London School of Economics and one UC Berkeley student).