Daniel Christian Posmik

 He, Him, His (Pronouns) | posmikdc@uchicago.edu | +1 (224) 507-4045

 posmikdc.github.io | www.linkedin.com/in/posmikdc | @posmikdc | Google Scholar

EDUCATION

University of Chicago, The Graham School — Chicago, IL, USA
Graduate Student at Large (Advanced Coursework in Statistics and Mathematics) — GPA: IP — Exp. May 2024

University of Cincinnati, Lindner College & Blue Ash College — Cincinnati, OH, USA
Economics (BBA), Business Analytics (BSc), Mathematics (Minor) — GPA: 3.96/4.0 — May 2022
Business Administration (Associate of Arts) — GPA: 3.8/4.0 — May 2020

Relevant Coursework

- Graduate-level: Multiple Testing, Modern Inference, and Replicability [†] · Statistical Theory and Methods I (accelerated) [†] · Statistics and Machine Learning
- Core: Analysis in R^n I [†] · Calculus I, II, III · Linear Algebra · Statistics and Probability I · Mathematical Modeling · Dynamical Systems · Econometrics · Decision Models · Forecasting · Data Mining

[†] Autumn '23 Coursework at the University of Chicago (Syllabus linked for Graduate Coursework)

PEER-REVIEWED PUBLICATIONS

[1] **Posmik, Daniel C.** "Predicting International Student Enrollment by Institutional Aid: A Random and Fixed Effects Approach". In: *Journal of Student Financial Aid* 51.3 (2022).

AWARDS

- McCall MacBain Scholarship ('23): Finalist, 85 out of 1,000+ applicants advance to final round.
- Presidential Leadership Medal of Excellence ('22): Highest university-wide leadership award, 4 yearly recipients.
- Non-Traditional Student of the Year ('22): Collegiate honors, 1 yearly award to a first-generation student.
- Schwarzman Scholarship ('21): Finalist, 400 out of 3,000+ applicants advance to the final round.
- Annie Fitzgerald Award ('21): Highest university-wide community service award, 2 yearly recipients.
- Heart of William Keating Leadership Award ('21): City-wide leadership award in Cincinnati, 1 yearly recipient.

RESEARCH EXPERIENCE

University of Chicago – Becker Friedman Institute for Economic Research — Chicago, IL, USA
Project Associate · Energy & Environment Lab (Prof. Michael Greenstone) — Jan. 2023 - Aug. 2023

- Coordinated a randomized control trial on the effect of agricultural machinery on illegal burning of crop residue in Pakistan
- Applied dimensionality reduction (principal component analysis) to large amounts of high-dimensional remote sensing data of farm land to construct a burn index for treatment effect regressions
- Analyzed network confounding across farmers, testing a spatial first differences approach (presented work at BFI Journal Club)
- Developed a random forest algorithm to predict environmental violations and tested its performance against regulators in the field
- Developed and maintained an R Package for internal lab use (contained various useful causal data analysis functions)
- Conducted literature review on machine learning performance metrics for ranked data, contributing to a methodological paper
- Automated data pipelines to download, clean, and merge large environmental datasets for the lab's machine learning portfolio
- Supported fundraising, reporting, and grant-writing efforts, specifically for NSF, J-PAL, and EPA grants

The Brattle Group — Boston, MA, USA
Research Analyst · Electricity Practice Group — July 2022 - Dec. 2022

- Analyzed energy congestion patterns on space- and time-indexed price data to inform a utility's $10m transmission investment
- Developed a cost-benefit model for the electrification of school bus fleets in light of grants from the Inflation Reduction Act

Kautz-Uible Economics Institute — Cincinnati, OH, USA
Capstone Research · Advised by Prof. Michael Jones — Jan. 2021 - Dec. 2021

- Studied causal identification under treatment effect heterogeneity, analyzing the effect of aid on international student enrollment
- Applied longitudinal data analysis techniques, e.g., fixed and random effects, to measure associations in the data
- Evaluated difference-in-difference designs for continuous, staggered, and time-varying treatment (i.e. Callaway & Sant'Anna, '21)
- Found that financial aid is especially powerful at rural, private, low research activity institutions
- Presented peer-reviewed publication at the Cleveland Federal Reserve and at the university-wide capstone competition

Novomer, Inc. — Rochester, NY, USA
Project Lead · Reported to Jeff Uhrig, CEO — May 2020 - Aug. 2020

- Led a research effort to assess the end-of-life efficiency of Novomer's biodegradable P(3HP) polymer
- Authored a qualitative white paper–published by *Waste360*–summarizing life cycle analysis and global waste impact

COMMUNITY SERVICE

University of Chicago Data Science Institute   Chicago, IL, USA
Community Data Fellow · Community-Centered Data Science Initiative   Sep. 2023 - Present

- Creating an interactive data dashboard for the Illinois Commission on Equity & Inclusion's *Business Enterprise Program* (BEP)
- Visualizing spatial impact data in a user-friendly dashboard and communicating insights to various stakeholders

Neo Initiative   Cincinnati, OH, USA
Founder and President · Faculty Advisor Dr. Prince Ellis   June 2020 - Jan. 2022

- Created the first student-led pro-bono data analytics accelerator for minority-owned small businesses in the U.S.
- Coordinated a team of 6 executive officers, 5 project leads, 5 mentors, and 30 analysts on up to five semesterly projects
- Served a total of 15 black-owned small businesses, developing three practice areas (business intelligence, business analytics, systems implementation) while overseeing 2,480 community service hours each academic year
- Hosted and created a virtual state-sponsored data literacy series, reaching 300+ minority-identifying small businesses
- Created a digital and data systems academy in partnership with MORTAR Cincinnati (featured in *WCPO Channel 9* interview)
- Fostered partnerships with local data science companies, starting a mentorship program (featured in *The Business Journals*)
- Built partnership with the Ohio Department of Development, tapping funding ($7,500) through Ohio Third Frontier grant

UC Blue Ash Sustainability   Blue Ash, OH, USA
Co-Founder and Co-President · Faculty Advisor Dr. Mike Roman   Aug. 2019 - July 2020

- Lobbied for the *Energy Innovation and Carbon Dividend Act* (H.R. 763) during the CCL International Climate Conference
- Pitched the economic benefits of H.R. 763 to congresswoman Joyce Beatty (D-OH) who cosponsored the bill in 2020
- Hosted the UC Blue Ash Sustainability Summit which was attended by city of Cincinnati's director of sustainability

PRESENTATIONS & TALKS

Scholarly Presentations

- Becker Friedman Institute for Economic Research, University of Chicago (Journal Club)   Chicago, IL, USA
  <u>Title:</u> *Spatial First Differences: Accounting for Unobserved Heterogeneity in Cross Section*   2023
- Federal Reserve Bank, Economic Scholars Conference   Cleveland, OH, USA
  <u>Title:</u> *Predicting Enrollment with Aid: A Fixed and Random Effects Approach*   2022
- University of Cincinnati Undergraduate Scholarly Showcase (Capstone Competition)   Cincinnati, OH, USA
  <u>Title:</u> *Predicting Enrollment with Aid: A Fixed and Random Effects Approach*   2021

Talks

- TEDx Speaker, *TEDx UCincinnati* ("Telling Stories with Data")   2021
- Convocation Speaker, *University of Cincinnati*   2020

PROFESSIONAL SERVICE & VOLUNTEERING

Professional Service

- Referee, *Journal of Student Financial Aid*   2022
- Referee, *Economic Scholars Conference Cleveland Federal Reserve*   2022

Volunteering

- Service Dog Trainer, *4Paws for Ability*   2022
- Volunteering Secretary, *University of Cincinnati Mountaineering Club*   2021
- German Teacher, *Tri-State German American School*   2019

SKILLS & INTERESTS

- **Programming**: R · Python · SQL · QGIS · Git · Linux
- **Languages**: English (Fluent) · German (Native) · French (Advanced) · Latin (Intermediate) · Spanish (Basic)
- **Interests**: Backpacking · Rock/Ice Climbing · Kayaking · Long-distance Cycling · Vipassana Meditation

Statement of Purpose

Daniel Posmik

By obtaining a Ph.D. in Biostatistics at Brown University, I want to become a leader in the development and application of causal inference methodology. **Currently, I am most interested in studying assumption-lean causal identification in high-dimensional dependent data**. In particular, I am excited to explore non-parametric approaches to counterfactual prediction, replicable and principled inference, and identification under network confounding. As an aspiring Biostatistician, I am motivated by policy-relevant questions in public health and epidemiology. My research vision is to help policymakers unveil causal links between environmental risks and public health crises.

To prepare for the rigor of a Biostatistics Ph.D., **I am currently enrolled as a graduate student at the University of Chicago**. I have derived great fulfillment from understanding statistical concepts at a fundamental level by taking proof-based coursework in mathematics and statistics. My strong desire to continue my learning in this non-degree seeking program has validated my goal of pursuing a Ph.D. in Biostatistics. My graduate coursework complements my undergraduate studies at the University of Cincinnati where I completed degrees in Economics, Business Analytics, and a minor in Mathematics. Thanks to my degree combination, I have obtained a strong foundation in statistical modeling, econometrics, applied mathematics, and machine learning.

I first began considering graduate studies in Statistics as I worked on my undergraduate thesis. My goal was to analyze the causal effect of financial aid on international student enrollment. Teaching myself graduate-level material in longitudinal data analysis, I employed fixed and random effects models. Since financial aid awards are of time-varying and continuous nature, causal identification with canonical methods failed. Therefore, I tested a novel difference-in-differences estimator—proposed by Callaway and Sant'Anna (2021)—that is robust in continuous and time-varying treatment scenarios.

Throughout this process, I realized that important assumptions, such as the absence of a heterogeneous treatment response, were often unrealistic and untestable. Even minimal adjustments to identifying assumptions resulted in fundamentally different conclusions. This insight motivated me to develop causal inference methods that are more principled and assumption-lean. As it relates to my paper, I concluded that causal identification was impossible, focusing on strong associations I found after adjusting for confounders. As a researcher, **this experience taught me to balance determination with a keen skepticism towards assumptions**. In September 2022, my paper appeared for publication in the *Journal of Student Financial Aid*, making me the first undergraduate student in my department to publish peer-reviewed work as a sole author.

Subsequently, I joined the University of Chicago's *Energy & Environment Lab* to study causal questions at the intersection of environment and public health. **I managed a randomized control trial in Pakistan's Punjab region, evaluating the effect of agricultural machinery on the illegal burning of crop residue**. The project resonated with me because crop burning causes dangerous levels of air pollution, putting the health of many at risk. To obtain a reliable measure of crop burning, I applied principal component analysis to large remote sensing data, creating a one-dimensional burn index. Subsequently, I used this burn index to analyze treatment effects. What stood out to me is how difficult causal identification is under network confounding. That is why I hope to study identification challenges in dependent and high-dimensional data at Brown University. I believe this goal ties neatly into my interest in principled and replicable inference.

Brown is uniquely fit for me because of its exceptional faculty in the field of causal inference. While I am open to explore various topics in the Biostatistics field, I currently find the research of Drs. Youjin Lee, Jon Steingrimsson, Joseph Hogan, Roee Gutman, Tao Liu, and Arman Oganisian especially appealing. Across their expertise, I can identify my precise interest in assumption-lean and principled causal inference for dependent and high-dimensional data. Eventually, I believe that these individuals' mentorship combined with my work ethic will enable me to excel in Brown University's Biostatistics department. As an open-minded and curious individual, I am ready to scale my theoretical understanding of the statistics field with my research interests.

Ultimately, a Ph.D. in Biostatistics from Brown University will train me to impact public health policy as a researcher and educator. Brown's affiliate institutes and research centers—specifically the work undertaken by the *Center For AIDS Research*'s Biostatistics core—constitute a perfect launch pad to learn how biostatistical and epidemiological research is leveraged meaningfully. By obtaining a Ph.D. at Brown University, I also hope to refine my ability to communicate statistical ideas and make the statistics field more accessible. **As a first-generation college student, I am especially motivated to foster an inclusive learning environment as an educator, creating a welcoming and positive learning space for non-traditional identities in the classroom**. From a personal standpoint, studying at Brown would allow me to pursue my love for water sports, such as kayaking, and hiking due to Providence's proximity to outdoor recreation. If not admitted to the Ph.D. program, I am interested in being considered for the Sc.M. program in Biostatistics.

Personal Statement

Daniel Posmik

My experiences as a first-generation international student have profoundly shaped my motivation for pursuing a Ph.D. in Biostatistics. I began my studies in the U.S. struggling with financial insecurity. Despite enrolling at a community college, I worked multiple jobs to make ends meet. Soon, I bonded with classmates who—like myself—hailed from non-traditional backgrounds. As we shared our experiences, I recognized that systemic barriers prevent promising but underserved individuals from succeeding. While my journey is not necessarily comparable to that of my peers, I have developed a strong commitment to uplift and empower the voices of marginalized identities.

My work at the community level has been guided by this commitment. In the summer of 2020, I founded the Neo Initiative to provide pro-bono data science consulting services to minority-owned small businesses in the aftermath of the pandemic. Leading Neo over two years, I worked with 15 black-owned small businesses, assisting with topics like predictive analytics and database management. Together with the state of Ohio's Minority Business Assistance Center, I hosted a data literacy initiative that reached over 300 small business owners. Currently, I am providing data science assistance to the Illinois Committee on Equity and Inclusion through my role as a Community Data Fellow with the University of Chicago's Data Science Institute. I have learned that data can be a powerful catalyst to systemic change in the hands of an advocate.

As I embark on my journey as a Biostatistician, I am eager to bring my experiences and perspective into academic spaces. On one hand, obtaining a Ph.D. in Biostatistics will enable me to to advocate for marginalized communities by developing more accurate statistical methods to combat systemic bias. This is especially relevant at the intersection of climate change and public health since underprivileged communities face disproportionate harm. On the other hand, I am poised to become an educator who creates welcoming and uplifting spaces for the next generation of Biostatisticians. The thought of being a mentor and teacher is—on grounds of my own lived experiences—a key driver in my motivation of completing a Ph.D. At Brown, I am ready to grow into a holistic leader, contributing to innovative solutions for policy-relevant research questions while making the Biostatistics field more accessible.