

# Douglas Williams

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## EDUCATION

### The University of Chicago

*Bachelor of Sciences in Data Science with Honors & Bachelor of Arts in Public Policy with Honors*  
GPA: 3.84/4.00

Chicago, IL  
June 2024

## PUBLICATIONS

### Asylum Seekers and the Rise in Homelessness

August 2025

- Expanded on senior thesis to estimate effect of recent migration on unprecedented 2022-2024 rise in sheltered homelessness
- Conditional acceptance to the Journal of Public Economics, NBER working paper: 10.3386/w33655

## AWARDS & HONORS

- Stone Center Undergraduate Thesis Award (2024), for thesis estimating effect of migration on 2022-2023 homeless counts
- Data Science Clinic Project of the Year (2024), for particle collision simulation models built with Fermi National Labs
- Excellence in Academic & Research Support Award (2024), new award for helping design and teach new UChicago course
- Dean's List (2024)
- Harper Award for Exceptional Academic Performance (2023), for Policy Implementation course performance and paper
- Policy Simulation Grand Prize Winner (2022), for proposed supply chain optimization to reduce surging US lumber prices
- Public Policy Leaders Program (2021-2024), selective professional development program run by UChicago
- The Gate Editor's Pick (2021), for article on MA police reform published in UChicago policy and politics magazine

## PROFESSIONAL & RESEARCH EXPERIENCE

### Comprehensive Income Dataset Project

Chicago, IL

*Pre-Doctoral Fellow* – Full-time

August 2024 – Present

- Clean, analyze, and summarize linked restricted federal administrative microdata using Stata to investigate US homelessness with professors Bruce Meyer (UChicago) and Angela Wyse (Dartmouth)
- Current projects involve (1) linking individuals across Census enumerations to compute transition probabilities between housing / institutional statuses over time and (2) comparing the count and coverage of people experiencing homelessness in 2020 across the decennial census and HUD point-in-time enumerations

### University of Chicago

Chicago, IL

*Guest Lecturer*

April 2025

- Gave two paid lectures for UChicago undergraduate course Sense & Sensibility & Science, a course on distilling best practices for policy and organizational decision-making from scientific disciplines (primarily data and behavioral sciences)
- My first lecture was on scientific modeling: its relationship with theory and hypothesis testing, how it can be used to structure analysis, and how assumptions that guide inquiry are derived from such models
- My second lecture was on causality: what it is, how do we study it, when it is and isn't used, how it fits in the practice of modeling, and the additional considerations it creates for evaluating and investigating policy options

### Cook County Assessor's Office (CCAO)

Chicago, IL

*Volunteer / Consultant*

December 2024 – February 2025

- Presented to CCAO data science team on methods to evaluate and improve property sales value predictions that are the basis for ~\$18 billion of annual Cook County property tax revenue
- CCAO adopted my proposal to include a running average (weighted by recency) of building sales prices for condominiums to overcome lack of unit-level data. This new model is used to assign Cook County condominium property taxes starting in 2025.
- Found residential model is less accurate for post-COVID sales and proposed new visualizations and tests to evaluate models. Met with team to evaluate test results and discovered data limitations when modeling variance of post-COVID sales.

### Center for Spatial Data Science

Chicago, IL

*Research / Teaching Assistant* – Part time

September 2023 – June 2024

- Worked with UChicago teaching staff to adapt Berkeley course Sense & Sensibility & Science for UChicago. Course offered for first time spring quarter 2024 (March – June), covering topics in scientific reasoning and their application to policy decisions
- Prepared course materials, gave feedback on early versions of professors' lectures, designed in-class activities
- Teaching assistant when course first offered, graded student work, held office hours, and ran in-class activities

### Fermi National Accelerator Laboratories

Chicago, IL

*Data Scientist*

September 2023 – March 2024

- Worked with physicists at Fermi Labs developing generative AI models to simulate high-energy particle collision experiments

- Designed and implemented latent diffusion and consistency models in Python (PyTorch)
- Evaluated model accuracy using visualizations comparing simulated and target particle energy distributions

### **AI-Driven Manipulation of 3D Geometry**

Chicago, IL

*Computer Graphics & AI Research with 3DL Geometric Deep Learning*

September 2022 – January 2024

- Led project to create algorithms which optimize color, shape, and parameterization of 3D polygonal meshes (digitally represented 3D objects) to match guidance from semantic prompts (text and/or images)
- Designed and tested novel deep learning and geometry update algorithms in Python
- Led weekly lab updates presenting performance evaluations, discussing next steps, and delegating work items

### **Boston Consulting Group X**

Chicago, IL

*Summer Associate / Data Scientist – Full-time*

June 2023 – August 2023

- Analyzed market reports and proprietary sales data to explain market and consumer behavior shifts for fortune 500 retailer
- Developed automated pipeline (in Python) that checked sales data and outputs of 200+ forecasting models, flagged concerning estimate changes, and generated presentation-ready visualizations summarizing shifts after every software patch or data update
- Pipeline is still used to validate patches and trigger internal investigations of unexplained output shifts

### **University of Chicago Data Science Institute**

Chicago, IL

*Teaching Assistant – Part time*

January 2023 – March 2023

- Teaching assistant for UChicago course (Math Methods for Data Science I), covering probability and multivariate calculus
- Topics included random variables, probability distributions, conditional probability, expected values, central limit theorem, integration of functions of several variables, sums and transformations of random variables, partial derivatives, gradients, and gradient descent

### **UChicago Data Science Institute**

Chicago, IL

*Data4All Mentor – Part-time*

October 2022 – May 2023

- Taught data science to Chicago public high schoolers from groups underrepresented in STEM
- Guided class through weekly project-based curriculum that I adjusted to meet interests and needs of students
- Taught students Python, data wrangling, visualization, hypothesis testing, and presentation skills

### **Boston Consulting Group**

Chicago, IL

*Summer Associate – Full-time*

June 2022 – August 2022

- Worked with Chicago Civic Committee to get minority-owned suppliers in Chicago contracts with top financial institutions (e.g. Bank of America, Northern Trust, etc.) to reduce racially disparate impacts of COVID on small businesses
- Was placed in charge of independently identifying, contacting, developing materials for, and preparing the staff of 27 marketing and IT firms to pitch to financial institutions
- Developed Excel workflows and presentation materials for executive leadership teams of minority-owned suppliers and presented project goal updates to Chicago Civic Committee and BCG senior leadership

### **270 Strategies**

Chicago, IL

*Seasonal Associate – Full-time (June – Aug.), Part-time (Sept. – Dec.)*

June 2021 – December 2021

- Cleaned and visualized FEC election contribution data for 12 states to identify shifts in Republican election fund allocation
- Scraped millions of social media posts, blogs, forum comments, and news stories and applied natural language processing sentiment analysis techniques on collected data to gauge public response to Invenergy green energy developments and outreach
- Visualized analysis in weekly reported dashboard, identified trust-building success of organizing local green energy science fairs

### **Blackroots Alliance**

Chicago, IL

*Policy Intern – Part-time*

November 2020 – July 2021

- Analyzed 2021 Chicago city budget proposal to identify new priorities and funding opportunities for new pilot programs
- Wrote policy briefs of bail reform amendments to support grassroots organizers in adjusting goals and messages
- Created, produced, hosted, and edited interviews with 9 Chicago activists for three episodes of The Grove Podcast
- Created promotional graphics, podcast logos, and marketing plan for The Grove Podcast

### **Newton Budget Reform Organization**

Chicago, IL (Remote)

*Government Relations Lead – Part-time*

September 2020 – September 2021

- Trained 24 members on public speaking, advocacy, writing, new internal processes, and marketing skills to raise awareness of housing and criminal justice inequities in the Greater Boston Area
- Designed community outreach programming, led goal-setting workshops, managed relationships with city council candidates
- Was consulted by Ranalli for City Council campaign on housing and equity policy agenda before their public campaign launch

## **VOLUNTEERING**

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### **Neighbors United for Mutual Support**

Chicago, IL

#### *IT Support*

May 2025 – Present

- Organization provides legal and financial aid to recent Latin American migrants in Chicago as they get established and navigate the immigration process
- Provide IT support including computer setup, software management, digital file management, and website feature requests

## **SKILLS & PROFICIENCIES**

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- **Security Clearances:** [Special Sworn Status](#) (for access to restricted federal microdata)
- **Coding Tools:** Python (Advanced), Stata (Advanced), Git (Intermediate), R (Beginner), SQL (Beginner)
- **Office Tools:** Proficient with Microsoft and Google office suites (Excel, PowerPoint, etc.)
- **Skills:** data science (wrangling, engineering, visualization, analysis), hypothesis testing, statistical modeling, machine learning, deep learning, computer vision, geometry processing, public speaking, persuasive writing