

# Cory McCartan

## Curriculum Vitae

September 2025

CONTACT INFORMATION	Department of Statistics, Penn State University 325 Thomas Building, 461 Pollock Road University Park, PA 16802	(425) 770-9244 mccartan@psu.edu
------------------------	---	------------------------------------

ACADEMIC EMPLOYMENT	<b>Pennsylvania State University</b> Hoben and Patricia Thomas and Thomas and Ann Hettmansperger Early Career Professor of Statistics Assistant Professor of Statistics Affiliate Faculty in Political Science  <b>New York University</b> Center for Data Science Data Science Assistant Professor / Faculty Fellow	2024 –  2024 – 2027 2024 –  2023 – 2024
------------------------	--	--

EDUCATION	<b>Harvard University</b> Ph.D., Statistics, 2023. Committee: Kosuke Imai (chair), Xiao-Li Meng, Gary King. Dissertation: <i>Computational and Bayesian Methods for Geographic Data in the Social Sciences</i> . A.M., Statistics, 2021.  <b>Grinnell College</b> B.A., Mathematics, with honors, 2019.	2019 – 2023      2015 – 2019
-----------	--	--

PEER-REVIEWED PUBLICATIONS	“Estimating Racial Disparities When Race is Not Observed,” with Robin Fisher, Jacob Goldin, Daniel E. Ho, and Kosuke Imai (2025). <i>Journal of the American Statistical Association</i> , Forthcoming.  “Evaluating Bias and Noise Induced by the U.S. Census Bureau’s Privacy Protection Methods,” with Christopher T. Kenny, Tyler Simko, Shiro Kuriwaki, and Kosuke Imai (2024). <i>Science Advances</i> 10:18, eadl2524.  “Measuring and Modeling Neighborhoods,” with Jacob R. Brown and Kosuke Imai (2024). <i>American Political Science Review</i> 118:4, 1966-1985.  “Census Officials Must Constructively Engage with Independent Evaluations,” with Christopher T. Kenny, Tyler Simko, and Kosuke Imai (2024). <i>Proceedings of the National Academy of Sciences</i> 121:11, e2321196121.  Letter to the editor re: Jarmin et al. (2023).  “Making Differential Privacy Work for Census Data Users,” with Tyler Simko and Kosuke Imai (2023). <i>Harvard Data Science Review</i> 5:4.
-------------------------------	--

With response and rejoinder.

“Sequential Monte Carlo for Sampling Balanced and Compact Redistricting Plans,” with Kosuke Imai (2023). *Annals of Applied Statistics* 17:4, 3300-3323.

Covered by *The Washington Post*, *Quanta* magazine.

“Widespread Partisan Gerrymandering Mostly Cancels Nationally, but Reduces Electoral Competition,” with Christopher T. Kenny, Tyler Simko, Shiro Kuriwaki, and Kosuke Imai (2023). *Proceedings of the National Academy of Sciences* 120:25, e2217322120.

“Researchers Need Better Access to U.S. Census Data,” with Tyler Simko and Kosuke Imai (2023). *Science* 380:6648, 902-903.

“Recalibration of Predicted Probabilities Using the “Logit Shift”: Why Does it Work, and When Can it be Expected to Work Well?” with Evan T.R. Rosenman and Santiago Olivella (2023). *Political Analysis* 31:4, 651-661.

“Comment: the Essential Role of Policy Evaluation for the 2020 Census Disclosure Avoidance System,” with Christopher T. Kenny, Shiro Kuriwaki, Evan T.R. Rosenman, Tyler Simko, and Kosuke Imai (2023). *Harvard Data Science Review*, Special Issue 2.

Response to boyd and Sarathy (2022).

“Simulated Redistricting Plans for the Analysis and Evaluation of Redistricting in the United States,” with Christopher T. Kenny, Tyler Simko, George Garcia III, Kevin Wang, Melissa Wu, Shiro Kuriwaki, and Kosuke Imai (2022). *Nature: Scientific Data* 9:1, 689.

Covered by *The New York Times*.

“The Use of Differential Privacy for Census Data and Its Impact on Redistricting: the Case of the 2020 U.S. Census,” with Christopher T. Kenny, Shiro Kuriwaki, Evan T.R. Rosenman, Tyler Simko, and Kosuke Imai (2021). *Science Advances* 7:41, eabk3283.

Originally a Public Comment to the Census Bureau (May 28, 2021).

Covered by *The Washington Post*, the *Associated Press*, the *San Francisco Chronicle*, *NC Policy Watch*, and others.

“Geodesic Interpolation on Sierpinski Gaskets,” with Caitlin Davis, Laura LeGare, and Luke Rogers (2021). *Journal of Fractal Geometry* 8:2, 117-152.

#### WORKING PAPERS

“Identification and Semiparametric Estimation of Conditional Means From Aggregate Data,” with Shiro Kuriwaki (2025).

“Relative Bias Under Imperfect Identification in Observational Causal Inference,” with Melody Huang (2025). Under Review.

“The Role of Confounders and Linearity in Ecological Inference: A Reassessment,” with Shiro Kuriwaki (2025).

“Gerrymandering and Geographic Polarization Have Reduced Electoral Competition,” with Ethan Jasny, Christopher T. Kenny, Tyler Simko, Melissa Wu, Michael Y. Zhao, Aneetej Arora, Emma Ebowe, Philip O’Sullivan, Taran Samarth, and Kosuke Imai (2025). Under Review.

“Redistricting Reforms Reduce Gerrymandering by Constraining Partisan Actors,” with Christopher T. Kenny, Tyler Simko, Emma Ebowe, Michael Y. Zhao, and Kosuke Imai (2024). Under Review.

“Individual and Differential Harm in Redistricting,” with Christopher T. Kenny (2022). Under Review.

“Projective Averages for Summarizing Redistricting Ensembles” (2024).

“Finding Pareto Efficient Redistricting Plans with Short Bursts” (2024).

#### OTHER WRITING

“Candy Cane Shortages and the Importance of Variation.” International Statistical Institute: *Statisticians React to the News* (December 21, 2021).

“Where Will the Rocket Land?” International Statistical Institute: *Statisticians React to the News* (May 12, 2021).

“Who’s the Most Electable Democrat? It Might be Warren or Buttigieg, Not Biden.” *The Washington Post* (October 23, 2019).

“I-405 Express Toll Lanes: Usage, Benefits, and Equity,” with Shirley Leung, C.J. Robinson, Kiana Roshan Zamir, Vaughn Iverson, and Mark Hallenbeck. Technical report for the Washington State Department of Transportation (2019).

#### SOFTWARE

**redist**: Simulation Methods for Legislative Redistricting

**seine**: Semiparametric Ecological Inference

**birdie**: Bayesian Instrumental Regression for Disparity Estimation

**bases**: Basis Expansions for Regression Modeling

**easycensus**: Quickly Find, Extract, and Marginalize U.S. Census Tables

**redistmetrics**: Redistricting Metrics

**adjustr**: Stan Model Adjustments and Sensitivity Analyses using Importance Sampling

**PL94171**: Tabulate P.L. 94-171 Redistricting Data Summary Files

**conformalbayes**: Jackknife(+) Predictive Intervals for Bayesian Models

**alarmdata**: Download, Merge, and Process Redistricting Data

**blockpop**: Estimate Census Block Populations for 2020

**ggredist**: Scales, Geometries, and Extensions of ggplot2 for Election Mapping

**tinytiger**: Lightweight Interface to TIGER/Line Shapefiles

**causaltbl**: Tidy Causal Data Frames and Tools

**wacolors**: Colorblind-Friendly Palettes from Washington State

**nbhdmodel**: Neighborhood Modeling and Analysis

## PRESENTATIONS

**Invited**

Oxford University, Dept. of Statistics. <i>Causal Inference Reading Group</i> .	May 2025
McMaster University, Faculty of Social Science. <i>Spark Talk Speaker Series</i> .	February 2025
University of North Carolina at Chapel Hill, Dept. of Political Science. <i>Methods and Design Workshop</i> .	February 2025
University of Wisconsin – Madison, Depts. of Political Science and Statistics. <i>Methods, Experiments, and Design Workshop</i> .	January 2025
Harvard Law School, Charles Hamilton Houston Institute for Race and Justice. <i>Guinier Project Research Roundtable</i> .	January 2025
Princeton University. <i>Frontiers in Data Science Symposium: Advances in Record Linkage</i> .	October 2024
Penn State University, Dept. of Political Science. <i>Colloquium Series</i> .	September 2024
New York University. <i>Math and Democracy Seminar</i> .	May 2024
Massachusetts Institute of Technology, Dept. of Political Science. <i>Political Methodology Speaker Series</i> .	September 2023
Harvard University, IQSS. <i>Applied Statistics Workshop</i> .	April 2023
Harvard University, IQSS. <i>Applied Statistics Workshop</i> .	October 2022
Harvard University, IQSS. <i>Applied Statistics Workshop</i> .	September 2021
Harvard University, IQSS. <i>Applied Statistics Workshop</i> .	September 2020

**Conferences**

Society for Political Methodology: 2025, 2024, 2023, 2022, 2022 (Poster), 2021 (Poster)
Small Area Estimation Conference: 2025 (Invited panel)
American Causal Inference Conference: 2025, 2024 (Poster)
Southern Political Science Association: 2025
Keystone State Statistics Symposium: 2024
Joint Statistical Meetings: 2024 (Invited paper panel), 2022 (Invited paper panel), 2021 (Invited paper panel)
ACM Conference in Equity and Access in Algorithms, Mechanisms, and Optimization: 2023
American Association for Public Opinion Research: 2022 (Poster)

## TEACHING

**Penn State University**

STAT 440: Computational Statistics	Fall 2024, Fall 2025
STAT 597: Visualization and Communication in Statistics (special topic short course)	Fall 2025
STAT 597: Missing Data (special topic short course)	Fall 2024

**New York University**

DS-UA 111: Data Science for Everyone	Spring 2024
--------------------------------------	-------------

**Harvard University**

STAT 117: Introduction to Biostatistics (Teaching Fellow)	Spring 2021
STAT 221: Monte Carlo Methods & Other Computational Tools for Statistical Learning (Teaching Fellow)	Fall 2020

	<b>Grinnell College</b>	
	MAT 215: Linear Algebra (Peer Mentor)	Fall 2017, Spring 2019
	MAT 310: Statistical Modeling (Peer Mentor)	Fall 2018
	Grinnell College Math Lab	2018 – 2019
ADVISING	<b>Ph.D. Committees</b>	
	Ross Cohen-Kristiansen ( <i>co-chair</i> , Statistics, Penn State University)	2025 –
	Tinghua Chen (Informatics, Penn State University)	2025 –
	Kihyun Han (Statistics, Penn State University)	2025 –
	Yang Yang (Political Science, Penn State University)	2025 –
	Kyle McGovern (Bioinformatics and Genomics, Penn State University)	2025
	<b>M.S. Theses</b>	
	Giovanni Stivella (Economics, University of Pisa and the Scuola Sant’Anna, Italy)	2025
HONORS AND AWARDS	<i>Hoben and Patricia Thomas and Thomas and Ann Hettmansperger Early Career Professorship in Statistics</i> , 2024 (total award: \$75,000).	
	<i>Best Statistical Software Award</i> , for developing statistical software that makes a significant research contribution; awarded to the redist software package by the Society for Political Methodology, 2022.	
	<i>Certificate of Distinction in Teaching</i> , awarded on the basis of student feedback by the Derek Bok Center for Teaching and Learning, 2021.	
	<i>Pamela Ferguson Endowed Prize</i> , awarded to up to two senior students by the Grinnell College Department of Mathematics, 2018.	
SERVICE	Reviewer: <i>Proceedings of the National Academy of Sciences</i> , <i>Journal of the American Statistical Association</i> , <i>Annals of Applied Statistics</i> , <i>American Journal of Political Science</i> , <i>Quarterly Journal of Political Science</i> , <i>Harvard Data Science Review</i> , <i>Public Choice</i> , <i>Multiscale Modeling and Simulation</i> , <i>Discrete Applied Mathematics</i> , <i>Election Law Journal</i> , <i>Proceedings of the IASSL Triennial International Statistics Conference</i> , <i>Sloan Foundation</i> .	
	Discussant: 2024 PolMeth Conference, 2024 Midwest Political Science Association Annual Conference	
	<b>Penn State University</b>	
	Ph.D. admissions committee	2025 – 2026
	Colloquium and SMAC Talk committee	2025 – 2026
	Colloquium chair	2024 – 2025
	<b>New York University</b>	
	Faculty fellow hiring review	2023 – 2024
	MA admissions committee	2023 – 2024
	<b>Harvard University</b>	
	Harvard Statistics Graduate Council	2020 – 2023

Organized Ph.D. student retreat and research “lightning talks,” 2020 and 2021.  
 First-year Ph.D. Student Mentor 2020 – 2023  
 Harvard Graduate Students Union – UAW Local 5118 2019 – 2021  
 Elected member, Bargaining Committee, 2020–2021 and 2021–2024 contracts.  
 Interim chair, Finance and Benefits Committee, 2020.

OTHER EXPERIENCE	<p><b>CBS News</b> 2024 –          Election consulting and election night Data Desk</p> <p><b>Protect Democracy</b> 2024          Consultant, electoral reform modeling</p> <p><b>Data for Progress</b> 2022          Consultant, midterm election modeling</p> <p><b>University of Washington eScience Institute</b> Summer 2019          Data Science for Social Good Fellow</p> <p><b>Union of Grinnell Student Dining Workers</b> 2016 – 2019          Founder, President (2016–17), and Advisor to the Executive Board (2018–19)</p> <p><b>University of Connecticut</b> Summer 2018          REU Participant, Department of Mathematics</p> <p><b>Fred Hutchinson Cancer Research Center</b> Summer 2017          Lead Intern, Department of Biostatistics</p> <p><b>Cray, Inc. (now HPE)</b> Summer 2015          Intern, Chapel language testing</p>
------------------	--

EXPERT REPORTS	<p><i>Cubanos Pa'lante v. Florida House of Representatives</i> (U.S. District Court for the Southern District of Florida, Case No. 1:24-cv-21983). Testified by deposition.</p> <p><i>Hodges v. Albritton</i> (U.S. District Court for the Middle District of Florida, Case No. 8:24-cv-879). Testified by deposition and at trial.</p> <p><i>McClure et al. v. Jefferson County Commission</i> (U.S. District Court for the Northern District of Alabama, Case No. 2:23-cv-00443). Testified by deposition and at trial.</p> <p><i>Callais et al. v. Landry</i> (U.S. District Court for the Western District of Louisiana, Case No. 3:24-cv-00122). Testified by deposition and at trial.</p> <p><i>GRACE, Inc. et al. v. City of Miami</i> (U.S. District Court for the Southern District of Florida, Case No. 1:22-cv-24066). Testified by deposition and at trial.</p> <p><i>Nairne et al. v. Ardoin</i> (U.S. District Court for the Middle District of Louisiana, Case No. 3:22-cv-0017). Testified by deposition and at trial.</p> <p><i>League of Women Voters v. Ohio Redistricting Commission</i> (Ohio Supreme Court, Case Nos. 2021–1193 and 2021–1449). Consultant (with Prof. Kosuke Imai).</p>
----------------	--