Cory McCartan

Curriculum Vitae

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Contact Information

Center for Data Science, New York University
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Academic Employment

The Pennsylvania State University — Expected 2024
Assistant Professor of Statistics

New York University — 2023 – 2024
Center for Data Science
Data Science Assistant Professor / Faculty Fellow

Education

Harvard University — 2019 – 2023
Ph.D., Statistics, 2023.
Advisor: Kosuke Imai.
Dissertation: *Computational and Bayesian Methods for Geographic Data in the Social Sciences*.
A.M., Statistics, 2021.

Grinnell College — 2015 – 2019
B.A., Mathematics, with honors.

Peer-Reviewed Publications

"Measuring and Modeling Neighborhoods," with Jacob R. Brown and Kosuke Imai (2023). *American Political Science Review*, Forthcoming.

"Making Differential Privacy Work for Census Data Users," with Tyler Simko and Kosuke Imai (2023). *Harvard Data Science Review* 5:4.

"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.

"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

"Estimating Racial Disparities When Race is Not Observed," with Jacob Goldin, Daniel E. Ho, and Kosuke Imai (2023).

"Individual and Differential Harm in Redistricting," with Christopher T. Kenny (2022).

"Evaluating Bias and Noise Induced by the U.S. Census Bureau's Privacy Protection Methods," with Christopher T. Kenny, Shiro Kuriwaki, Tyler Simko, and Kosuke Imai (2023). Under Review.

"Projective Averages for Summarizing Redistricting Ensembles" (2024).

"Finding Pareto Efficient Redistricting Plans with Short Bursts" (2023).

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

redistmetrics: Redistricting Metrics

birdie: Bayesian Instrumental Regression for Disparity Estimation

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

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

adjustr: Stan Model Adjustments and Sensitivity Analyses using Importance Sampling

causaltbl: Tidy Causal Data Frames and Tools

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

wacolors: Colorblind-Friendly Palettes from Washington State

nbhdmodel: Neighborhood Modeling and Analysis

Presentations

ACM Conference in Equity and Access in Algorithms, Mechanisms, and Optimization, Annual Meeting, Paper: 2023.

Department of Political Science, MIT, Political Methodology Speaker Series, Invited Talk: 2023.

Society for Political Methodology, Annual Meeting, Paper: 2023, 2022; Poster: 2022, 2021.

Institute for Quantitative Social Science, Harvard University, Applied Statistics Workshop, Paper: 2023, 2022, 2021, 2020.

Joint Statistical Meetings, Invited Paper Panel: 2022, 2021.

American Association for Public Opinion Research, Annual Meeting, Poster: 2022.

Teaching

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

Grinnell College

MAT 215: Linear Algebra (Peer Mentor) — Fall 2017 and Spring 2019

MAT 310: Statistical Modeling (Peer Mentor) — Fall 2018

Grinnell College Math Lab — 2018 – 2019

Honors and Awards

Best Statistical Software Award, for developing statistical software that makes a significant research contribution; awarded to the `redist` software package by the Society for Political Methodology, 2022.

Certificate of Distinction in Teaching, awarded on the basis of student feedback by the Derek Bok Center for Teaching and Learning, 2021.

Service

Reviewer: *Proceedings of the National Academy of Sciences, Journal of the American Statistical Association, Annals of Applied Statistics, Quarterly Journal of Political Science, Harvard Data Science Review, Discrete Applied Mathematics, Election Law Journal, Sloan Foundation.*

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

American Civil Liberties Union 2021 – 2023

Expert Witness, *Nairne et al. v. Ardoin* (U.S. District Court for the Middle District of Louisiana, Case 3:22-cv-00178)

Expert Witness, *Grace, Inc. et al. v. City of Miami* (U.S. District Court for the Southern District of Florida, Case 1:22-cv-24066)

Consultant (with Prof. Kosuke Imai), *League of Women Voters of Ohio v. Ohio Redistricting Commission* (Ohio Supreme Court, Cases 2021–1193 and 2021–1449).

Data for Progress 2022
Consultant, Midterm election modeling

University of Washington eScience Institute Summer 2019
Data Science for Social Good Fellow

Union of Grinnell Student Dining Workers 2016 – 2019
Founder, President (2016–17), and Advisor to the Executive Board (2018–19)

University of Connecticut Summer 2018
REU Participant, Department of Mathematics

Fred Hutchinson Cancer Research Center Summer 2017
Lead Intern, Department of Biostatistics

Grinnell College Department of Mathematics 2017
Course Grader

Cray, Inc. (now HPE) Summer 2015
Intern, Chapel language testing