

Christian T. Covington

PhD Candidate in Biostatistics, Harvard T.H. Chan School of Public Health

✉ ccovington@g.harvard.edu  [ctcovington.github.io](https://github.com/ctcovington)  [Google Scholar](#)

Research Interests

Model misspecification, Model uncertainty, Bayesian statistics

Education

Harvard T.H. Chan School of Public Health <i>PhD in Biostatistics</i> Advisor: Jeffrey W. Miller Boston, MA	September 2022 – Present
University of Waterloo <i>MMath in Computer Science</i> Advisors: Xi He and Gautam Kamath Waterloo, ON, Canada	September 2020 – June 2022
Cornell University <i>BA in Statistical Science</i> Magna Cum Laude and Distinction in Statistical Science Ithaca, NY, USA	January 2014 – May 2016

Honors & Awards

Harvard University Distinction in Teaching	2023, 2024
University of Waterloo Graduate Excellence Award	2020 – 2022
David R. Cheriton Graduate Scholarship	2020 – 2022
Dr. Derick Wood Graduate Scholarship	2020 – 2021
Hunter R. Rawlings III Cornell Presidential Research Scholar	2014 – 2016

Publications

Papers in Submission

Bayesian model criticism using uniform parameterization checks

Christian T. Covington, Jeffrey W. Miller

- Reading group presentation at Flatiron Institute (2025)
- Poster at Columbia University Optimization and Statistical Learning Workshop (2025)

Papers in Progress

A powerful goodness-of-fit test using the probability integral transform of order statistics

Christian T. Covington, Jeffrey W. Miller

Multiverse Analysis for Causal Inference

Christian Covington, Tyler VanderWeele, Maya Mathur

Published Papers

Unbiased Statistical Estimation and Valid Confidence Intervals Under Differential Privacy

Christian Covington, Xi He, James Honaker, Gautam Kamath

Statistica Sinica: Special Issue on Data Privacy (2025)

- Poster at Social Statistics Speed Session at the Joint Statistical Meetings (2021)
- Poster at ICML Theory and Practice of Differential Privacy Workshop (2021)

Differences in patient perceptions of integrated care among black, hispanic, and white Medicare beneficiaries

Emilia J Ling, Molly Frean, Jody So, Maike Tietschert, Nancy Song, Christian Covington, Hassina Bahadurazada, Sonia Khurana, Luis Garcia, Sara J Singer

Health Services Research (2021)

Patient experiences of integrated care in Medicare accountable care organizations and Medicare Advantage versus traditional fee-for-service

Molly Frean, Christian Covington, Maike Tietschert, Hassina Bahadurzada, Jodi So, Sara J Singer

Medical Care (2021)

Invertible promoters mediate bacterial phase variation, antibiotic resistance, and host adaptation in the gut

Xiaofang Jiang, A. Brantley Hall, Timothy D. Arthur, Damian R. Plichta, Christian T. Covington, Mathilde Poyet, Jessica Crothers, Peter L. Moses, Andrew C. Tolonen, Hera Vlamakis, Eric J. Alm, Ramnik J. Xavier

Science (2019)

Variation in Patients' Perceptions of Integrated Care Among Medicare Beneficiaries By Level of Need

Nancy Song, Molly Frean, Christian Covington, Maike Tietschert, Emilia Ling, Hassina Bahadurzada, Michaela Kerrissey, Mark Friedberg, Sara Singer

AcademyHealth Annual Research Meeting (2019)

Teaching Experience

BST 240: Probability II

Fall 2024

Teaching Fellow

Harvard University

BST 210: Applied Regression Analysis

Fall 2023

Teaching Fellow

Harvard University

Professional Experience

Apple

May 2021 – August 2021

Summer Intern

Cupertino, CA

- Developed differentially private algorithms for product teams

Harvard University

July 2019 – August 2020

Research Fellow: Privacy Tools Project

Cambridge, MA

- Part of core development team for the [SmartNoise](#) Rust library
- Created [software implementation](#) of and extended theoretical results for differentially private Snapping Mechanism

Broad Institute

August 2018 – June 2019

Associate Computational Biologist

Cambridge, MA

- Wrote computational pipelines for preparation and analysis of biological data, including RNA-Sequencing and CRISPR screens
- Created centralized storage and [documentation](#) of lab's computational resources
- Contributed to automated system for CRISPR repair template design

Harvard Laboratory for Systems Medicine

July 2017 – August 2018

Data Scientist

Cambridge, MA

- Contributed to R package [ehR](#) to assist in analyzing electronic medical record data
- Built machine learning models for [research](#) on physician testing decisions

Harvard Business School

July 2016 – June 2017

Research Associate

Boston, MA

- Helped develop simulations of dynamic strategic interactions

Service

Reviewing

ICML, Philosophical Transactions of the Royal Society A, NeurIPS

Mentoring

Betania Adane (High School Student)*Next Position:* Undergraduate at Stanford University

- Mentored through Harvard Undergraduate OpenBio Lab's Summer Research Institute
- Research project was designated as one of the top five original works in the program and selected for publication in *The Young Researcher*