

Ian Waudby-Smith

✉ hello@ianws.com • 🌐 ianws.com

Academic positions

University of California, Berkeley
Miller Postdoctoral Fellow in Statistics
Host: Michael I. Jordan

Berkeley, CA
2024–present

Education

Carnegie Mellon University
PhD, Statistics
Advisor: Aaditya Ramdas
(Supported by an Amazon fellowship)

Pittsburgh, PA
2019–24

University of Waterloo
BMath, Pure Mathematics & Statistics
Dean's Honours List

Waterloo, ON
2013–18

Papers

Ian Waudby-Smith, Martin Larsson, and Aaditya Ramdas. Distribution-uniform strong laws of large numbers. *preprint*, 2024+.

Ian Waudby-Smith, Edward H. Kennedy, and Aaditya Ramdas. Distribution-uniform anytime-valid sequential inference. *preprint*, 2023+.

Ian Waudby-Smith, David Arbour, Ritwik Sinha, Edward H. Kennedy, and Aaditya Ramdas. Time-uniform central limit theory and asymptotic confidence sequences. *The Annals of Statistics* (*accepted*), 2024.

Ian Waudby-Smith, Lili Wu, Aaditya Ramdas, Nikos Karampatziakis, and Paul Mineiro. Anytime-valid off-policy inference for contextual bandits. *ACM/IMS Journal of Data Science*, 2023.

Ian Waudby-Smith and Aaditya Ramdas. Estimating means of bounded random variables by betting. *Journal of the Royal Statistical Society, Series B*, to appear. (*Discussion paper*), 2024.

Ian Waudby-Smith, Zhiwei Steven Wu, and Aaditya Ramdas. Extensions of randomized response for private confidence sets. *International Conference on Machine Learning* (*Oral presentation*), 2023.

Akash V. Maharaj, Ritwik Sinha, David Arbour, **Ian Waudby-Smith**, Simon Z. Liu, Moumita Sinha, Raghavendra Addanki, Aaditya Ramdas, Manas Garg, and Viswanathan Swaminathan. Anytime-valid confidence sequences in an enterprise A/B testing platform. *The ACM World Wide Web Conference*, 2024.

Ian Waudby-Smith, Philip B Stark, and Aaditya Ramdas. RiLACS: Risk limiting audits via confidence sequences. In *International Joint Conference on Electronic Voting* (*Best paper award*), pages 124–139. Springer, 2021.

Ian Waudby-Smith and Aaditya Ramdas. Confidence sequences for sampling without replacement. *Advances in Neural Information Processing Systems* (*Spotlight*), 33:20204–20214, 2020.

Ian Waudby-Smith, A Simon Pickard, Feng Xie, and Eleanor M Pullenayegum. Using both time tradeoff and discrete choice experiments in valuing the EQ-5D: Impact of model misspecification on value sets. *Medical Decision Making*, 2020.

Ian Waudby-Smith, Nam Tran, Joel A Dubin, and Joon Lee. Sentiment in nursing notes as an indicator of out-of-hospital mortality in intensive care patients. *PloS one*, 13(6), 2018.

Industry experience

Google Research
Student Researcher
Mentors: Jean Pouget-Abadie & Jennifer Brennan

New York, NY
Jun–Aug 2023

Microsoft Research

Research Intern

Mentor: Paul Mineiro

- Anytime-valid off-policy inference for contextual bandits — [link to paper](#).

New York, NY & Redmond, WA

May–Aug 2022

Adobe Research

Research Intern

Mentors: David Arbour & Ritwik Sinha

- Asymptotic confidence sequences and anytime-valid causal inference — [link to paper](#).

San Jose, CA

Jun–Aug 2020

The Hospital for Sick Children (SickKids)

Research Student

Mentor: Eleanor Pullenayegum

- Understanding model misspecification in quality-of-life surveys — [link to paper](#).

Toronto, ON

Apr–Aug 2019

Health Data Science Lab, University of Waterloo

Research Assistant

Mentors: Joel Dubin & Joon Lee

- Sentiment analysis and mortality in intensive care patients — [link to paper](#).

Waterloo, ON

2016–18

Department of Statistics, University of Waterloo

Research Assistant

Mentor: Pengfei Li

- Robust statistical tests for zero-inflated data — [link to R package](#).

Waterloo, ON

Apr–Aug 2017

Cancer Care Ontario

Student Analyst

Mentor: Zhihui (Amy) Liu

- Multi-state models for forecasting chronic kidney disease progression.

Toronto, ON

Jan–Apr 2016

Teaching Experience

Carnegie Mellon University

Graduate Teaching Assistant

- 36-708: Statistical Methods in Machine Learning (x2)
- 36-462: Data Mining
- 36-401: Modern Regression
- 36-731: Foundations of Causal Inference
- 36-732: Modern Causal Inference
- 10-880: Game-theoretic Probability, Statistics, and Learning

Pittsburgh, PA

2019–22

Service

Reviewer: The Annals of Statistics, Journal of the Royal Statistical Society (Series B), Biometrika, The Journal of the American Statistical Association, The New England Journal of Data Science, Sankhya A.

Carnegie Mellon University

Volunteer

- Organizer of the Statistical Machine Learning Reading Group (SMLRG)
- Women in Data Science (WiDS) conference volunteer
- Computing committee student representative
- Incoming PhD student mentor

Pittsburgh, PA

Awards

Statistical Society of Canada

Probability Section Student Research Presentation Award

St. John's, NL

2024

Amazon Science

Graduate Research Fellowship

Pittsburgh, PA

2023

University of Waterloo <i>Waterloo Statistics Student Conference Presentation Award</i>	Waterloo, ON 2022
Carnegie Mellon University Department of Statistics and Data Science <i>Teaching Assistant of the Year</i>	Pittsburgh, PA 2021
Adobe Research <i>PhD Research Gift</i>	Pittsburgh, PA 2020
University of Waterloo <i>David Johnston International Experience Award</i>	Waterloo, ON 2018
The Natural Sciences and Engineering Research Council of Canada <i>NSERC Undergraduate Student Research Award</i>	Waterloo, ON 2017
University of Waterloo <i>President's Research Award</i>	Waterloo, ON 2016–17
University of Waterloo <i>University of Waterloo President's Scholarship of Distinction</i>	Waterloo, ON 2014

Presentations

Statistical Society of Canada meeting <i>Distribution-uniform strong laws of large numbers</i> <i>Recipient of the Probability Section's Student Presentation Award</i>	St. John's, NL 2024
Workshop on Game-Theoretic Statistical Inference <i>P-uniform anytime-valid inference and conditional independence testing without Model-X</i>	Oberwolfach, Germany 2024
Fienberg Student Research Workshop at Carnegie Mellon University <i>Election audits via anytime-valid inference</i>	Pittsburgh, PA 2024
International Conference on Statistics and Data Science (ICSIDS) <i>Distribution-uniform anytime-valid inference</i>	Lisbon, Portugal 2023
Joint Statistical Meetings (JSM) <i>Anytime-valid off-policy inference for contextual bandits</i>	Toronto, ON 2023
International Conference on Machine Learning (ICML) <i>Extensions of randomized response for private confidence sets</i>	Honolulu, HI 2023
Centrum Wiskunde & Informatica <i>Anytime-valid off-policy inference for contextual bandits</i>	Amsterdam, Netherlands 2023
University of Copenhagen Statistics Seminar <i>Anytime-valid off-policy inference for contextual bandits</i>	Copenhagen, Denmark 2023
Copenhagen Causality Lab, University of Copenhagen <i>Asymptotic confidence sequences for anytime-valid causal inference</i>	Virtual 2023
Conference on Digital Experimentation (CODE@MIT) <i>Asymptotic confidence sequences for anytime-valid causal inference</i>	Cambridge, MA 2022
Microsoft Research Reinforcement Learning Discussion Group <i>Anytime-valid contextual bandit inference</i>	Virtual 2022
California Institute of Technology <i>A brief introduction to safe, anytime-valid inference (SAVI)</i>	Virtual 2022
Waterloo Student Conference in Statistics, Actuarial Science, and Finance <i>Estimating means of bounded random variables by betting</i>	Waterloo, ON 2022

Microsoft Research <i>A brief introduction to safe, anytime-valid inference (SAVI)</i>	Virtual 2022
TPDP: Theory and Practice of Differential Privacy Workshop <i>Locally private nonparametric confidence intervals and sequences</i>	Baltimore, MD 2022
Safe, Anytime-Valid Inference (SAVI) Workshop <i>Time-uniform central limit theory and anytime-valid causal inference</i>	Eindhoven, Netherlands 2022
Statistical Society of Canada (SSC) Annual Meeting <i>Time-uniform central limit theory and anytime-valid causal inference</i>	Virtual 2022
ASA, Pittsburgh Chapter Spring Banquet <i>Time-uniform central limit theory and anytime-valid causal inference</i>	Pittsburgh, PA 2022
Carnegie Mellon University Computer Science Theory Lunch <i>Estimating means of bounded random variables by betting</i>	Pittsburgh, PA 2021
International Seminar on Distribution-Free Statistics <i>Estimating means of bounded random variables by betting</i>	Virtual 2021
E-Vote-ID: The International Conference for Electronic Voting <i>RiLACS: Risk-limiting audits via confidence sequences</i>	Virtual 2021
NeurIPS Workshop on Causal Inference Challenges in Sequential Decision Making <i>Time-uniform central limit theory and anytime-valid causal inference</i>	Virtual 2021
Spotify Experimentation Platform Team <i>Doubly robust confidence sequences for sequential causal inference</i>	Virtual 2021
Joint Statistical Meetings (JSM) <i>Doubly robust confidence sequences for sequential causal inference</i>	Virtual 2021
Vinted Science and Analytics Meetup <i>Doubly robust confidence sequences for sequential causal inference</i>	Virtual 2021
Joint Statistical Meetings (JSM) <i>Confidence sequences for sampling without replacement</i>	Virtual 2020
Statistical Society of Canada (SSC) Annual Meeting <i>Multi-state models for chronic kidney disease prevalence projections in Ontario</i>	St. Catharines, ON 2016