

Ian Waudby-Smith

✉ ianws@cmu.edu • 🌐 ianws.com

Education

Carnegie Mellon University

PhD, Statistics

Advisor: [Aaditya Ramdas](#)

Pittsburgh, PA

2019–present

Carnegie Mellon University

MS, Statistics

GPA: 4.0/4.0

Pittsburgh, PA

2019–20

University of Waterloo

BMath, Joint Honours Pure Mathematics & Statistics (Co-op)

GPA: 90/100, Dean's Honours List

Waterloo, Canada

2013–18

Papers

Ian Waudby-Smith and Aaditya Ramdas. Distribution-uniform anytime-valid 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. *preprint*, 2023+.

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 (accepted pending minor revisions)*, 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)*, 2023.

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*, 2023.

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.

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*

Computational Skills

Programming languages: R, Python, Haskell, Lisp, C**Technologies:** git, SQL, *nix, CI/CD

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

Pittsburgh, PA*2019–22*

Service

Reviewer: New England Journal of Data Science**Carnegie Mellon University***Volunteer*

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

Pittsburgh, PA

Awards

Amazon Science*Graduate Research Fellowship***Pittsburgh, PA***2023***University of Waterloo***Waterloo Statistics Student Conference Presentation Award***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

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