Ian Waudby-Smith

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Academic positions

University of California, Berkeley — **Berkeley, CA**
Miller Postdoctoral Fellow in Statistics — *2024–present*
Host: Michael I. Jordan

Education

Carnegie Mellon University — **Pittsburgh, PA**
PhD, Statistics — *2019–24*
Advisor: Aaditya Ramdas
(Supported by an Amazon fellowship)

University of Waterloo — **Waterloo, ON**
BMath, Pure Mathematics & Statistics — *2013–18*
5-year co-op program
Dean's Honours List

Papers

Ian Waudby-Smith and Johannes Ruf. Concentration inequalities for strong laws of large numbers and the law of the iterated logarithm. *in preparation*, 2025.

Lacey DeLucia, Deborah Raji, **Ian Waudby-Smith**, and Lydia Liu. Risk-limiting audits of AI systems. *in preparation*, 2025.

Ricardo Sandoval, Avi Feller, Peng Ding, and **Ian Waudby-Smith**. On nonasymptotic confidence intervals for treatment effects. *in preparation*, 2025.

Ian Waudby-Smith, Ricardo Sandoval, and Michael I. Jordan. Universal log-optimality for general classes of e-processes and sequential hypothesis tests. *submitted to the Annals of Statistics*, 2025+.

Ian Waudby-Smith, Martin Larsson, and Aaditya Ramdas. Nonasymptotic and distribution-uniform Komlós-Major-Tusnády approximation. *arXiv preprint*, 2025+.

Ian Waudby-Smith, Martin Larsson, and Aaditya Ramdas. Distribution-uniform strong laws of large numbers. *submitted to the Annals of Applied Probability*, 2024+.

Ian Waudby-Smith, Edward H Kennedy, and Aaditya Ramdas. Distribution-uniform anytime-valid sequential inference. *arXiv 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*, 52(6):2613–2640, 2024.

Ian Waudby-Smith, Lili Wu, Aaditya Ramdas, Nikos Karampatziakis, and Paul Mineiro. Anytime-valid off-policy inference for contextual bandits. *ACM/JMS Journal of Data Science*, 1(3):1–42, 2024.

Ian Waudby-Smith and Aaditya Ramdas. Estimating means of bounded random variables by betting. *Journal of the Royal Statistical Society Series B: Statistical Methodology* ***(Discussion paper)***, 86(1):1–27, 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.

Presentations

Stanford Data Driven Seminar — **Stanford, CA**
Log-optimality of e-processes and sequential tests — *2025*

MBZUAI-Berkeley Workshop — **Abu Dhabi, UAE**
Anytime-valid off-policy inference for contextual bandits — *2025*

MBZUAI — **Abu Dhabi, UAE**
A brief introduction to game-theoretic, safe, anytime-valid inference — *2025*
Mini course consisting of 4 lectures

Inria/Sierra Seminar — **Paris, France**
Anytime-valid inference and uniform central limit theory — *2025*

Stanford Statistics Seminar — **Stanford, CA**
Anytime-valid inference and uniform central limit theory — *2025*

International Seminar on Selective Inference — **Virtual**
$\mathcal{P}$-uniform anytime-valid inference and conditional independence testing without Model-X — *2024*

CLIMB Workshop — **Berkeley, CA**
Election audits via anytime-valid inference — *2024*

ERC OCEAN retreat — **Venice, Italy**
A brief introduction to game-theoretic, safe, anytime-valid inference — *2024*
Mini course consisting of 3 lectures

Statistical Society of Canada meeting — **St. John's, NL**
Distribution-uniform strong laws of large numbers — *2024*
Recipient of the Probability Section's Student Presentation Award

Workshop on Game-Theoretic Statistical Inference — **Oberwolfach, Germany**
$\mathcal{P}$-uniform anytime-valid inference and conditional independence testing without Model-X — *2024*

Fienberg Student Research Workshop at Carnegie Mellon University — **Pittsburgh, PA**
Election audits via anytime-valid inference — *2024*

International Conference on Statistics and Data Science (ICSDS) — **Lisbon, Portugal**
Distribution-uniform anytime-valid inference — *2023*

Joint Statistical Meetings (JSM) — **Toronto, ON**
Anytime-valid off-policy inference for contextual bandits — *2023*

International Conference on Machine Learning (ICML) — **Honolulu, HI**
Extensions of randomized response for private confidence sets — *2023*

Centrum Wiskunde & Informatica — **Amsterdam, Netherlands**
Anytime-valid off-policy inference for contextual bandits — *2023*

University of Copenhagen Statistics Seminar — **Copenhagen, Denmark**
Anytime-valid off-policy inference for contextual bandits — *2023*

Copenhagen Causality Lab, University of Copenhagen — **Virtual**
Asymptotic confidence sequences for anytime-valid causal inference — *2023*

Conference on Digital Experimentation (CODE@MIT) **Cambridge, MA**
Asymptotic confidence sequences for anytime-valid causal inference *2022*

Microsoft Research Reinforcement Learning Discussion Group **Virtual**
Anytime-valid contextual bandit inference *2022*

California Institute of Technology **Virtual**
A brief introduction to safe, anytime-valid inference (SAVI) *2022*

Waterloo Student Conference in Statistics, Actuarial Science, and Finance **Waterloo, ON**
Estimating means of bounded random variables by betting *2022*

Microsoft Research **Virtual**
A brief introduction to safe, anytime-valid inference (SAVI) *2022*

TPDP: Theory and Practice of Differential Privacy Workshop **Baltimore, MD**
Locally private nonparametric confidence intervals and sequences *2022*

Safe, Anytime-Valid Inference (SAVI) Workshop **Eindhoven, Netherlands**
Time-uniform central limit theory and anytime-valid causal inference *2022*

Statistical Society of Canada (SSC) Annual Meeting **Virtual**
Time-uniform central limit theory and anytime-valid causal inference *2022*

ASA, Pittsburgh Chapter Spring Banquet **Pittsburgh, PA**
Time-uniform central limit theory and anytime-valid causal inference *2022*

Carnegie Mellon University Computer Science Theory Lunch **Pittsburgh, PA**
Estimating means of bounded random variables by betting *2021*

International Seminar on Distribution-Free Statistics **Virtual**
Estimating means of bounded random variables by betting *2021*

E-Vote-ID: The International Conference for Electronic Voting **Virtual**
RiLACS: Risk-limiting audits via confidence sequences *2021*

NeurIPS Workshop on Causal Inference Challenges in Sequential Decision Making **Virtual**
Time-uniform central limit theory and anytime-valid causal inference *2021*

Spotify Experimentation Platform Team **Virtual**
Doubly robust confidence sequences for sequential causal inference *2021*

Joint Statistical Meetings (JSM) **Virtual**
Doubly robust confidence sequences for sequential causal inference *2021*

Vinted Science and Analytics Meetup **Virtual**
Doubly robust confidence sequences for sequential causal inference *2021*

Joint Statistical Meetings (JSM) **Virtual**
Confidence sequences for sampling without replacement *2020*

Statistical Society of Canada (SSC) Annual Meeting **St. Catherines, ON**
Multi-state models for chronic kidney disease prevalence projections in Ontario *2016*