

## Education

- 2021–? **PhD Statistics** *Carnegie Mellon University*. Pittsburgh, PA  
*Advised by Aaditya Ramdas*
- 2019–2020 **MS Machine Learning** GPA: 4.0/4.3  
*Advised by David P. Woodruff, Justin Khim and Pradeep Ravikumar on various projects.*
- 2015–2019 **BS Computer Science** GPA: 3.88/4.0

## Publications

1. Active, anytime-valid risk controlling prediction sets  
**Z. Xu**, N. Karampatziakis, and P. Mineiro NeurIPS 2024
2. Post-selection inference for e-value based confidence intervals  
**Z. Xu**, R. Wang, and A. Ramdas Electronic Journal of Statistics 2024  
*Runner-up Poster Prize @ MCP 2022*
3. Foundations of testing for finite-sample causal discovery  
T. Yan, **Z. Xu**, and Z. C. Lipton ICML 2024
4. Online multiple testing with e-values  
**Z. Xu** and A. Ramdas AISTATS 2024
5. Risk-limiting financial audits via weighted sampling without replacement  
S. Shekhar, **Z. Xu**, Z. C. Lipton, P. J. Liang, and A. Ramdas UAI 2023
6. Memory bounds for the experts problem  
V. Srinivas, D. P. Woodruff, **Z. Xu**, and S. Zhou STOC 2022
7. A unified framework for bandit multiple testing  
**Z. Xu**, R. Wang, and A. Ramdas NeurIPS 2021
8. Dynamic algorithms for online multiple testing  
**Z. Xu** and A. Ramdas Math. and Sci. ML 2021
9. Class-weighted classification: Trade-offs and robust approaches  
**Z. Xu**, C. Dan, J. Khim, and P. Ravikumar ICML 2020
10. Strategy and policy learning for non-task-oriented conversational systems  
Z. Yu, **Z. Xu**, A. W. Black, and A. Rudnicky SIGDIAL 2016
11. Chatbot evaluation and database expansion via crowdsourcing  
Z. Yu, **Z. Xu**, A. W. Black, and A. Rudnicky RE-WOCHAT workshop of LREC 2016

## Preprints

12. Active multiple testing with proxy p-values and e-values  
**Z. Xu**, C. Wang, L. Wasserman, K. Roeder, and A. Ramdas 2025

13. An online generalization of the (e-)Benjamini-Hochberg procedure  
L. Fischer, **Z. Xu**, and A. Ramdas 2024
14. More powerful multiple testing under dependence via randomization  
**Z. Xu** and A. Ramdas 2023

## Projects

- Oct. **Real Estate Auditing**, *Carnegie Mellon University*
- 2021-Dec. I am providing statistical help (e.g. data analysis, writing expert reports, etc.) for a lawsuit against Allegheny County concerning their practices for computing the assessed values (and consequently property taxes) of newly purchased homes. This was in collaboration with Barbara Stern, John Silvestri, Esq., and Prof. Aaditya Ramdas. Recent news coverage of the case is linked [here](#).
- 2022

## Industry

- May-Aug. **Research Intern**, *Microsoft Research*, Redmond, WA
- 2023 Team: *Reinforcement Learning*. Mentor: Paul Mineiro. I developed an anytime-valid method that uses active learning for calibrating the risk of black-box machine learning models [1].
- Mar.-May **Consultant**, *Growthbook*, Remote
- 2023 I consulted on a project for implementing safe anytime-valid inference (SAVI) methods into Growthbook's A/B testing engine. A description of the implemented methods is linked [here](#) and the open source implementation is [here](#).
- June-Aug. **Engineering Intern**, *Twitter*, Remote
- 2022 Team: *Experimentation Data Science*. Mentors: Luke Sonnet, Umashanthi Pavalanathan. Manager: Brent Cohn. I analyzed use of safe-anytime valid inference (SAVI) methods for A/B testing.
- May-Aug. **Science Intern**, *CTRL-labs (now part of Facebook Reality Labs)*, New York
- 2018 I developed state-of-the-art LSTM ensemble model that models hand movement from electromyography (EMG) signals in **TensorFlow**.  
Built parser for constructing acyclic graph pipeline for preprocessing real time EMG signals.
- May-Aug. **Software Engineering Intern**, *Bloomberg*, New York
- 2017 I worked on the Message Infrastructure team, where I imported RapidCheck, a Haskell QuickCheck inspired testing framework, into the Bloomberg **C++** environment.
- May-Aug. **Software Engineering Intern**, *PicMonkey*, Seattle
- 2016 I helped build the user interface and photo editing features for the launch of the mobile photo editor app in both **Android** and **iOS**.

## Talks

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|------------|---|---|
| July. 2022 | Valid inference under $S^3$ bias for A/B testing                | <i>Twitter ML Modeling Seminar</i>  |
| Jun. 2022  | Post-selection inference for e-value based confidence intervals | <i>Safe, Anytime-Valid Inference (SAVI) and Game-theoretic Statistics Workshop</i>          |
| Mar. 2022  | Post-selection inference for e-value based confidence intervals | <i>International Seminar on Selective Inference</i>   |
| Nov. 2021  | A unified framework for bandit multiple testing                 | <i>Waterloo Student Conference in Statistics, Actuarial Science and Finance</i>             |
| Sep. 2021  | Dynamic algorithms for online multiple testing                  | <i>Workshop on current and future trends in multiple hypothesis testing (MRC Cambridge)</i> |

## Teaching

*Teaching Assistant*

36-402: Advanced Methods for Data Analysis (Spring 2023, 2024)

36–750: Statistical Computing (Fall 2023)  
36–650: Statistical Computing (Fall 2021)  
15–251: Great Theoretical Ideas in Computer Science (Fall 2017, Spring 2018, Fall 2018)  
15–150: Introduction to Functional Programming (Fall 2016, Spring 2017)

## Service

2024–2025 Mentorship Program in Stat&DS organizer + mentor  
2022–2023 CMU StatML Reading Group (SMLRG) organizer  
2020 SCS Master's Advisory Committee  
2020 MLD Master's Admissions Committee

## Reviewing

2025 AISTATS, ICML, Statistical Methods in Medical Research  
2024 NeurIPS, Biometrika, Statistica Neerlandica  
2023 STOC, Electronic Journal of Statistics, New England Journal of Statistics in Data Science  
2022 Mathematical and Scientific Machine Learning  
2021 AISTATS