Ziyu (Neil) Xu

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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. 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

2. Online multiple testing with e-values
Z. Xu and A. Ramdas — AISTATS 2024

3. Risk-limiting financial audits via weighted sampling without replacement
S. Shekhar, **Z. Xu**, Z. C. Lipton, P. J. Liang, and A. Ramdas — UAI 2023

4. Memory bounds for the experts problem
V. Srinivas, D. P. Woodruff, **Z. Xu**, and S. Zhou — STOC 2022

5. A unified framework for bandit multiple testing
Z. Xu, R. Wang, and A. Ramdas — NeurIPS 2021

6. Dynamic algorithms for online multiple testing
Z. Xu and A. Ramdas — Math. and Sci. ML 2021

7. Class-weighted classification: Trade-offs and robust approaches
Z. Xu, C. Dan, J. Khim, and P. Ravikumar — ICML 2020

8. Strategy and policy learning for non-task-oriented conversational systems
Z. Yu, **Z. Xu**, A. W. Black, and A. Rudnicky — SIGDIAL 2016

9. Chatbot evaluation and database expansion via crowdsourcing
Z. Yu, **Z. Xu**, A. W. Black, and A. Rudnicky — RE-WOCHAT workshop of LREC 2016

Preprints

10. More powerful multiple testing under dependence via randomization
Z. Xu and A. Ramdas — 2023

Projects

Oct. 2021-Dec. 2022 **Real Estate Auditing**, *Carnegie Mellon University*
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.

Industry

May-Aug. 2023 **Research Intern**, *Microsoft Research*, Redmond, WA
Team: *Reinforcement Learning*. Mentor: Paul Mineiro. Active learning for calibrating the risk of black-box machine learning models.

June-Aug. 2022 **Engineering Intern**, *Twitter*, Remote
Team: *Experimentation Data Science*. Mentors: Luke Sonnet, Umashanthi Pavalanathan. Manager: Brent Cohn. I analyzed use of SAVI (safe-anytime valid inference) methods for A/B testing.

May-Aug. 2018 **Science Intern**, *CTRL-labs (now part of Facebook Reality Labs)*, New York
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. 2017 **Software Engineering Intern**, *Bloomberg*, New York
I worked on the Message Infrastructure team, where I imported RapidCheck, a Haskell QuickCheck inspired testing framework, into the Bloomberg **C++** environment.

May-Aug. 2016 **Software Engineering Intern**, *PicMonkey*, Seattle
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

July. 2022 Valid inference under S^3 bias for A/B testing — *Twitter ML Modeling Seminar*

Jun. 2022 Post-selection inference for e-value based confidence intervals — *Safe, Anytime-Valid Inference (SAVI) and Game-theoretic Statistics Workshop*

Mar. 2022 Post-selection inference for e-value based confidence intervals — *International Seminar on Selective Inference*

Nov. 2021 A unified framework for bandit multiple testing — *Waterloo Student Conference in Statistics, Actuarial Science and Finance*

Sep. 2021 Dynamic algorithms for online multiple testing — *Workshop on current and future trends in multiple hypothesis testing (MRC Cambridge)*

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

Reviewing AISTATS 2021, Mathmematical and Scientific Machine Learning 2022, STOC 2023, Biometrika, Electronic Journal of Statistics, New England Journal of Statistics in Data Science

2022–2023 CMU StatML Reading Group (SMLRG) organizer

2020 SCS Master's Advisory Committee

2020 MLD Master's Admissions Committee