

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. A unified framework for bandit multiple testing
Z. Xu, R. Wang, and A. Ramdas [NeurIPS 2021](#)
2. Dynamic algorithms for online multiple testing
Z. Xu and A. Ramdas [MSML 2021](#)
3. Class-weighted classification: Trade-offs and robust approaches
Z. Xu, C. Dan, J. Khim, and P. Ravikumar [ICML 2020](#)
4. Strategy and policy learning for non-task-oriented conversational systems
Z. Yu, **Z. Xu**, A. W. Black, and A. Rudnicky [SIGDIAL 2016](#)
5. Chatbot evaluation and database expansion via crowdsourcing
Z. Yu, **Z. Xu**, A. W. Black, and A. Rudnicky [RE-WOCHAT workshop of LREC 2016](#)

Preprints

6. Multiclass classification via class-weighted nearest neighbors
J. Khim, **Z. Xu**, and S. Singh [2020](#)

Projects

- June **Multiple Testing**, *Carnegie Mellon University*.
- 2020-Present I am developing methods with guaranteed false discovery control in the online multiple testing setting and the bandit setting [1, 2]. I am advised by Prof. Aaditya Ramdas.
- Jan. **Memory Bounded Experts**, *Carnegie Mellon University*.
- 2020-Jan. I proved theoretical bounds on space complexity in the streaming setting for the experts problem. I was
2021 advised by Prof. David P. Woodruff.
- Jan. **Robust Classification**, *Carnegie Mellon University*.
- 2019-Sep. I worked on theoretical understanding of weighted classification methods, and developing an algorithms robust
2020 to changes in class weighting. I was advised by Dr. Justin Khim and Prof. Pradeep Ravikumar in this area.
Our work was accepted for publication at ICML 2020 [3].
- Jan. 2018 – **Machine Translation**, *Carnegie Mellon University*.
- Aug. 2019 I used **PyTorch** to train a neural constituency parser as a data augmentation technique for neural machine
translation models. I also used **DyNet** to train neural seq2seq models for translating obfuscated code into
human-readable code. I was advised by Prof. Graham Neubig.

- Jan. **Dialog Agents**, *Carnegie Mellon University*.
- 2016-Oct. I researched crowdsourcing strategies for gathering dialog data using Amazon Turk. I also contributed to building a dialog agent that was the first to use reinforcement learning in a non-task specific setting. I was advised by Prof. Zhou Yu and our work was published at SIGDIAL 2016 [4] and the RE-WOCHAT workshop at LREC 2016 [5].

Industry

- 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

- 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

- 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

- 2020 SCS Master's Advisory Committee *Advises the Dean of the School of Computer Science on issues relating to the master's student body.*
- 2020 MLD Master's Admissions Committee