

# Ziyu Xu (Neil)

✉ ziyux at cs dot cmu dot edu  
📄 neilzxu.me

## Education

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

## Preprints

1. A unified framework for bandit multiple testing  
**Z. Xu**, R. Wang, and A. Ramdas
2. Multiclass Classification via Class-Weighted Nearest Neighbors  
J. Khim, **Z. Xu**, and S. Singh

## Publications

3. Dynamic Algorithms for Online Multiple Testing  
**Z. Xu** and A. Ramdas MSML 2021
4. Class-Weighted Classification: Trade-offs and Robust Approaches  
**Z. Xu**, C. Dan, J. Khim, and P. Ravikumar ICML 2020
5. Strategy and Policy Learning for Non-Task-Oriented Conversational Systems  
Z. Yu, **Z. Xu**, A. W. Black, and A. Rudnicky SIGDIAL 2016
6. Chatbot Evaluation and Database Expansion via Crowdsourcing  
Z. Yu, **Z. Xu**, A. W. Black, and A. Rudnicky RE-WOCHAT workshop of LREC 2016

## Projects

- June 2020-Present **Multiple Testing**, *Carnegie Mellon University*.  
I am developing methods with guaranteed false discovery control in the online multiple testing setting and the bandit setting [1, 3]. I am advised by Prof. Aaditya Ramdas.
- Jan. 2020-Jan. 2021 **Memory Bounded Experts**, *Carnegie Mellon University*.  
I proved theoretical bounds on space complexity in the streaming setting for the experts problem. I was advised by Prof. David P. Woodruff.
- Jan. 2019-Sep. 2020 **Robust Classification**, *Carnegie Mellon University*.  
I worked on theoretical understanding of weighted classification methods, and developing an algorithms robust 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 [4].
- Jan. 2018 - Aug. 2019 **Machine Translation**, *Carnegie Mellon University*.  
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. 2016-Oct. 2016 **Dialog Agents**, *Carnegie Mellon University*.  
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 [5] and the RE-WOCHAT workshop at LREC 2016 [6].

---

## 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**.

---

## Teaching

- 2016–2018 **Teaching Assistant**, *Carnegie Mellon University*.
- 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