Ziyu Xu (Neil)

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Education

2019–2020	**MS Machine Learning**, *Carnegie Mellon University*, Pittsburgh, PA, 4.0. Coursework: Algorithms for Big Data, Advanced Statistical Theory I, Advanced Machine Learning, Advanced Probability, Convex Optimization
2015–2019	**BS Computer Science**, *Carnegie Mellon University*, Pittsburgh, PA, 3.88. Coursework: Topics in Deep Learning, Deep Reinforcement Learning, Probabilistic Graphical Models, Operating Systems, Compilers, Parallel Computer Architecture and Programming, Real Analysis, Algebraic Structures

Preprints

1. Dynamic Algorithms for Online Multiple Testing
 Z. Xu and A. Ramdas — Submitted, Mathematical and Scientific Machine Learning 2021

2. Multiclass Classification via Class-Weighted Nearest Neighbors
 J. Khim, **Z. Xu**, and S. Singh — Submitted, IEEE Transactions on Information Theory

Publications

3. Class-Weighted Classification: Trade-offs and Robust Approaches
 Z. Xu, C. Dan, J. Khim, and P. Ravikumar — ICML 2020

4. Chatbot Evaluation and Database Expansion via Crowdsourcing
 Z. Yu, **Z. Xu**, A. W. Black, and A. Rudnicky — RE-WOCHAT workshop of LREC 2016

5. Strategy and Policy Learning for Non-Task-Oriented Conversational Systems
 Z. Yu, **Z. Xu**, A. W. Black, and A. Rudnicky — SIGDIAL 2016

Experience

Academic

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]. I am advised by Prof. Aaditya Ramdas.
Jan. 2020-Present	**Online Learning**, *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. Our work is still under preparation.
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 [3] and currently in submission to IEEE Transactions on Information Theory [2].
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 [4].
2016–2018	**Teaching Assistant**, *Carnegie Mellon University*. Hold office hours, teach recitations, and grade homeworks for: ○ 15-251: Great Theoretical Ideas in Computer Science (Fall 2017, Spring 2018, Fall 2018) ○ 15-150: Introduction to Functional Programming (Fall 2016, Spring 2017).

Industry

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**.

Languages/Frameworks

Python, PyTorch	*Frequently use*
C, Rust	*Done major projects in*
C++, TensorFlow, Android, SML	*Used before*

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	