

ALEX TIANYI XU

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EDUCATION

Carnegie Mellon University

Bachelor of Science in Artificial Intelligence, School of Computer Science

GPA: 4.00/4.00

Relevant Courses

- Artificial Intelligence:
 - * 10-403 Deep Reinforcement Learning
 - * 10-417 Intermediate Deep Learning
 - * 11-411 Natural Language Processing
 - * 15-387 Computational Perception
 - * 10-714 Deep Learning Systems (current)
 - * 16-385 Computer Vision (current)
- Computer Science:
 - * 15-451 Algorithm Design and Analysis
 - * 15-210 Parallel and Sequential Data Structures and Algorithms
- Math and Statistics:
 - * 36-401 Modern Regression
 - * 21-268 Multidimensional Calculus

Pittsburgh, PA

Aug. 2020 – May 2024

RESEARCH EXPERIENCE

MultiComp Lab – Language Technology Institute

Research Assistant

May 2023 – Present

Pittsburgh, PA

- Worked with Professor Louis-Philippe Morency
- Contributed to research paper titled “Comparative Knowledge Distillation”, providing most core results and specifying experimental settings
- Created 4 different experiment settings with 8000+ lines of code to test a novel deep learning technique
- Demonstrated resilience, achieving key results at each project stage despite direction changes
- Investigated a wide range of deep learning applications, including the fine-tuning, pre-training, distillation, and evaluation of large language models and computer vision models

Reliable Autonomous Systems Lab

Research Assistant

Jan. 2022 – Present

Pittsburgh, PA

- Worked with Professor Reid Simmons
- Implemented and tested a norm violation tracking framework for AI agents using an automaton translation of temporal logic expression used to represent socially acceptable behavior
- Integrated automaton-based reward system into a reinforcement learning algorithm to find best course of action for general-purpose robotics applications

WORK EXPERIENCE

NVIDIA Corporation

Deep Learning Algorithm Engineering Intern

May 2022 – Aug. 2022

Santa Clara, CA

- Collaborated with multiple local and international NVIDIA teams to investigate performance bottlenecks in deep learning platform pipelines
- Optimized time series data preprocessing speed by up to 3x using CUDA-based libraries
- Experimented with multiple data loading approaches for deep learning algorithms

TEACHING EXPERIENCE

Carnegie Mellon University

Jan. 2023 – Present

Teaching Assistant for 10-315 Intro to Machine Learning

Pittsburgh, PA

- Led the development of biweekly online homework assignments and created more than 10 new problems to evaluate students' knowledge of the course material
- Consolidated students' understanding by answering over 100 questions on the course Q&A platform
- Strengthened communication skills by teaching weekly recitations and helping over 50 students in more than 20 hours of office hours

Carnegie Mellon University

Aug. 2021 – Dec. 2021

Teaching Assistant for 18-213 Intro to Computer Systems

Pittsburgh, PA

- Demonstrated initiative by promptly responding to questions from over 200 students and setting up one-on-one meetings to help those in need
- Consolidated students' understanding by answering 100+ questions on the course discussion forum
- Closely mentored 10 students throughout the course and received positive reviews (4.3/5 on average) in student survey

MANUSCRIPTS

Anonymous. Comparative Knowledge Distillation. *Submitted To The Twelfth International Conference On Learning Representations*. (2023), <https://openreview.net/forum?id=z282NEQDbF>, under review

TECHNICAL SKILLS

Languages: Python, C/C++ , Java, JavaScript, HTML/CSS, SQL, LaTeX, SML, C#

Developer Tools: Git/Github, Linux, MATLAB, Docker, Weights and Biases, Singularity, VS Code, Vim

Libraries: PyTorch, Huggingface Transformers, Pandas, NumPy, Scikit-learn, RAPIDS, Dask, Unity