Jeffrey Tsaw

Contact

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Coursework

10-703 – Deep Reinforcement Learning*

18-898 – Graph Signal Processing*

18-743 – Neuromorphic Computer Architecture

10-707 – Adv Deep Learning

15-750 – Graduate Algorithms

18-447 – Computer Architecture

33-234 – Quantum Physics

10-701 – Intro to ML (PhD)

ELEC0024 – Digital Signal Processing and Design (UCL)

18-349 – Introduction to Embedded Systems

Technical Skills

Languages

Python ■ C ■ SystemVerilog ■ ARM ■ x86-64 ■ MATLAB

Tools

Linux ■ Git ■ GDB ■ Simics ■ Windows ■ FPGA

Activities

CMU Club Tennis Team
Aug 2019 – Present

- Quarterfinalist at 2019 USTA Regionals

London Dragons Varsity Hockey Team
Jan 2020 – Jul 2020

- BUIHA Division 1 South Champions

CMU Club Hockey Team
Aug 2017 – Present

Asian Student Association
Aug 2017 - Present

Interests

Sport/Outdoor Climbing
Hockey
Tennis
College Basketball
Football
Math
Jazz Music

Education

Carnegie Mellon University
Pittsburgh P.A | B.S with Honors May 2021 | M.S Expected Dec 2022
Electrical & Computer Engineering

- GPA B.S: 3.82/4.00 | M.S: 4.00/4.00
- HKN and TBP Honour Societies

Experience

Apple Inc.
Hardware Engineering Intern | Cupertino, CA (virtual)| Sep'21 – Dec '21

- Worked on GPU Memory Verification team
- Integrated idle checks and developed coverage for 5 modules within GPU routing block
- Developed novel strategy to hit previously un-hit coverage points using Xceligen ML tool to **improve coverage of a coverpoint by over 10%**

Credit Suisse Securities
Technology Analyst Intern | New York, NY (virtual)| Jul '20 – Aug '20

- Designed and developed a 2-stage pipelined model to extract bond tickers, ISINs, and CUSIPs from Bloomberg chat data in an Agile environment
- Trained and tuned an NER model in spaCy to recognise bond information and non-bond entities with over **98% precision and recall**
- Successfully extracted over **90,000 bond tickers**

Carnegie Mellon University
10-701: Intro to ML (PhD) TA | Pittsburgh, PA | Jan '21 – May '21

- Taught fundamental ML concepts to PhD students including Naïve Bayes, Regression, Kernels, Neural Networks, HMMs and Graphical Models and Learning theory.

Projects

HighMMT: High Modality Multi-Task Learning
MultiComp Lab CMU | May '22 – Oct'22

- Developed modality heterogeneity metrics to facilitate parameter sharing during multitask training
- Developed a modality heterogeneity aware parameter sharing framework to boost baseline perceiver and cross attention model by **an average of ~4%**
- **Submitted to ENLSP workshop at NeurIPS**

Hybrid Model for Solving Math Word Problems
Project for 10-707 | Mar '22 – May '22

- Combined a bottom-up DAG extraction model with top-down tree decoder model into a novel hybrid neural model for solving math word problems
- Achieved 75% answer accuracy, **beating baseline SOTA of 74%**

AutoVöt: An Autonomous RC Vehicle Convoy
Partner Capstone Project for 18-500 | Jan '21 – May '21

- Developed a convoy of RC vehicles capable of autonomously navigating an obstacle course through V2V communication, where only the lead vehicle has perception capabilities
- **1st Runner Up** out of 30+ 18-500 Capstone projects in Spring 2021

Recurrent GANs for Music Generation
Project for 10-701 | Aug '20 – Dec '20

- Extended a baseline recurrent BiLSTM GAN for music generation with a novel architecture containing an input mapping network, convolution and attention layers, and an FFT component
- Improved polyphony, unique tone variance, and complexity over baseline to more closely resemble actual classical music.