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
PyTorch ■ TensorFlow ■ GDB ■ Linux ■ 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
M.S, B.S (with Honors) Electrical & Computer Engineering
- GPA - M.S: 3.95/4.00 | B.S: 3.82/4.00
- 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 recal**l
- Successfully extracted over **90,000 bond tickers**

Carnegie Mellon University
- 10-701: Intro to ML (PhD) TA | Pittsburgh, PA | Jan '21 – May '21
- 18-349: Intro to Embedded Systems TA | Pittsburgh, PA | Aug '20 – Jan '21

Projects

HighMMT: High Modality Multi-Task Learning
MultiComp Lab CMU
- Developed modality heterogeneity metric to facilitate parameter sharing during training of multitask Transformer model
- Developed a modality heterogeneity aware parameter sharing framework to achieve **SOTA across 4 tasks with a 10% reduction in parameters**
- **Submitted to TMLR 2022**

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

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% theoretical answer accuracy, **beating baseline SOTA by 1%**

RISC-V Processor
Project for 18-447 | Jan '21 – May '21
- Designed and implemented a synthesizable pipelined superscalar out of order processor on RV32I ISA in SystemVerilog, averaging 280 MIPS on prescribed benchmarks.
- Achieved **1st quartile performance** in Spring 2021 on prescribed benchmarks