Jason Wang

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Education

University of Toronto 2027 Graduation
BASc in Computer Engineering, Minor in Artificial Intelligence *Toronto, ON*

- 89.8% - 3.95/4.0 - Deans List Honours
- Received First Year Summer Research Fellowship (10 recipients of 1400 students)

Experience

Distributed Systems Researcher May 2024 - August 2024
iQua Group - University of Toronto *Toronto, ON*

- Developing algorithms to refine communication topology structures and optimize MPI/NCCL collectives in GPU datacenters to expedite LLM training and lower HPC costs.
- Implemented multicast and flow dependency support to test job completion times through SDNs.
- Intention to submit 2 papers to IEEE INFOCOM 2024.

Machine Learning Engineer March 2024 - August 2024
Aercoustics & UofT Machine Intelligence Student Team *Toronto, ON*

- Developing end-to-end multi-label audio transformer pipelines, looking to leveraging acoustic tokenizers to train SSL models via knowledge distillation.
- Created data processing modules in Python to parse SQLite databases and extract features from audio snippets.
- Developed API interface for Lambda Labs GPU cloud to expedite model training and experimentation.

Machine Learning Researcher April 2023 - Ongoing
National Research Council of Canada & National Oceanic and Atmospheric Administration *St. John's, NL*

- Developed deep computer vision models using PyTorch to autonomously classify marine species resulting a conference abstract and journal paper (in progress).
- Improved accuracy by 165% in 1 week with iterative training, hyperparameter tuning, and data augmentation.
- Outperformed all other proof-of-concepts initiating further collaboration between NRC and NOAA.

Co-founder & CTO Sept 2022 - Ongoing
LearnFreely *St. John's, NL*

- Co-founded educational charity based in St. John's NL offering educational support to over 50 students.
- Led team to develop generative AI tool to create customizable problem sets from a PDF scan of notes.

Skills

Languages & Tools: C/C++, Python, PyTorch, TensorFlow, Hugging Face, Docker, Bash, Git, Linux, Javascript
Concepts & Coursework: Computer Vision, ML/AI, Linear Programming, Calculus, Linear Algebra, Topology

Selected Projects

Deep Learning Framework with NumPy | Neural Networks From Scratch June 2023

- Used NumPy to created a modular deep neural net framework from scratch.
- Documented mathematical derivations of forward pass, gradient descent, and all other relevant components.

Topology Evolving Neural Networks in Python June 2023

- Implemented a genetic topology and weight evolving artificial neural network to play Flappy Bird using Python using the NeuroEvolution of Augmenting Topologies (NEAT) algorithm.

Publications

Using Artifical Intelligence to Identify Fish from Cameras on Aquaculture Gear NACE-MAS 2024
Gillian Phillips, Renee Mercaldo-Allen, Joshua Barnes, Paul Clark, Mark Dixon, Dylan Redman, Barry Smith, Julie Rose, Jason Wang