Yifan Zong

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Education

University of Waterloo, 3A Candidate for BSE, 4.0 GPA — **2020—2025**

Skills

Languages: Python, C++, C, SQL, R, Java, Swift, Lisp, JavaScript, Bash
Technologies: TensorFlow, JAX, Pytorch, scikit-learn, Tidyverse, PySpark, gRPC, pytest

Experience

Cerebras Systems — **Sept. 2022—Present**
ML Framework Developer — **Toronto, ON**

TD Bank — **Jan.—Apr. 2022**
Data Scientist — **Toronto, ON**

- Implemented 4 variants of tri-training in **scikit-learn** and **TensorFlow** to research the application of semi-supervised learning in fraud detection.
- Benchmarked 18 tri-training models against supervised and self-trained baselines with positive results.
- Sped up training two-fold by applying data cleaning and feature selection on the cheque fraud dataset in **PySpark** and **scikit-learn**.

McMaster University — **Jan. 2021—Apr. 2022**
Data Scientist — **Hamilton, ON**

- Lead a 6-person team in the development of an **R** package for the cleaning and validation of the INORMUS study's datasets.
- Automated 3-hour data checks into 3-second functions with **Tidyverse** in **R**.
- Presented the **R** package to the McMaster Method Center and trained other researchers in its use.

Projects

mlax — **Oct. 2022—Present**

- Created a pure functional neural-network library built on top of **Google JAX**.
- Implemented dense layers, cross-entropy loss, and SGD optimizer with momentum, all of which remain compatible with **JAX**'s transformations.
- Trained an MLP on MNIST that matched the accuracy of a **Pytorch** implementation using a quarter of training time.

Chess AI — **Jul.—Aug. 2022**

- Created a NegaMax AI using PeSTO's evaluation function in **C++**.
- Implemented move-ordering, PV-moves, killer moves, and history heuristics to improve the effectiveness of alpha-beta pruning.
- Achieved a practical search depth of 6 and an ELO of ~1000.

NameThatFish — **May—Jun. 2022**

- Created custom image augmentation layers in **Tensorflow** and fine-tuned an EfficientNetV2 model to classify scraped images of 20 Ontarian fish species.
- Achieved 90+% average accuracy on test data.
- Deployed the model on **Hugging Face Spaces** using the **Gradio** API.