Nicholas Kamra

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Github | Personal Website | LinkedIn | Blog

EDUCATION

Concordia University | Montreal, Quebec
Bachelor of Science in Computer Science, September 2022 - December 2025
GPA: **3.6**

PROJECTS

Flappy Bird Clone with Genetic Neural Network (C# and Unity)

- Developed a Flappy Bird clone using Unity, incorporating a custom Genetic Neural Network from scratch; Achieving scores above human ability - theoretically able to go to **infinity**.
- Designed the network with 1 hidden layer (6 neurons, ReLU activation) and 1 output neuron (Sigmoid function) to optimize agent performance.

Supervised Learning Neural Network Library (C#)

- Built a supervised learning neural network library from scratch in C#, incorporating data preprocessing tools (e.g., one-hot encoding, missing feature handling).
- Implemented backpropagation, activation functions, optimization, and normalization methods. A custom model achieved **93.1%** accuracy on the MNIST test dataset.

Digit Recognizer with Multi-Class Classification (Unity, Pytorch, NumPy, Matplotlib, pandas)

- Designed and trained a PyTorch model for multi-class classification on the MNIST dataset, achieving **98%** accuracy; Implemented data augmentation to handle noise.
- Integrated the model into Unity using my C# Supervised Learning Neural Network Library to store weights and biases and handle forward passes for predictions.
- Created a custom canvas in Unity for users to draw digits and use the model to make predictions.

MLOps Animal-10 ResNet32 Classifier (PyTorch, FastAPI, Docker, GCP)

- The PyTorch ResNet32 architecture was pre-trained on the ImageNet 1k dataset and fine tuned on the Animal-10 dataset on Kaggle, in which EDA was used to explore the imbalances of the classes and example images were randomly selected from the dataset and observed. The model achieved a cross-validation accuracy of **90.06%** and an F-1 score of **0.9**. Accuracies and loss per epoch were graphed using Matplotlib.
- Created a full MLOps pipeline, including CI/CD with Github actions, deploying Docker images on Google Cloud Platform in the Artifact Registry, where the model predictions FastAPI methods were exposed on Google Cloud Run.

EXPERIENCE

AI Apprentice | AI Launch Lab Mentorship Program: Oct 2024 - Current

- Worked with mentors within the AI field and my cohort to learn the many different aspects of machine learning. This includes but is not limited to: neural network architectures; bias-variance trade-off; regression models; activation functions; basics of LLMs. Weekly quizzes pinned us against each other to gauge our understanding. With our cohort teams, we built small projects which we presented to our mentors at the end of the season.

Commercial Fisherman (Deck Boss) | Portland, Maine: June 2016 - Aug 2022

- Developed strong teamwork and communication skills while working with diverse crews in physically demanding roles.
- Operated in high-pressure environments, ensuring team safety, achieving daily quotas under tight deadlines, and problem-solving in unpredictable conditions.

SKILLS

- **Languages**: Python, C#, Java, SQL
- **Frameworks/Libraries/Engines**: PyTorch, pandas, Matplotlib, scikit-learn, Jupyter Notebooks, NumPy, Google Cloud Platform (GCP), Docker, Unity