Nicholas Kamra

207-766-1914 | yckamra@gmail.com
https://github.com/yckamra
https://nicholaskamraportfolio.com

EDUCATION

Concordia University | Montreal, Quebec
Bachelor of Science in Computer Science, September 2022 - May 2025
GPA: 3.7

PROJECTS

Flappy Bird Clone with Genetic Neural Network (C# and Unity)
- Created a clone of the popular mobile game, Flappy Bird, using the Unity engine. Implemented a genetic neural network - using multiple agents - from scratch to learn the parameters to beat the game (get a really high score);The optimal network I found has 1 hidden layer with 6 neurons with the ReLU activation and 1 output neuron with the Sigmoid function.

Supervised Learning Neural Network Library (C#)
- Created a supervised learning neural network library from scratch which also handles data organization and modifications (one-hot encoding, splitting data, checking for missing features, etc.). The library implements key neural network components (backpropagation, activation functions, optimization, normalizations). Currently functional but undergoing optimization for better time performance during training. Trained and tested on MNIST dataset achieving a 93.1% accuracy on the test set.

Digit Recognizer with Multi-Class Classification (Unity, Pytorch, NumPy, Matplotlib, pandas)
- Trained a multi-class classification model with the Pytorch library on the MNIST Dataset; the model uses fully connected dense layers with softmax output activation. In Unity I created a canvas the user can draw on that uses the Pytorch models parameters loaded into my Supervised Learning Neural Network Library (see above) to recognize the digits drawn with a 98% accuracy; Required data augmentation to adapt to noise.

Colorectal Cancer Detection with ResNet CNN (Pytorch, Matplotlib, ResNet)
- Used the ResNet18 architecture to train a CNN on a Colorectal Cancer dataset. This was a team project, and I was responsible for the above mentioned implementation: Processing and loading the images; Training the ResNet model leveraging 'cuda' GPU cores; Diagnosing the model to improve train and test accuracies, and minimize the cost. Everything in the Github repository is my own code, as other teammates were to take the convolutional layers and transfer them onto their own models within personal repositories.

EXPERIENCE

AI Apprentice | AI Launch Lab Mentorship Program: Oct 2024-Current
- Working with cohorts and mentors to create projects that solve real-world problems. Currently, in the conceptual stage of building a model to solve a problem in the subject of Climate Change.

Java Object-Oriented Programming Tutor | University of Southern Maine: Dec 2022 – May 2022
- One-on-one tutor in Java object-oriented programming basics. This included giving instructions on basic DSA skills and a walk-through of creating a Java chess game.

Skills

- **Languages**: C++, C#, Python, Java.
- **Frameworks/Libraries/Engines**: Unity, NumPy, PyTorch, Matplotlib, JupyterLab, scikit-learn, pandas, Git, Google Colab