Jacob Fiske

CS3120

Final ML Project Report

1. The goal of this project was to have the user draw a letter using a machine learning model to track the position of a hand from a camera via the first machine learning model. The handwritten letter is then saved and processed by another machine learning model to predict the given letter.
2. I wanted to connect the two machine learning models to create a fun and interactive way of presenting hand tracking with machine learning and classification. Both drawing with with a ML model and predicting letters are basic ideas but create the foundation for a fun project.
3. Packages - openCV, MediaPipe, SKlearn, Emnist, Numpy
4. I used the MLP(multilayer perceptron model) that uses feedforward and backpropagation for training. The reason I decided to use this model is that the MLP is particularly good at classification problems
5. I used the already trained model from OpenCV for hand landmarks to keep track of hand movements from a camera. I then translated the given drawn image into a MLP(multilayer perceptron model) that used supervised training on. The MLP had certain configurations that I adjusted in the SKLearn package. I used the default “rectified linear unit function”, stochastic gradient descent, and 20 iterations, as well as a 5 layer 100 “neuron” approach.