Machine Learning ex4

Model Chosen:

I was asked to train a model to classify a speech command using speech data, I converted the audio files into sound wave pictures. I chose to use CNN model because this type of data does not change and They have proven so effective that they are great method for any type of prediction problem involving image data as an input.

Hyperparameters:

Epoch – 10 Learning Rate - 0.001 Batch Size – 100

Training process:

Every example from the data set passed through four convolutional layers, every convolutional filter was 7X7 matrix. Then I used RelU activation function to create non linear classifier, afterward I used MaxPool and Batch Normalization to avoid over fitting.

I trained fully connected neural network using drop out technique.

Results:

Cross validation result was 89% accuracy. Test validation results was 90% accuracy.

This is a confusion matrix, a table that is often used to describe the performance of a classification model on a set of test data for which the true values are known. It allows the visualization of the performance of an algorithm. The matrix display right prediction and the model prediction on the opposing side. We can see that the model have difficulty classifying similar data like "tree" and "three".