CSE472 Machine Learning Sessional

Report

Performance of Implemented Convolutional Neural Network Architecture

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Model Architecture

	Output Chanenels	Filter Dimension	Stride	Padding	Output Dimension
Convolution	3	3	2	1	
Relu					
Maxpool		2			
Convolution	3	3	2	1	
Relu					
Maxpool		2			
Fully Connected Layer					120
Fully Connected Layer					84
Fully Connected Layer					10
Softmax					

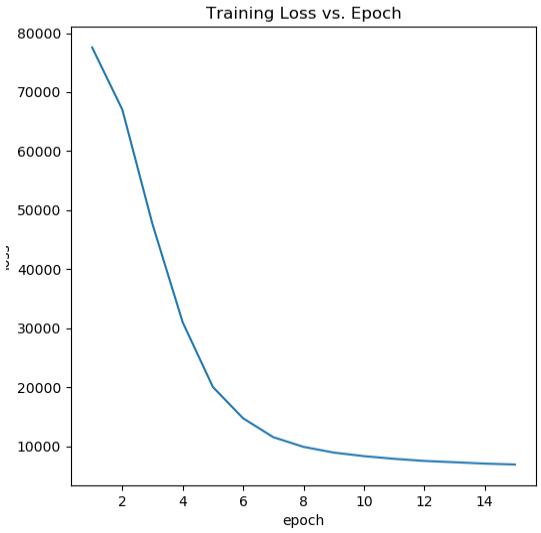
Dataset and Hyperparameters

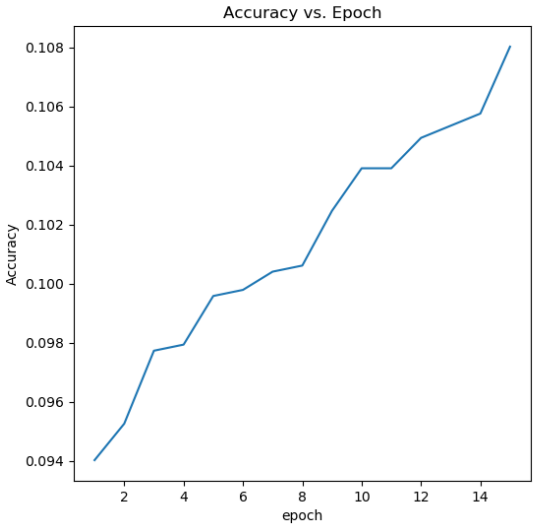
Data 10000 images
(Shuffled across sets ’training-a’, ’training-b’ and ’training-c’)
Train set 20%
Validation set 10%
Batch size 8
Epochs 20
Learning Rate 0.0000001, 0.000001, 0.00001, 0.0001
Same model trained for different learning rates

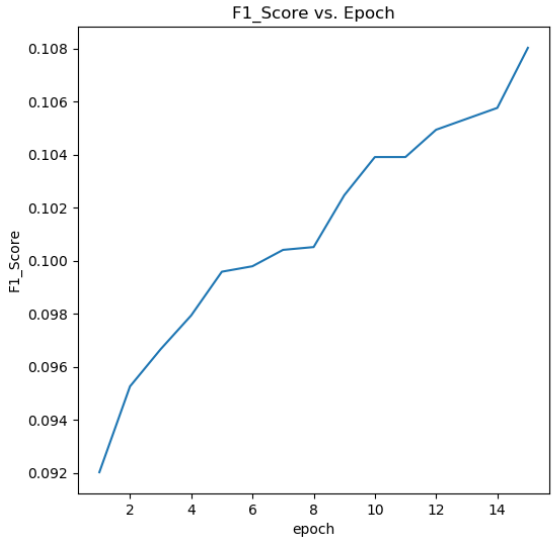
Graphs

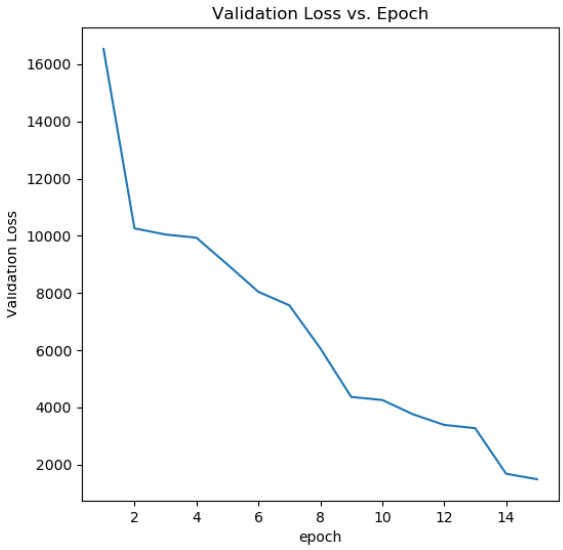
Epoch Vs Metrics

Learning Rate: 0.00001



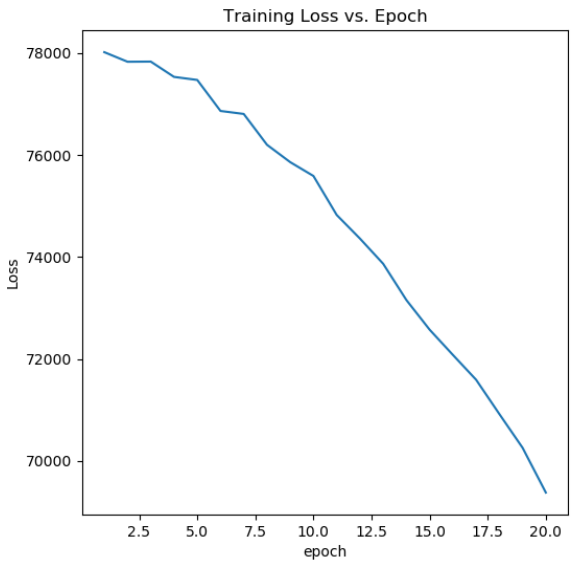


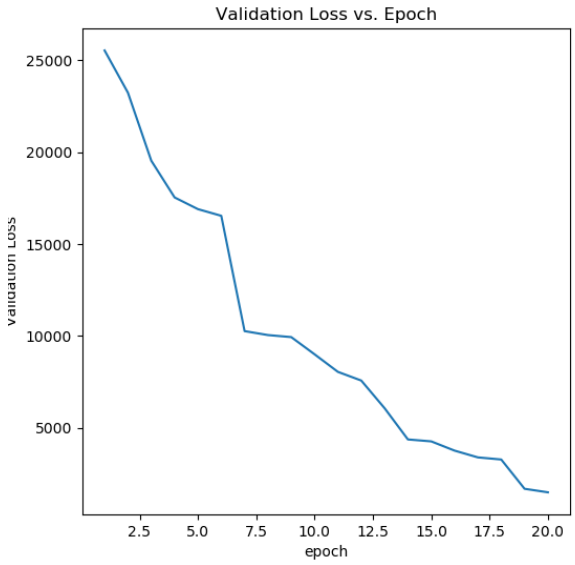


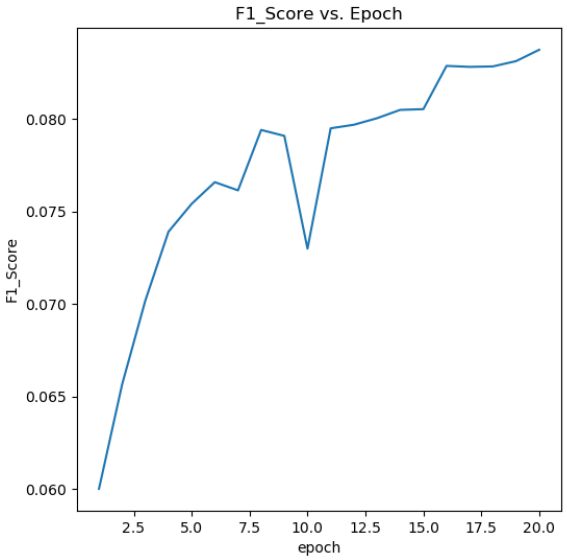


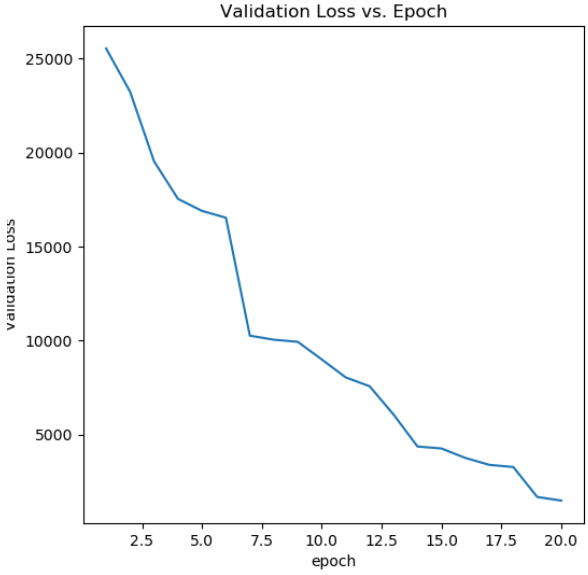
Epoch vs Metrics

Learning Rate: 0.000001









Independent Test Performance

The best model was chosen based on best F1-score. The chosen model was then used to predict the labels of images from the 'training-d' set.
Accuracy 0.12185185185185185
Macro F1 Score 0.08698619091622568