Machine Learning COSC 6342

Fall 2017

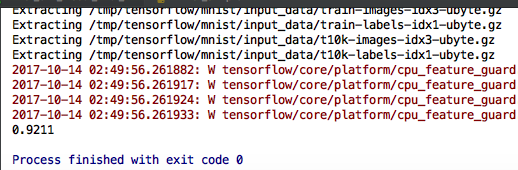
Homework -2 Report

Priscilla Imandi

PS ID : 1619570

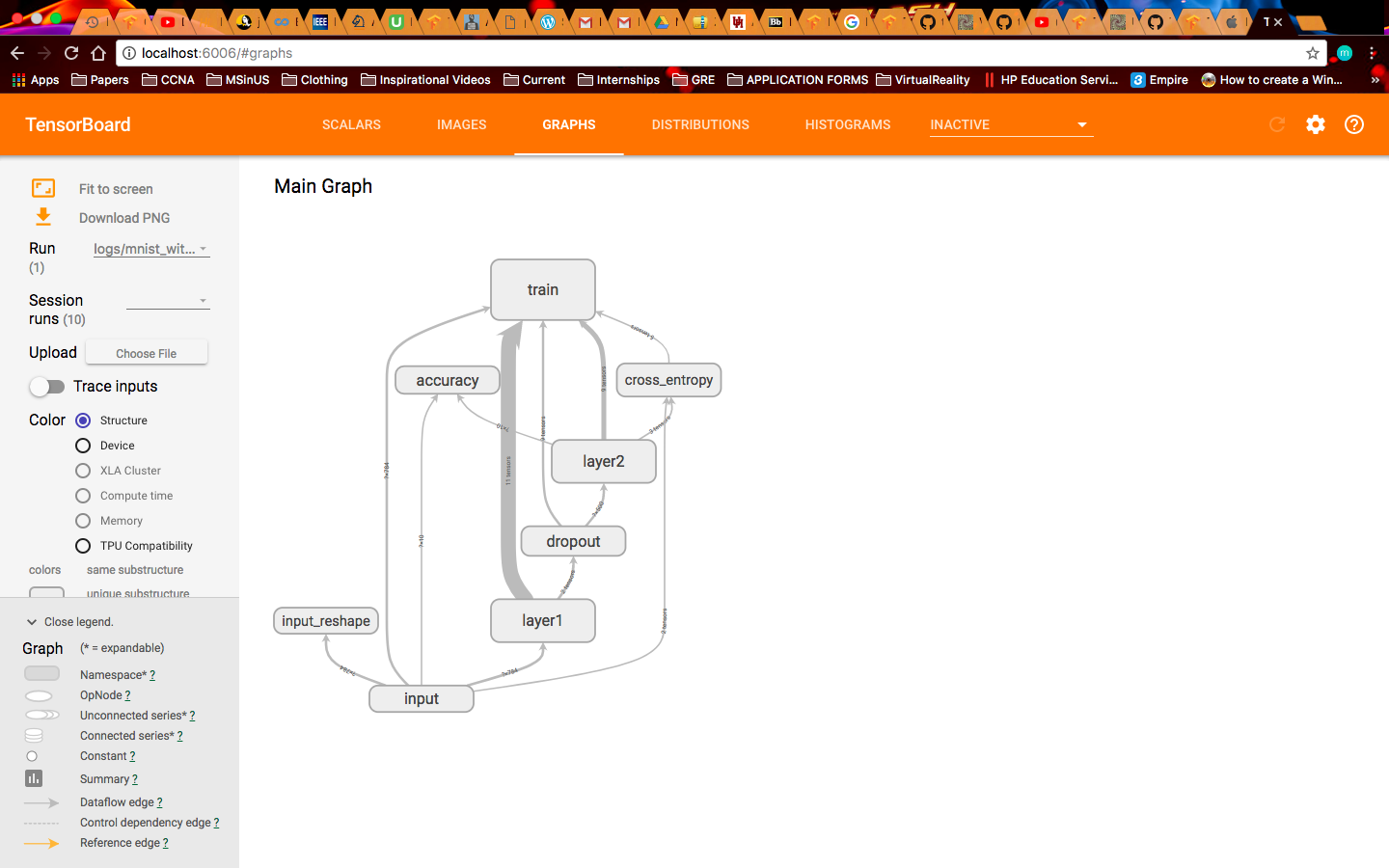
Part 1a : Perceptron

Accuracy for the simple model is 92.11

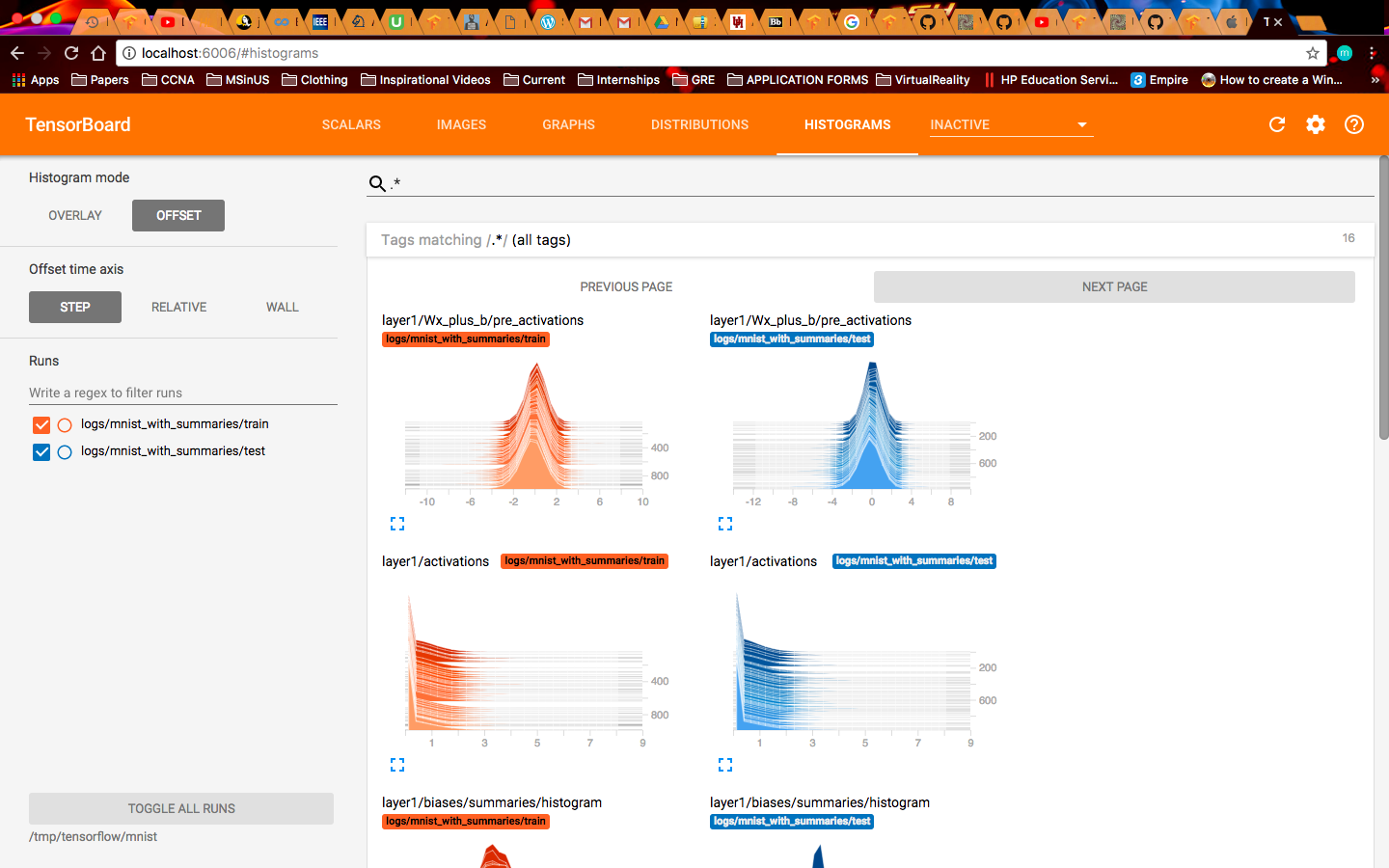


Tensorboard Visualisation

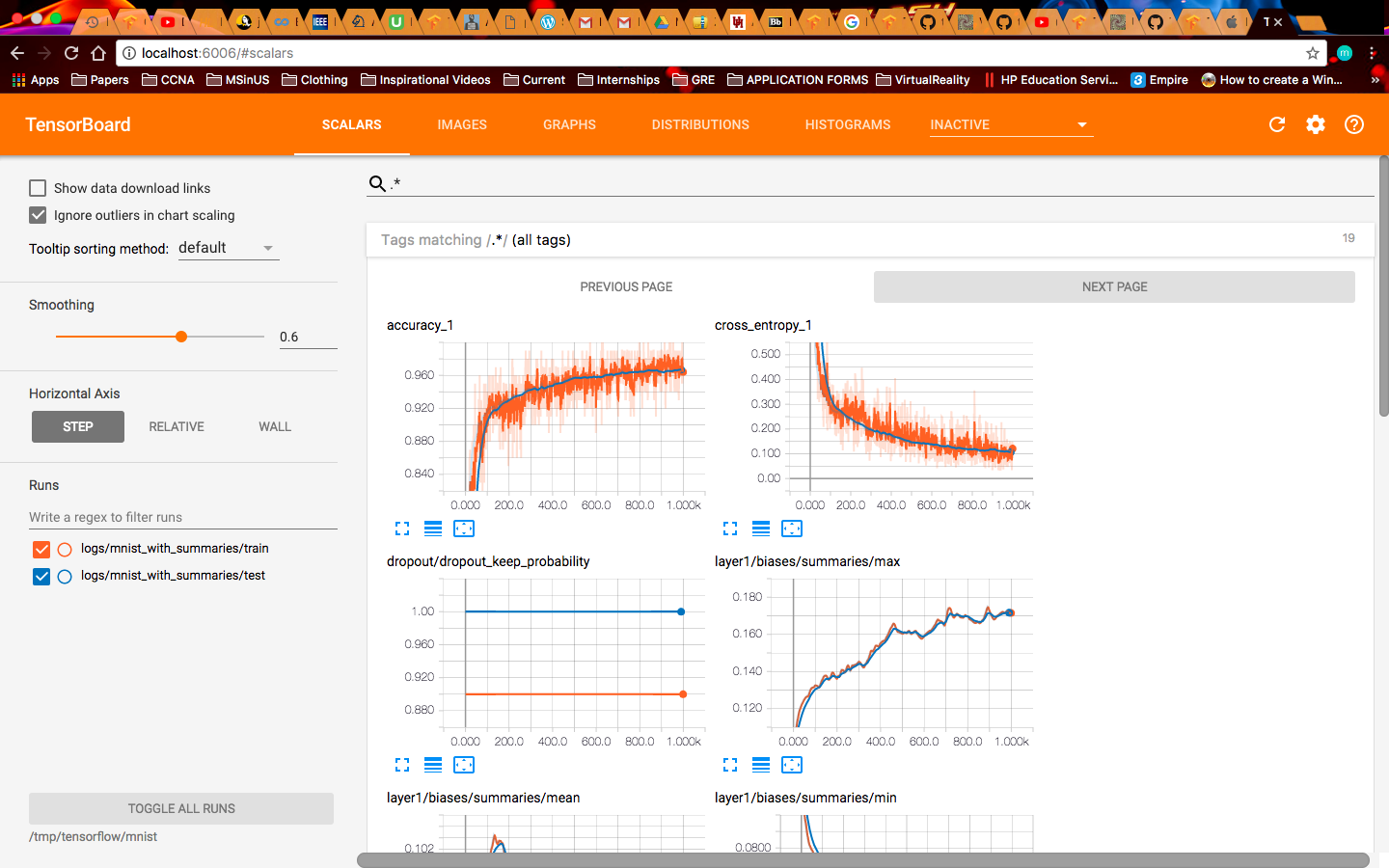
1. mnist\_softmax\_graph



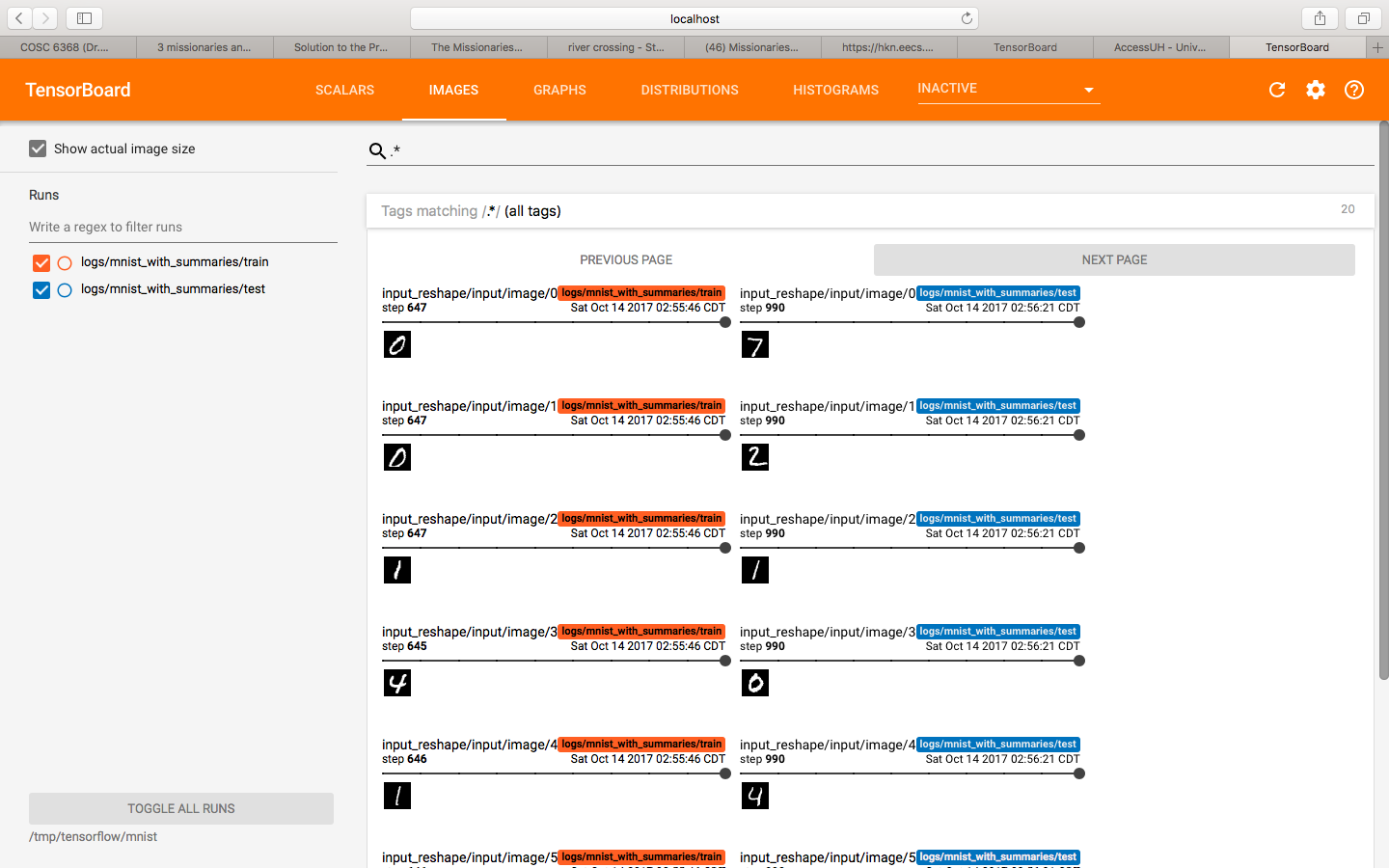
1. mnist\_softmax\_histogram



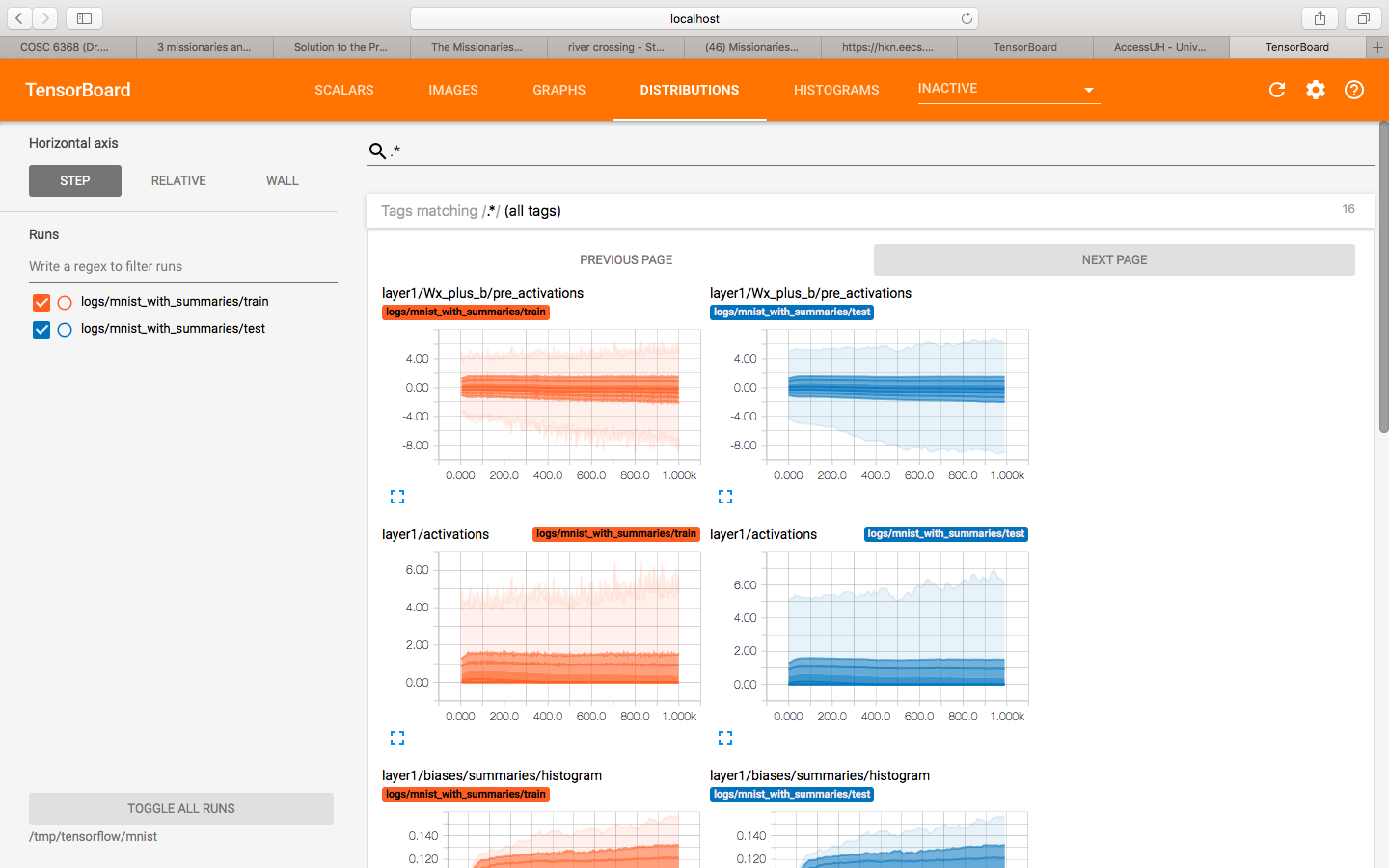
1. mnist\_softmax\_scalars



1. mnist\_softmax\_image

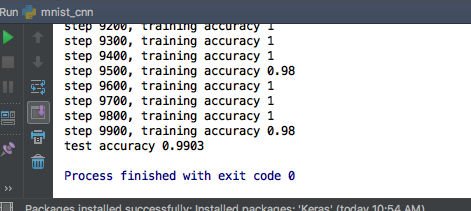


1. mnist\_softmax\_distributions

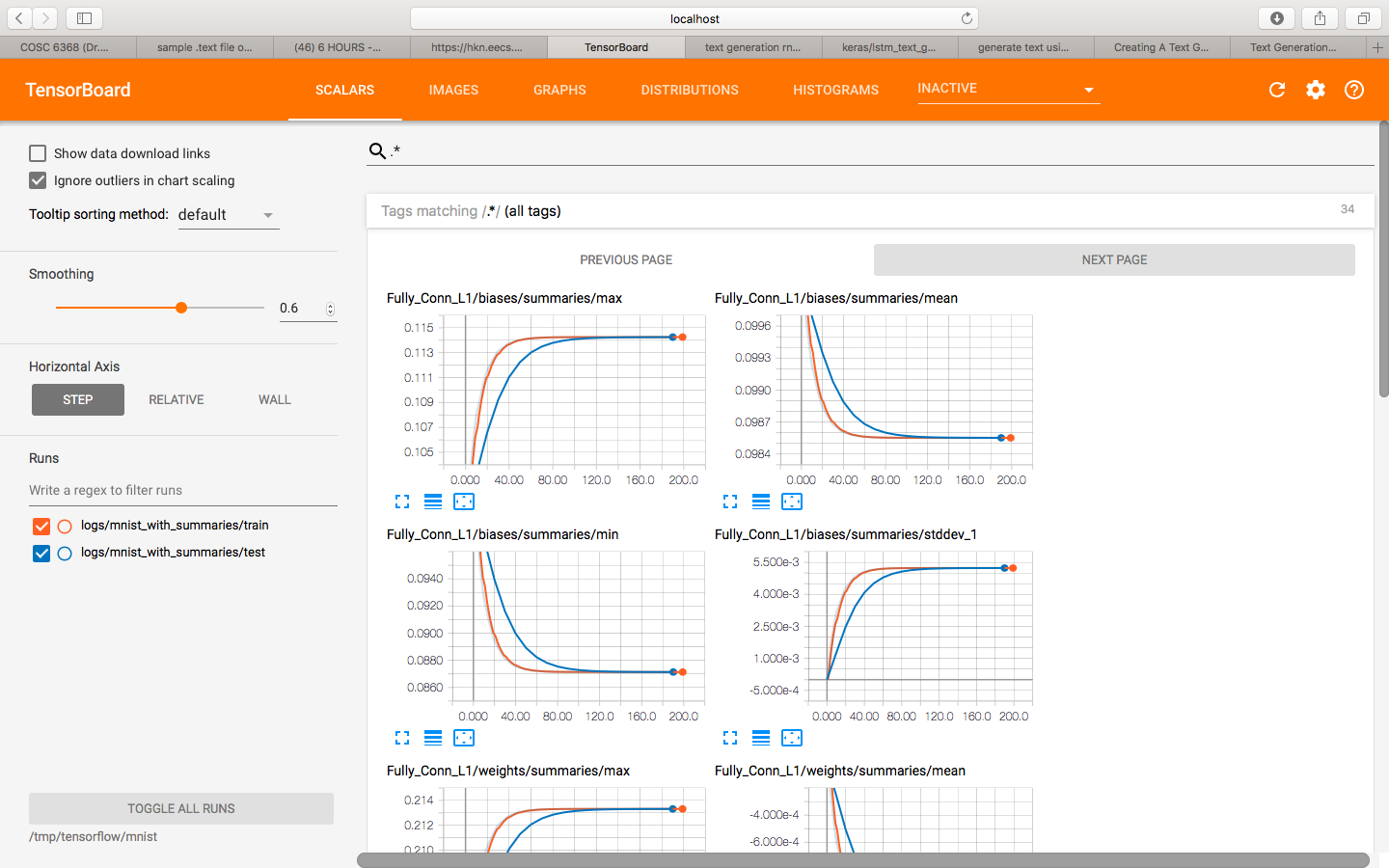


Part 1b : Convolutional Neural Networks

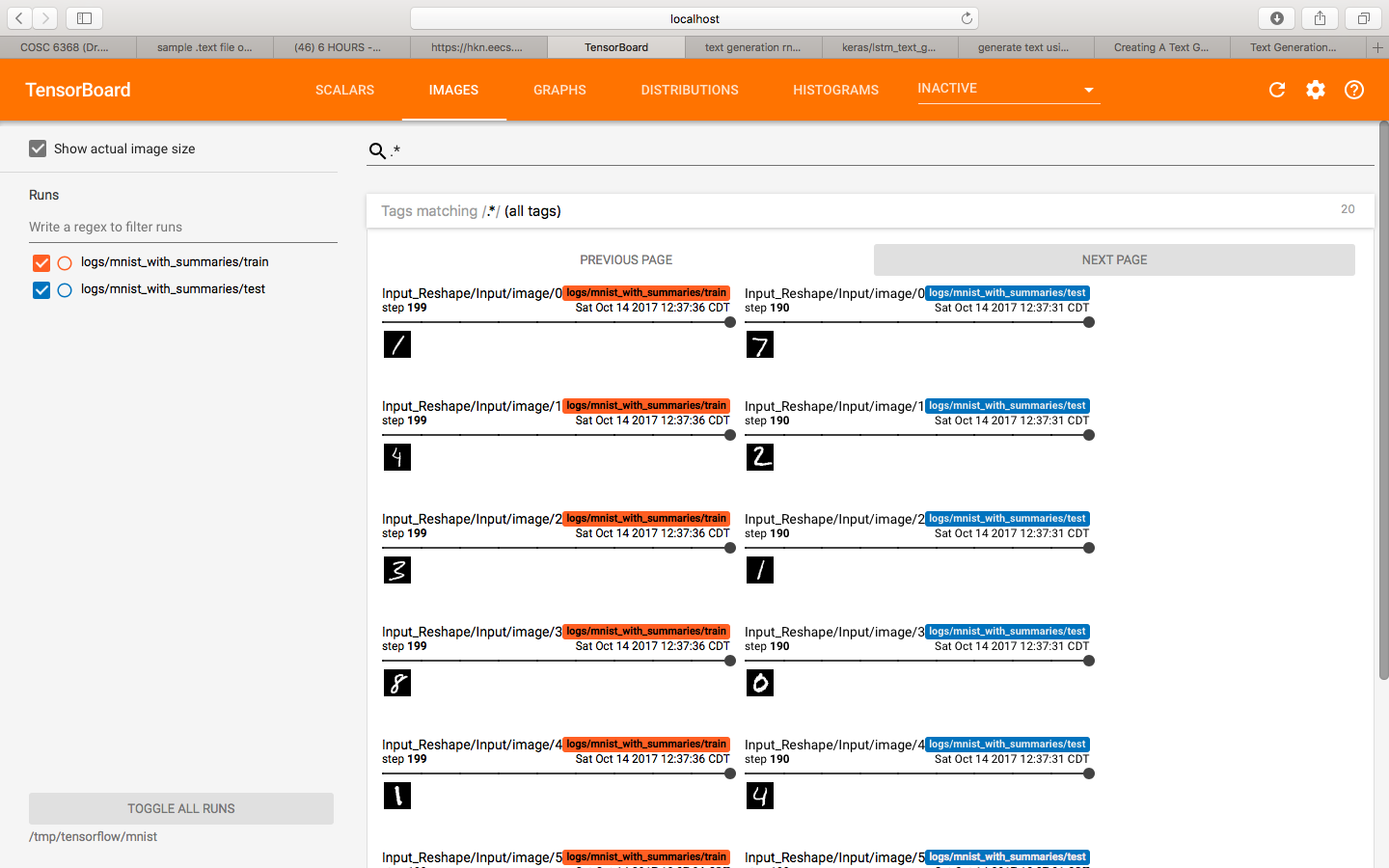
Accuracy is 99.03



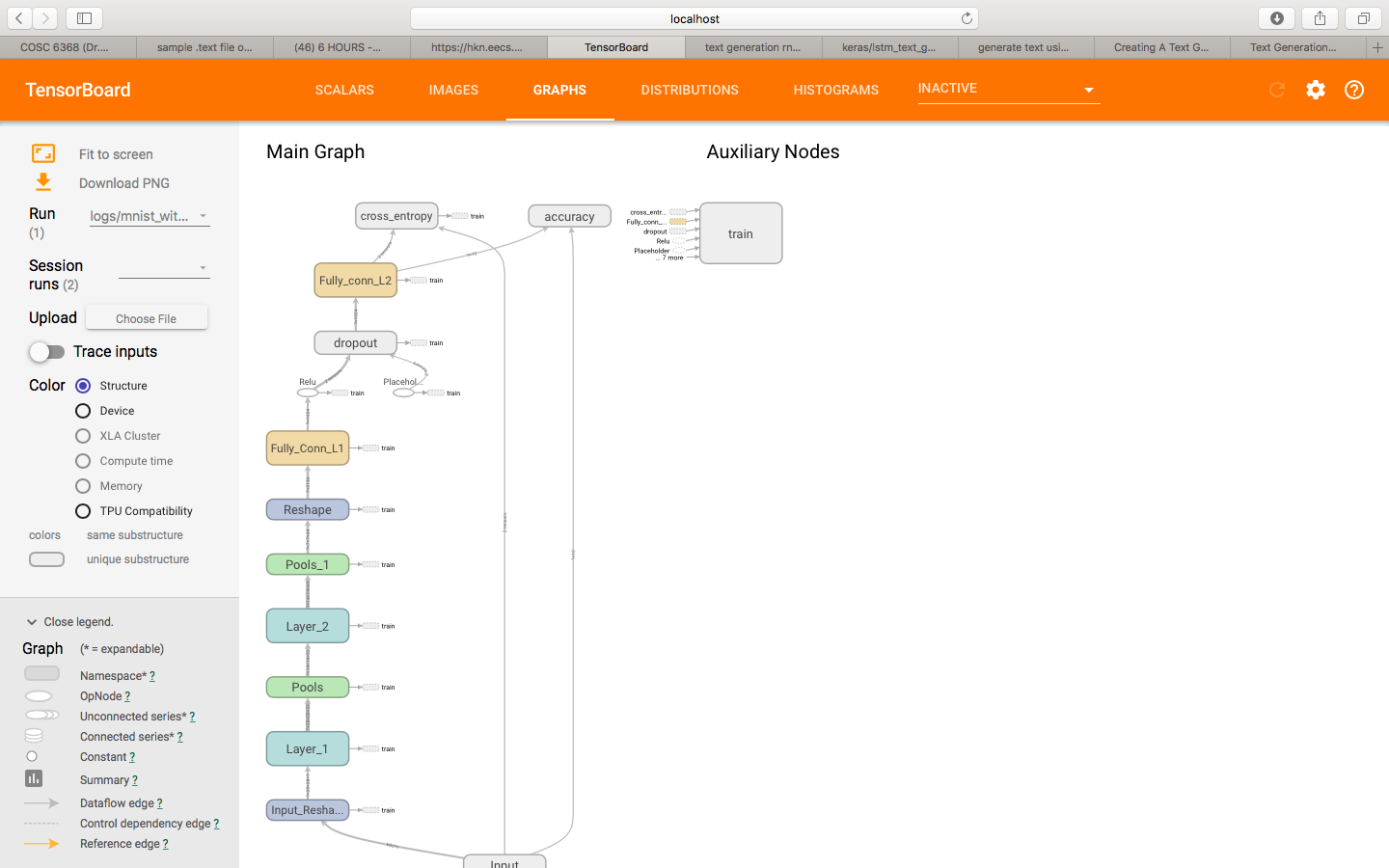
1. cnn\_scalars



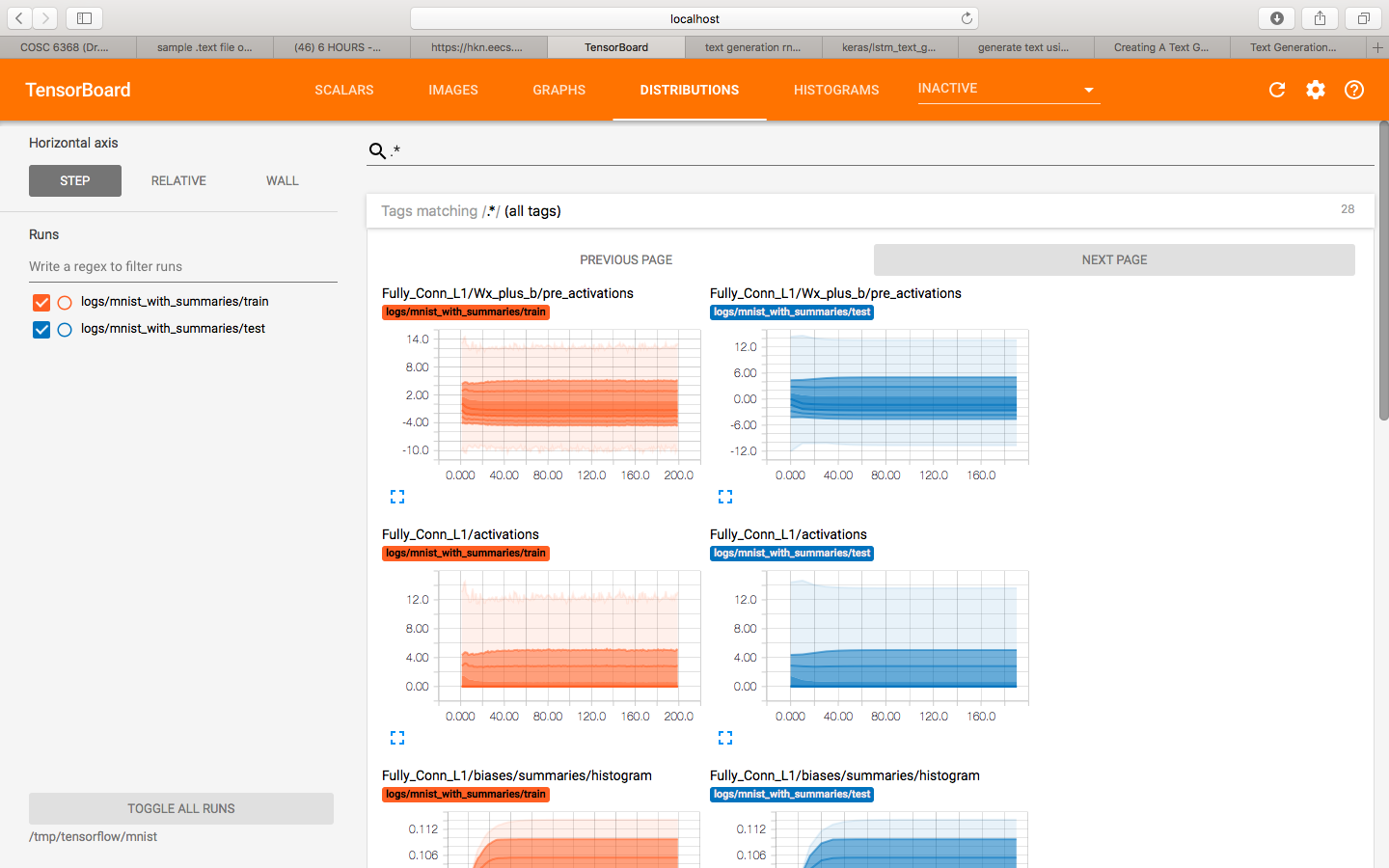
1. cnn\_image



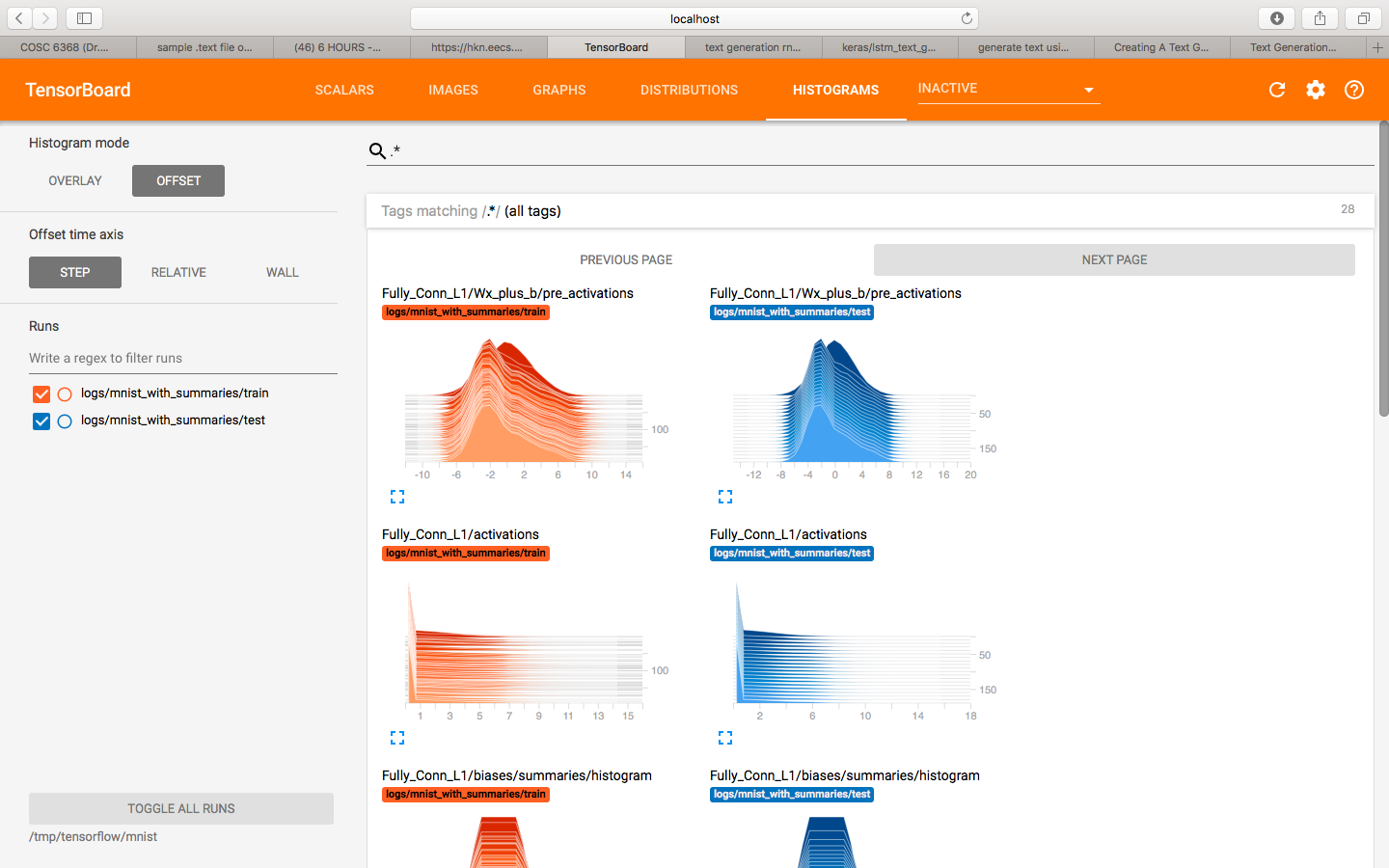
1. cnn\_graph



1. cnn\_distributions



1. cnn\_histograms



Part 1c:

The convolutional Neural Networks model performed better because it trained through multiple layers rather than a single layer like the first model.

But having multiple layers doesn’t always mean that accuracy increases, it might sometimes also lead to over fitting, even though it performs very well on training data.

The output in MNIST is the probability of the image being associated with a class. If the image goes through multiple layers the probability of it being the true output increases as multiple comparisons are made.

Part 2 :

A collection is taken with filename <alad10.txt> .

For larger data sets the output is better. With more iterations the model learns better.

Output getting generated after 35 iterations is:

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