

## Lab Assignment-5

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## Team 6-2:

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### Convolutional Neural Network

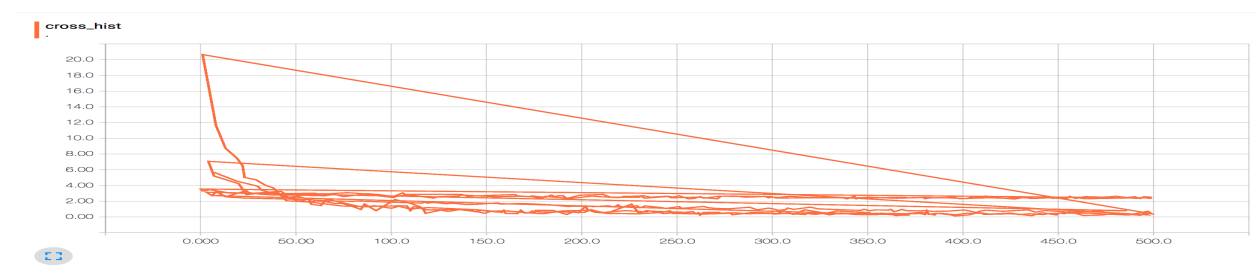
Dataset: We used MNIST dataset to build CNN model which is one dataset used for our project evaluation

## Output:

### Accuracy using Adam optimizer

```
2018-03-15 10:34:37.270334: W tensorflow
step 0, training accuracy 0.16
step 100, training accuracy 0.56
step 200, training accuracy 0.84
step 300, training accuracy 0.8
step 400, training accuracy 0.96
test accuracy 0.9021
Time for building convnet:
46439
```

Histogram



## 2. Inception model

Dataset: we used a 10-class dataset that has bonsai, airplane etc... as categories

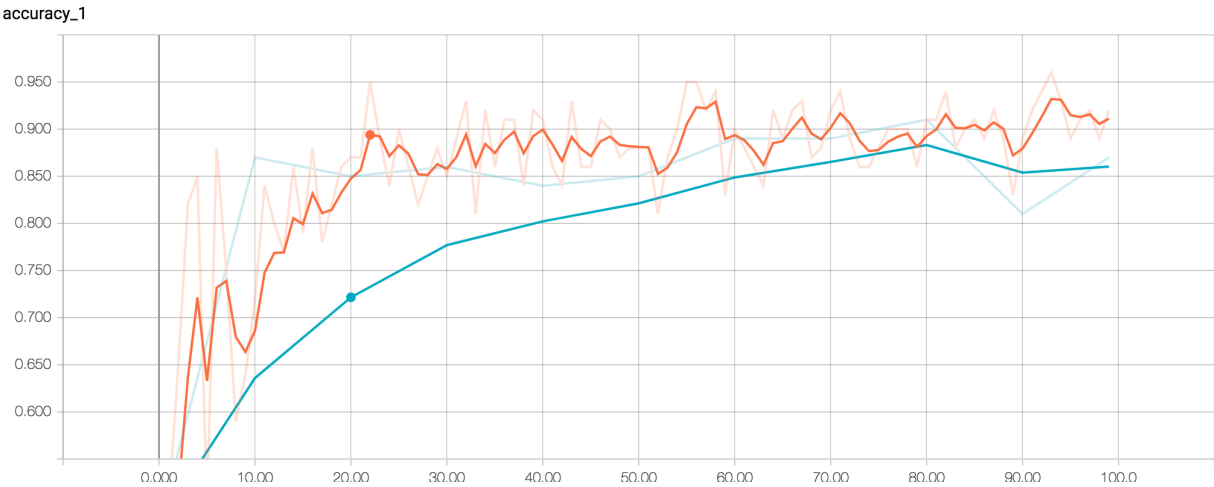
train the given dataset (given in source code) for 100 iterations using the inception model and

report accuracy. Provide Tensor Board visualizations for Training, weights, loss etc. and validation.

### Training

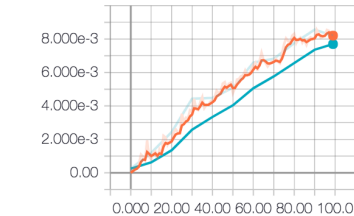
```
2018-03-22 19:53:11.235837: Step 90: Validation accuracy = 90.0% (N=100)
2018-03-22 19:53:12.248726: Step 100: Train accuracy = 92.0%
2018-03-22 19:53:12.248844: Step 100: Cross entropy = 0.338091
2018-03-22 19:53:12.367931: Step 100: Validation accuracy = 98.0% (N=100)
2018-03-22 19:53:13.356234: Step 110: Train accuracy = 93.0%
2018-03-22 19:53:13.356348: Step 110: Cross entropy = 0.342057
2018-03-22 19:53:13.498774: Step 110: Validation accuracy = 91.0% (N=100)
2018-03-22 19:53:14.539982: Step 120: Train accuracy = 94.0%
2018-03-22 19:53:14.540037: Step 120: Cross entropy = 0.350233
2018-03-22 19:53:14.661305: Step 120: Validation accuracy = 89.0% (N=100)
2018-03-22 19:53:15.596808: Step 130: Train accuracy = 96.0%
2018-03-22 19:53:15.596889: Step 130: Cross entropy = 0.357237
2018-03-22 19:53:15.714815: Step 130: Validation accuracy = 87.0% (N=100)
2018-03-22 19:53:16.668959: Step 140: Train accuracy = 92.0%
2018-03-22 19:53:16.669130: Step 140: Cross entropy = 0.293403
2018-03-22 19:53:16.786611: Step 140: Validation accuracy = 90.0% (N=100)
2018-03-22 19:53:17.625961: Step 150: Train accuracy = 94.0%
2018-03-22 19:53:17.626022: Step 150: Cross entropy = 0.289935
2018-03-22 19:53:17.756268: Step 150: Validation accuracy = 89.0% (N=100)
2018-03-22 19:53:18.769160: Step 160: Train accuracy = 90.0%
2018-03-22 19:53:18.769219: Step 160: Cross entropy = 0.352528
2018-03-22 19:53:18.889094: Step 160: Validation accuracy = 86.0% (N=100)
2018-03-22 19:53:19.780354: Step 170: Train accuracy = 97.0%
2018-03-22 19:53:19.780431: Step 170: Cross entropy = 0.244631
2018-03-22 19:53:19.915222: Step 170: Validation accuracy = 97.0% (N=100)
2018-03-22 19:53:21.002330: Step 180: Train accuracy = 95.0%
2018-03-22 19:53:21.002427: Step 180: Cross entropy = 0.260477
2018-03-22 19:53:21.088353: Step 180: Validation accuracy = 87.0% (N=100)
2018-03-22 19:53:21.939913: Step 190: Train accuracy = 95.0%
2018-03-22 19:53:21.940027: Step 190: Cross entropy = 0.281408
2018-03-22 19:53:22.059077: Step 190: Validation accuracy = 88.0% (N=100)
2018-03-22 19:53:22.874565: Step 199: Train accuracy = 93.0%
2018-03-22 19:53:22.874718: Step 199: Cross entropy = 0.247687
2018-03-22 19:53:22.986746: Step 199: Validation accuracy = 95.0% (N=100)
Final test accuracy = 93.7% (N=63)
```

# Accuracy

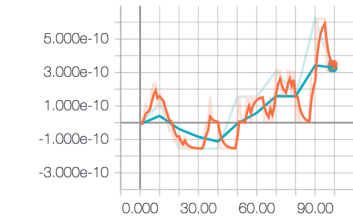


# Summaries

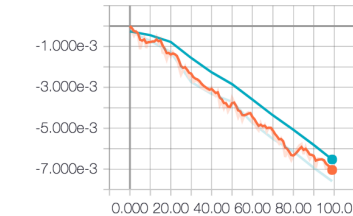
final\_training\_ops/biases/summaries/max



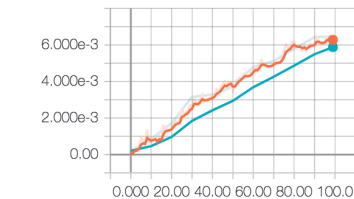
final\_training\_ops/biases/summaries/mean



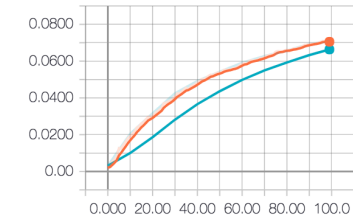
final\_training\_ops/biases/summaries/min



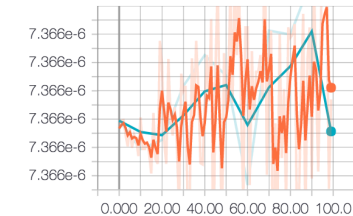
final\_training\_ops/biases/summaries/stddev\_1



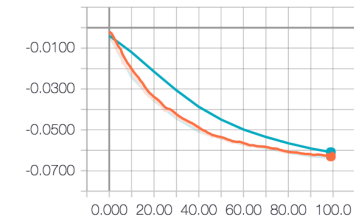
final\_training\_ops/weights/summaries/max



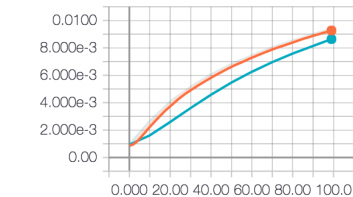
final\_training\_ops/weights/summaries/mean



final\_training\_ops/weights/summaries/min



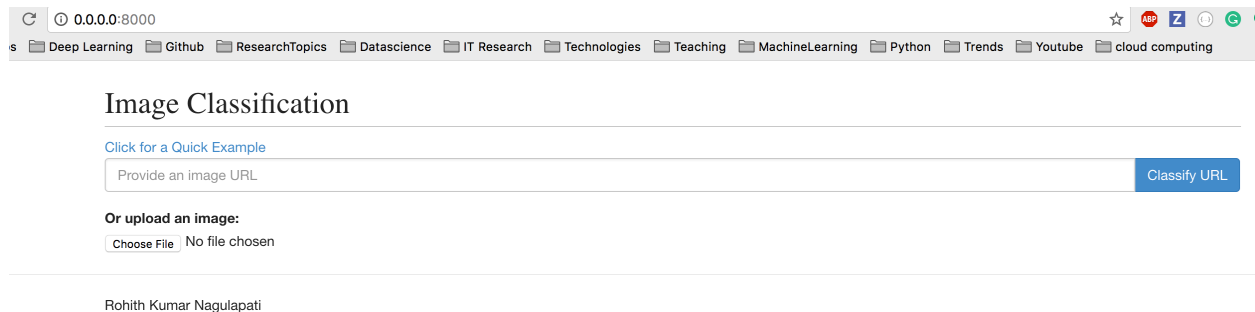
final\_training\_ops/weights/summaries/stddev\_1



### 3. CNN-Web for Image Classification

Dataset: We used the above-built model for image classification

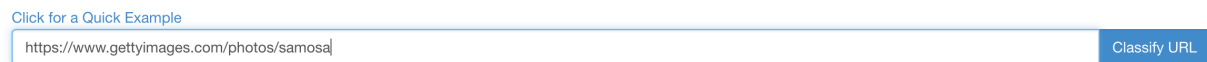
#### Application Screenshot



The screenshot shows a web browser window with the address bar at 0.0.0.0:8000. The page title is "Image Classification". Below the title, there is a link "Click for a Quick Example". A text input field contains the placeholder "Provide an image URL". To the right of the input field is a blue button labeled "Classify URL". Below the input field, there is a section titled "Or upload an image:" with a "Choose File" button and the text "No file chosen". At the bottom of the page, the name "Rohith Kumar Nagulapati" is displayed.

Place to submit the link for image classification

#### Image Classification



This screenshot shows the same "Image Classification" interface as the previous one, but with the URL "https://www.gettyimages.com/photos/samosa" entered into the text input field. The "Classify URL" button remains visible to the right.

#### Displaying Prediction Results

