Weekly Report on Road analytics

Faculty: Mehul S. Raval

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Member: Yagnik Bhavsar

En. No: AU2149006

Outline of peformed task :

- Implemented modified Alexnet for 50 X 50 images
- Biased loss function

Modified Alexnet model :

- *CONV1 Layer* :
  - No. of Filters = 96
  - Kernel Size= 11 x 11
  - stride= 4
  - padding: 'same'
- *POOL1 Layer :*
  - Kernel Size= 2 x 2
  - stride= 2
  - *padding: 'same'*
- *CONV2 Layer* :
  - No. of Filters = 256
  - Kernel Size= 5 x 5
  - stride= 1
  - padding: 'same'
- *POOL2 Layer :*
  - Kernel Size= 2 x 2
  - stride= 2
  - *padding: 'same'*

- *CONV3/CONV4/CONV5 Layer* :
  - No. of Filters = 384/384/256
  - Kernel Size= 3 x 3
  - stride= 1
  - padding: ‘same’

- *POOL3 Layer :*
  - Kernel Size= 2 x 2
  - stride= 2
  - *padding: ‘same’*

- *FC1/2 layer (dense layer) :*
  - 4096 neurons
  - dropout of 0.4

- *Output layer :*
  - 6 neurons
  - Softmax activation

Weights calculation :

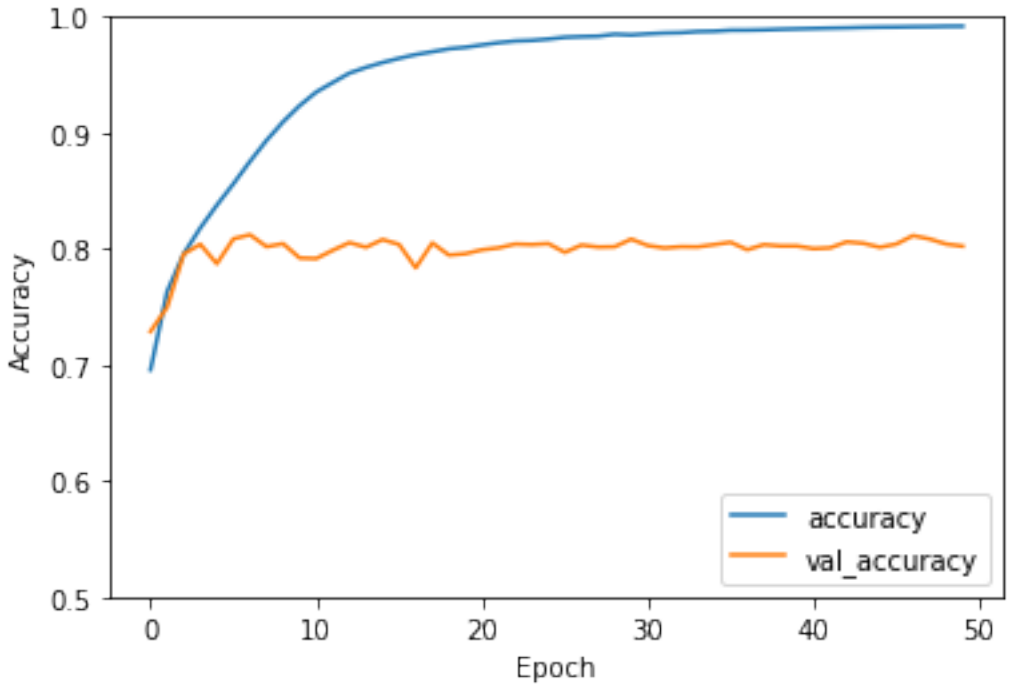
W_J = (sample space size) / (no_classses * J^{th} class sample size)

noBi=9484
noBus=5445
noCar=139760
noMotor=28138
noTruck=11786
noVan=23435
noClasses=6
noTotal=218048

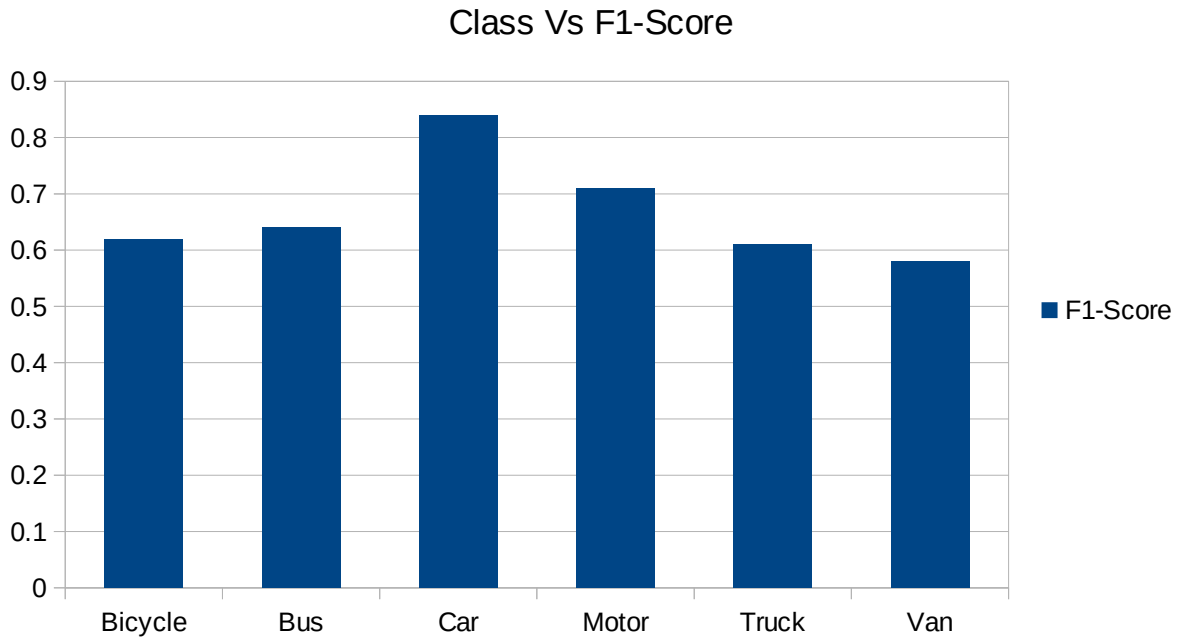
  - Bicycle : 3.831857162941094,
  - Bus : 6.674257728803183,
  - Car : 0.2600267124594543,
  - Motor : 1.2915393181225863,
  - Truck : 3.0834323208326264,
  - Van: 1.550728966645331

Result :

- Training and validation accuracy



- Validation accuracy= 80%, Testing accuracy= 74%
- Classwise F1- score



Tentive list of tasks for next session :

- Implement SPP and GAP to make alexnet independent of input image size