Assignment:-2 (part:- 2)

Deep Learning And its Application(cs671)

Submitted by Group 10
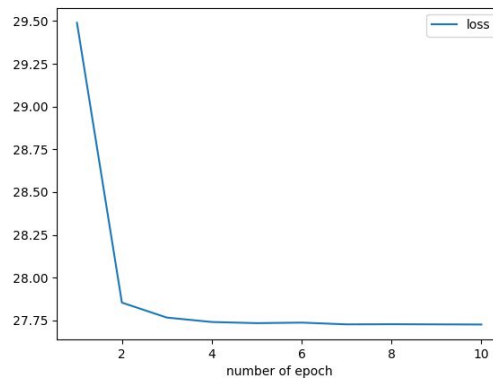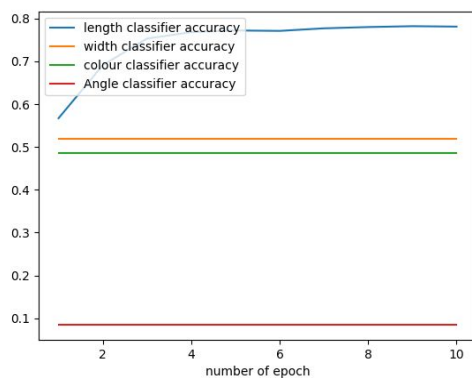
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1. Learning Curve

2. F-scores

	Length classifier	Width classifier	Colour classifier	Angle classifier
F-score	0.781	0.5285	0.4749	0.0127

3. Confusion matrices

Length classification

	Len_7	Len_15
Len_7	8407	1312
Len_15	2964	6517

accuracy:77.72%

Width classification

	Width_1	Wiidth_3
Width_1	2953	6591
Width_3	2493	7163

accuracy:52.68%

Colour classification

	Red	Blue
Red	4719	4848
Blue	5234	4399

accuracy:47.48%

Angle classification

	0	15	30	45	60	75	90	105	120	135	150	165
0	1551	0	0	0	0	0	0	0	0	0	0	0
15	1563	0	0	0	0	0	0	0	0	0	0	0
30	1652	0	0	0	0	0	0	0	0	0	0	0
45	1601	0	0	0	0	0	0	0	0	0	0	0
60	1587	0	0	0	0	0	0	0	0	0	0	0
75	1654	0	0	0	0	0	0	0	0	0	0	0
90	1536	0	0	0	0	0	0	0	0	0	0	0
105	1641	0	0	0	0	0	0	0	0	0	0	0
120	1604	0	0	0	0	0	0	0	0	0	0	0
135	1558	0	0	0	0	0	0	0	0	0	0	0
150	1627	0	0	0	0	0	0	0	0	0	0	0
165	1586	0	0	0	0	0	0	0	0	0	0	0

Accuracy: 8.2%:

4. Variations tried

- Instead of one neuron in output layer for classification head 1,classification head 2 and classification head 3, if I have trained for 2 output neuron and softmax cross entropy loss,got the better classification accuracy.
- Increasing the filter size to 7*7 from 5*5 in first convolution layer decreases the accuracy.

5. Inferences

- Initially the loss decreases with faster rate and then decreases with slower rate.
- After a large number of epoch(iteration) ,loss saturates(even if we train for more iteration, loss doesn't decrease).
- From the figure of accuracy vs iteration,we observe that accuracy is more for the length classification head but very poor accuracy for Angle classification.
- Here we are not getting good accuracy because number of iterations is 10(very less) but having trained for more number of iterations would have got better accuracy.