Theory Questions

Team: Very Deep Learners

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Problem 4.1. Underfitting:

In our AlexNet, there are a lot of parameters to tune and very small solution space. Underfitting occurs when it is not able to classify data it has already been trained on. It is possible in this case that added so many Augmentations to the training set. This made the training metrics lower. Since it is already performing poorly with the training data, it does not improve on the testing data.

To elevate the underfitting, it would be best to make our model more complex. Some techniques for us would be:

- Add more layers to the AlexNet

- Add more labels to the data (better classification)

- Reduce dropout on the AlexNet: decrease the dropout rate (maybe below 50 percent).

Problem 5.1. Overfitting:

Overfitting occurs when the AlexNet Model with the ResNet performs well on the training set but poorly on the test set. It is said to have 'over-fit' the data in the training. If our validation metrics on the training set are good, but the validation metrics on testing are not, it is overfit. The reason behind this may be a lack of adequate data (augmented, diversity, robustness).

To elevate the overfitting

- Add more data (more training data)

- Add more diverse data (needs to see more types, more breeds)

- Data Augmentation (adding more augmentations from the type): reasonably modified

- Reduce complexity (reduce layers, reduce neurons)

- Add Dropout rate (maybe above 50 percent)

References

https://www.youtube.com/watch?v=0h8lAm5Ki5g) (https://www.youtube.com/watch?v=DEMmkFC