Selected Topics in AI-2

Assignment 2

Brief

You are required to submit experimental analysis of different strategies of active learning using **DeepAL**. The library contains the functions that you need as well as a variety of strategies implemented. You will deliver the code you've run and a report containing your analysis. You are free to interpret the results however you see fit.

Datasets

You should run the model on any two datasets (Include CIFAR10 as one of them).

Strategies

Strategies are the way you choose your queries, there are many different strategies. The most basic one is random sampling. You are required to run the models with **at least 3 different strategies other than random sampling**.

Report

You will use of **DeepAL** which supports Deep learning techniques. It comes ready to work with Pytorch (after installing the required packages). Use one of the many available classifiers available to get the results you need. **Do not write code in the report**. Monitor and report the training and testing accuracies through the run in each strategy and dataset and throughout each round. A round is the training after you include a new batch of labeled data (unlabeled data newly being added as labeled data for training, the essential part of active learning). After obtaining the results compare them and write anything you observe.

Include in your report the setup, results, discussion of the results and your conclusion. Make it look like a scientific report.

Deliverables

- Code
- Report
- Additional Analysis in the report **(Bonus)**: Run different strategies on an unbalanced dataset (only one) and include your findings in the report. An unbalanced dataset has skewness in the data (more examples are given to a category than others by a significant amount).
- PPT **(Bonus)**: Make a power point presentation for your work.
- **(Bonus)** Modify DeepAL to work with a deep NLP model.