Homework 8: Artificial Neural Networks with PyTorch

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Due

Monday 4/15/19, 11:59 PM CST

Goal

This homework focuses on becoming familiar with the PyTorch deep learning platform through a tutorial on a benchmark machine learning dataset.

Code and External Libraries

The assignment must be done using **Python only**. Do all of your work in the provided iPython notebook.

The libraries you may need to have are in this requirements.txt (http://courses.engr.illinois.edu/cs498aml/sp2019/homeworks /hw8_requirements.txt) file.

Problems

Total points: 100

- Download the Python Notebook here (http://courses.engr.illinois.edu /cs498aml/sp2019/homeworks/HW8.ipynb). Alternatively, you can access a **read-only version** on colab here (https://colab.research.google.com /drive/136uMrN7hI2pQ1lclUxjc1KRvIlSZjQLT) of which you will need to make a copy.
- There are cells for you to input code, as well as text. Make sure to fill in all such cells before submission. Important information and sections are in **bold**.
- You will need to produce plots during training using tensorboard. For each model, you produce the **loss per batch and accuracy per batch** on the training set, and the **loss per epoch and accuracy per epoch** on the test/validation set. You can put the data for both models on the same plot but there needs to be at least **4 plots**.

Submission

Submission will be through gradescope (https://www.gradescope.com)

Deliverables

1. Your python notebook renamed as *netid_HW8.ipynb*. Submit this in the
HW8 Code section.
2. Convert your python notebook with all outputs and questions answered
into PDF format. Name it *netid_HW8.pdf*. Submit this in the **HW8
Report** section

Note: Make sure that your training plots are visible after converting to PDF. If
this becomes difficult, save the plots as images and attach them to the end of
your PDF submission.