EECS 542 W17 Programming Assignment 2 (2/10)

Due: 3/13/2017, Monday, 11:59PM

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Instructions – *This problem is a group assignment. You are expected to make progress on the problem every week. You may use any neural network package*[1] *(and programming language) of your choice.*

Dataset: PASCAL VOC 2011[2]. Segmentation competition

Example of the segmentation can be found in http://host.robots.ox.ac.uk/pascal/VOC/voc2011/segexamples/index.html

Programming language/ Packages:

You may use any programming language/ neural network package. The PASCAL dataset comes with a development kit for MATLAB. However, there are implementations available for other languages[3] as well. You may not download the complete implementation code.

Problem Definition:

• **Objective:** Semantic segmentation ob object classes in images

- You may choose to implement the paper, "Fully Convolutional Networks for Semantic Segmentation" either completely or in parts.
- You may also add other layers in addition to ones mentioned in the paper(example, increasing the number of layers with ResNet, etc) and compare how your network performs.

• **Report:** Write a 2 page report with the following details included:

- Mention the type of networks used and compare your result (time, error rates, etc.) to the ones mentioned in the paper. Report any deviation that you observe.
- Mention the difficulties, if any, you faced in the implementation.
- If any other alternate methods used, write a brief description of the the deviation was and how it improved/ decreased the performance.

Note: 20 GPUs will be available with the FLUX cluster for this assignment. Please be considerate to other teams and try to use only one at a time.

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[1] TensorFlow, Theano, Caffe, Torch, PyTorch, to name a few.

[2] Source: host.robots.ox.ac.uk/pascal/VOC/voc2011/. Use the segmentation data.

[3] In case you want to work with python, you may try using github.com/mprat/pascal-voc-python for loading the data set.