CSE 673 Assignment 2- Part 2: Semantic Segmentation

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Datasets Assumptions:

1. CelebAMask-HQ:

For CelebAMask-HQ, I assume that “CelebAMask-HQ.zip” exists in the current working directory. I simply UnZip “CelebAMask-HQ.zip” in the current directory with all the rest of the required folders & files.

NOTE 1)

As the training was taking a lot of time, I had to interrupt the training before it could be completed. Thus, there will be many “Key Interrupt” errors in the logs of Training cells.

As due to paucity of time & limitations of “GOOGLE COLAB”, the training has to be stopped. But in many cases the accuracy could be improved further by training the model for more time as the accuracy increment after each epoch hasn’t plateaued.

NOTE 2)

The main file has 2 cells in the end to train the particular model. The 1st cell is used to train the model by resuming the training from a checkpoint. The 2nd cell is used to train the model from scratch.

NOTE 3)

Due to computational limitations, I have calculated the IOU for 1000 batches with a batch size of 20.

Code files:

NOTE 1)

There are 2 files (“Python”, “ipynb”) inside the main folder. Both files contain the same codebase, except that one’s a python file and the other one’s a python notebook. The Main folder also contains weights for the given model, ImageGrid Samples.

- Task Semantic Segmentation:

  DeepLab version: **`deeplabv3_mobilenet_v3_large`**
  Number of classes: 19 (including background)

Results:

- IOU (Mean): `0.883907`

- Image Grid (Images & Class-colored predictions):
  **[Sampled for 3 batches from Test dataset, where each batch contains 20 samples]

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