Assignment 2

1 Data

`http://www.mimuw.edu.pl/~ciebie/cityscapes.tgz`

2 Task

You are supposed to implement a fully convolutional U-net like neural network for segmenting pixels into 30 categories. The data contains 3475 images of $256 * 256$ size together with annotations. Your are not allowed to copy code from online resources. You should implement your solution in Pytorch (if you insist on using tensorflow you may ask your lab teacher for permission).

Requested features (to reach max score):

- split the training data into train and validation randomly,
- training done on GPU,
- data augmentation: horizontal flips,
- when doing predictions on the validation set, average augmented versions of an image and rate the averaged predictions.

A necessary condition to get half of points is to reach 50% accuracy on your validation set. Note that 50% is not a great score, if your program does not reach 50% it most likely means you have done something wrong.

It would be nice to have a visualization of learning process (eg. using TensorBoard).

3 Objective function

For each image in your validation set compute the average accuracy of prediction over all pixels, then compute the mean score over all images.

4 Logs

You should save the logs from your run, containing train and validation error for subsequent epochs as well as timestamps. Also, you should store a checkpoint to show the validation error during code inspection. Finally, you should be able to visualize predictions on the validation set.

5 Deadline

You should submit your solution by email by 23:59 on 14.05.2019 (Tuesday) to your lab teacher with email title Assignment 2 - Deep neural networks. Your code will be inspected during the lab session following the deadline. Note that

even if you are one minute late after the deadline, your solution will not be inspected. We have no mercy whatsover so you better not count on that.