University of Salzburg | Lecturer: Roland Kwitt

Computer Vision – Proseminar (911.909)

Exercise sheet C (Nov. 15, 2016) | Hand-in by **Nov. 22, 2016**

Scene Recongition

Exercise 1. 20 P.

The task is to build and evaluate a scene recognition pipeline. First, take the 15 scenes dataset from the previous exercise, and use your extracted (dense) SIFT features.

Split the dataset into 80% training and 20% testing data and make sure that the number of images per scene category is balanced. Generate 5-10 such splits.

Then, for each split, use the 80% of training data in that split to build a Bag-of-Words representation (e.g., k-means clustering to obtain the codebook, just as you have done in the previous exercise). Finally, construct one histogram of Bag-of-Word indices for each image in the training AND testing data.

Use a classifier of your choice (I do recommend a linear support vector machine, implemented in LibLinear which has a MATLAB interface) to classify all testing images from each split. Training the classifier is obviously done on the training data only. Average and report those classification results (see below). *Note*: An example on how to use LibLinear is provided in the `svmtest.m` file.

Hand-in a compressed file containing all the MATLAB source files that you wrote for that exercise. Add a couple of comments to the main file reporting the results.

Total #points: 20 P.