University of Salzburg — Lecturer: Roland Kwitt

Computer Vision – Proseminar (911.909)

Exercise sheet B (Nov. 4, 2016) — Hand-in by **Nov. 10, 2016**

Feature Detection

Exercise 1. 10 P.

First, download the "15 Scene Dataset" from here:

Second, select 10-20 images (from each scene category) and run Dense SIFT (see `vlfeat` documentation for `vl_dsift.m`) on those images and store the results, i.e., the SIFT descriptors. Choose a relatively coarse grid, not to get too many descriptors (for the sake of time).

Third, experiment with k-means clustering (`vl_kmeans.m` in `vlfeat` toolbox) on *all* the SIFT descriptors you extracted in the previous step. Select k in the range of 32 to 128. *Bonus (5 points)*: Create histograms for each image, such that each descriptor in that image is assigned to its closest cluster center ID.

Write all code in one MATLAB/Python file and hand in that file. I don't need the images that you selected! Document the code and justify the choices you made. **Note**: The assignment does not have to be handed in by Nov. 8, but **Nov. 10**.

Total #points: 10 P.