UNIVERSITY OF AVEIRO

DEPARTAMENT OF ELECTRONICS, TELECOMUNICATIONS AND INFORMATICS

Computer Vision (2016/2017)

Lecture 11

1. Explore the following tutorials about the use of the hough transform:

   http://docs.opencv.org/doc/tutorials/imgproc/imgtrans/hough_lines/hough_lines.html

   http://docs.opencv.org/doc/tutorials/imgproc/imgtrans/hough_circle/hough_circle.html

   Adapt the examples to read images from your digital camera and add the capability do display the edges of the acquired images (that are used internally by the algorithm). Include also a simple way to change the most important parameters of the hough functions (sliders, keyboard, ...).

2. In some of the projects in this course, you have to perform detection of objects. Explore the feature detection and description provided by OpenCV, namely the Scale Invariant Feature Transform (SIFT), the Speeded Up Robust Features (SURF), FAST, among others.

   An interesting starting point can be found on

   http://docs.opencv.org/doc/tutorials/features2d/feature_detection/feature_detection.html

   Then explore the FeatureDetector interface that provide wrappers with a common interface that enables you to easily switch between different algorithms of features extraction.

   http://docs.opencv.org/3.0-beta/doc/tutorials/features2d/feature_detection/feature_detection.html

   Adapt the example in order to test the several algorithms implemented in OpenCV and explore the available parameters.

   Then explore how can you match the features obtained by the algorithms among several images. A good starting point can be found on:

   http://docs.opencv.org/3.0-beta/doc/tutorials/features2d/feature_flann_matcher/feature_flann_matcher.html

3. Write a report about the experiences done in this class. It should contain an example of the images displayed in each exercise, as well your comments about them.