# SGN-12007 Introduction to Image and Video Processing

## EXERCISE 9

## 27.11.2017-28.11.2017

The tasks should be completed and presented to TA during the lab session. Questions about exercises should be addressed to the TA personally or via email: (firstname.surname@tut.fi).

### 1) Histogram Equalization for Color Images

a) Load the image *fruits.jpg* and apply MATLAB built-in histogram equalization independently on each of R, G, and B components. (`histeq`)
b) Write a function `intensityeq` which takes as an input a color image in RGB color space, converts it into HSV color space, applies histogram equalization on the value component and converts the image back to RGB color space. (`rgb2hsv`)
c) Load images *fruits.jpg* and *festia.jpg* and apply the procedures from both a) and b) on them. Show the results together in 2-by-3 subplot and explain the effects of processing.

### 2) Object Extraction

Figure 1: Qinghai lake (left) and the extraction example (right)

Load image *lake.jpg* and extract the biggest lake.

**Hints:**

- You may consider changing the color space
- You may need a thresholding operation
- Labeling the image regions may also be helpful
- Useful Matlab commands: `graythresh, im2bw, bwlabel`