

Biomedical imaging

# Segmentation

*Max Langer, Loriane Weber, Marion Dohen*  
*{mlanger,lweber}@esrf.fr, marion.dohen@gipsa-lab.grenoble-inp.fr*

Creatis, INSA-Lyon  
European Synchrotron Radiation Facility  
GIPSA-Lab, Grenoble-INP

December 2014

The purpose of this lab is to study automatic segmentation by histogram shape based methods and by region growing. You will implement two segmentation algorithms: the intersection of Gaussians algorithm and hysteresis thresholding. The definitions of these algorithms are given in the course material. Test your algorithms on suitable test images, that is: an image that has a clear bimodal histogram, an image that has a multimodal histogram, and an image that does not have clear modes in the histogram. Compare your results to Otsu's method (implemented in Matlab). Some images are available on the course web site, but feel free to use other suitable images. You are also free to implement other region growing criteria than hysteresis.

A short lab report should be submitted in electronic form as a PDF file. Hand in your work as a zip file containing your report, your code in one running .m file (script) and any supporting functions, along with the images you have used (reference your images with relative paths in your code). Submit your .zip files to [mlanger@esrf.fr](mailto:mlanger@esrf.fr). Deadlines are:

27/01/2015 for the Tuesday group

29/01/2015 for the Thursday group.