COMP27112 Laboratory Exercise 3
Pixel Processing
Duration: 1 Session

In this lab you will develop programmes that classify pixels as object or not object and group the object cells into contiguous regions.

Task 1: Setting up

In your COMP27112 directory, create a subdirectory called **lab3**. Copy your files into it from last week's coursework (number 4). You'll be modifying these in today's lab. You'll use the blood cell images to test and demo your code.

Task 2: Thresholding

Starting from the original main programme, implement the thresholding function that is described in the notes and handout – you must calculate the value of the threshold from the image data. Add a median filter to clean up the results. Save the modified programme as **ex3a.c** and a sample result image (call it **img_lab3a.jpg**).

Task 3: CCA

Implement CCA (Connected Components Algorithm) as it's described in the lectures and handout. Reordering the equivalence table to make it contiguous isn't necessary. The output will be an image of labels: background pixels should have the value 0, and regions will be labelled 1, 2, … Save the label image (call it **img_lab3b.jpg**). Save the modified program as **ex3b.c**.

Task 4: Submit

You should now have two source files and two output images. Zip them and **submit**.

Marking scheme

Thresholding – code and output are correct	2 marks
Understanding need for dynamic threshold	2 marks
CCA: implementing the pixel labelling cases	3 marks
CCA: implementing the pixel relabelling	3 marks