

# Introduction to Image Processing Lab1

## Getting started with Matlab

Matlab, which is short for **Matrix Laboratory**, is probably the most widely used scientific and engineering numerical software. To get started, you can either watch the video from:

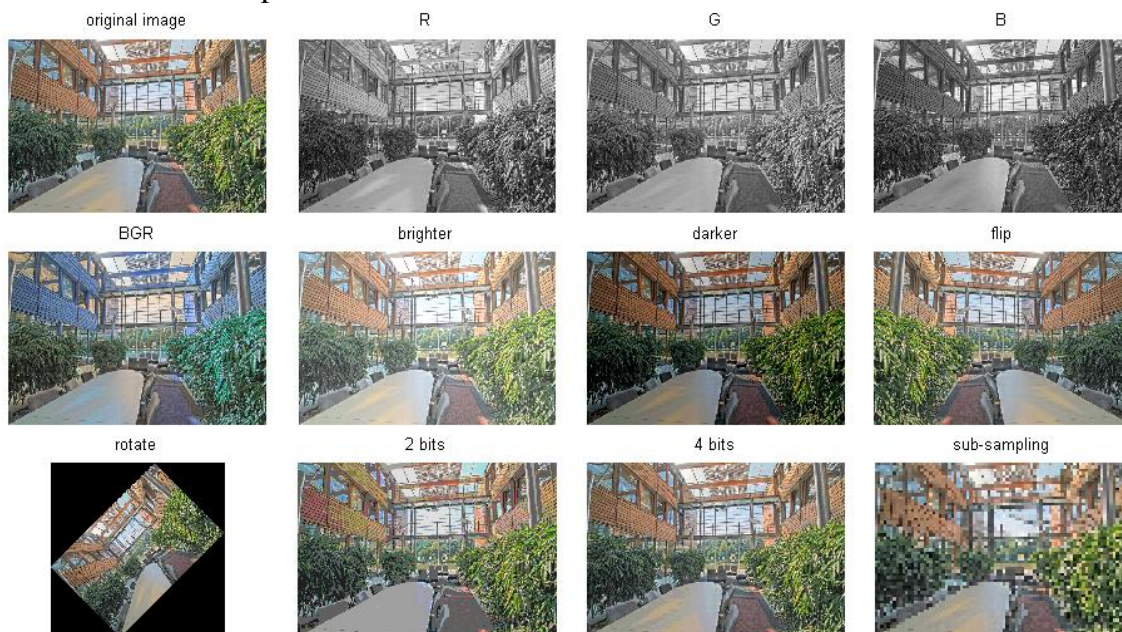
<http://www.mathworks.co.uk/products/featured/videos/index.html>

or read the book from:

[http://www.mathworks.com/help/pdf\\_doc/matlab/getstart.pdf](http://www.mathworks.com/help/pdf_doc/matlab/getstart.pdf)

After you have grasped a general idea of Matlab, you can continue and try to finish the following exercises.

1. Read an image from disk ([you can download this one](#)) to the matlab workspace. Display its red, green and blue component separately.
2. Swap the red component and the blue component of the input image to create a new image, and save the new image into a new file in the disk.
3. Try to make the image brighter or darker.
4. Try to flip, rotate and crop the image.
5. Quantize the colour planes using 2 bits, 4 bits, 6 bits etc, and visualize the effect of the operations.
6. Sub-sample the image by a factor of 2 and 4 (using nearest-neighbour) and visualize the effect of the operations.



### Tips:

1. You will rely on the following functions to finish the exercises:  
[imread](#), [imwrite](#), [imshow](#), [imagesc](#), [imrotate](#), [subplot](#)
2. Just type 'help XXX' in matlab to see how to use the above functions.