

# Assignment Project #0 “Matlab warm-up”

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**Due date:** 02/04/2014, 5:00pm

## **Description:**

Carefully study the brief introduction to Matlab posted on the course website. The best way to learn it is to install a version of Matlab and test all the code illustrated in the introduction. Stevens [\\storage01\public](#) folder provides access for Matlab Installation. If you have problem in accessing them, please contact IT Help Desk.

As a warm-up project, this assignment helps you to learn how to use Matlab to deal with images. Please follow the steps below for your assignment:

[1] Find one of your favorite digital color images. It can be from, for example, a photo from your personal photo album, or any photos you find online.

[2] Load the color image into a 3D array in Matlab using the function you learnt from the introduction. Display the color image in a figure on your screen.

[3] Each pixel in the color image is represented by 3 values corresponding to the Red, Green, and Blue component of the color. Note the RGB components are indexed by the last entry of the 3D array. For example, your array is A, which has three entries, i.e., A(3,5,1), A(3,5,2), A(3,5,3) means the pixel value at row 3 and column 5 in the first, second, and third band, respectively.

[4] Your job is to figure out which of the three indices 1, 2, and 3 corresponds to one of the R, G, and B components, respectively. Note Matlab index always starts from 1. You need to follow the following steps to figure it out.

- Create another 3D array with the same size as your color image. Set all its elements to zero.
- Assign one of the three color components from the input image to the corresponding entry in the new array while keeping the elements of the other two components to be zero in the new array.
- Display the new image in a figure on the screen, what do you see?
- Repeat the above steps for all the three color bands.

[5] You should be able to draw your conclusion on which index of 1,2, and 3 corresponds to which of the R, G, and B color component, respectively.

### **What to turn in?**

You should write a report to present each of the intermediate results you obtained, such as how the color image and the three new images you created look like when you display them on the screen.

Please make your Matlab code in a single .m file with appropriate comments from each line of code.

Put your report, your Matlab code, and the source image you used into a single zip file. Submit it through Moodle before the due time.

Please name your folder as well as the zip file as  
**[yourfirstname]\_[yourlastname]\_Project0**

If your code can not run, you may also turn in it with more detailed comments on what you did and tested in your code.

**\*\*\*Important Notice: Please also bring a printed copy of your report to the class in the due day of the assignment. This is mandatory\*\*\***

### **Grade: 5%**

You will be penalized if your code can not run. You will also be penalized if you draw the wrong conclusion.

Late submission policy applies universally with no exception.

If you have a compelling excuse, you must inform me at least 2 days before the due date. I don't accept excuses such as "**I am overloaded by other courses**".