

Homework #0
Due Su 8/31

Be sure to show all your work for credit. Since the course is using the Gonzalez and Woods book, we will assume the use of Matlab. However, you are not required to use Matlab and it is instead recommended you use Python since it is cross platform and free.

1. Ensure access to Matlab

If you do not have a copy of Matlab on a personal or lab computer, please ensure you are able to access Matlab Online. You can log in via <https://www.mathworks.com/login> and you should get a message that your UNLV license is now linked and available. A new link for Matlab Online will be on the left navigation bar. This will require a Mathworks account that uses your UNLV email address.

If you do not have a UNLVMail account but RebelMail then you will probably need to use the student link.

2. Matlab Baics

See Serge Belongie's CSE252B: Computer Vision II at UCSD for a basic Matlab tutorial
<http://cseweb.ucsd.edu/~sjb/classes/matlab/matlab.intro.html>

3. Matlab Image Processing Toolbox

You will need to become familiar with Matlab's image processing toolbox. Complete the tutorials in the Getting Started section.

The full documentation for the toolbox can be found here:

<http://www.mathworks.com/help/images/index.html>

4. Matlab Training Courses

For more Matlab training and information checkout

<https://matlabacademy.mathworks.com/>.

In particular check out

- MATLAB Onramp – basics quick start
- Image Processing Onramp – basics of image processing
- Machine Learning Onramp – basics of ML for classification
- Deep Learning Onramp – basics of DL for image recognition

5. OpenCV + Python

For those interested in more optimized and feature rich image processing and computer vision, see the standard research library OpenCV. A short tutorial is provided here:

http://www.ee.unlv.edu/~b1morris/labs/opencv_intro/opencv_intro.html

It is now recommended to use OpenCV with Python with a front end such as Jupyter. OpenCV has Python Tutorials and setup instruction for various platforms.

I suggest using Miniconda to create virtual environments for easier handling of multiple projects and associated dependencies. It is then straightforward to install the needed libraries e.g. OpenCV and Jupyter.