**Mid-Semester Project**

Data:

* Pick a set of images at the Cancer Imaging Archive (<https://www.cancerimagingarchive.net/>). Please use a “Public” and “Complete” dataset.
* You will need to first download and install their NBIA Data Retriever (<https://wiki.cancerimagingarchive.net/display/NBIA/Downloading+TCIA+Images>).
* For your set of images, be sure to find the “Detailed Description” and “Citations” (for your report).
* Download the manifest for your set of images and use the retriever to finish the download of the images.
* (You may need to click the other “Download” buttons to grab more documentation about your image set.)

Skills: Employ the various skills that were covered in class on your image set

* load images into a Jupyter Notebook and display the images
* use “subplots” to arrange some of the images into a grid
* extraction (histograms, masks)
* edge detection
* pre-processing
* segmentation
* image transformations

Report parameters: Your Jupyter Notebook (upon saving and uploading as an HTML file) should include

* The first block should be a markdown block with your full name and “Bio 184” in it.
* work performed on at least 10 images
* Write an introductory and conclusion paragraph
* Moreover, there should be a few markdown blocks where you can document your work in plain English. The word count of these description in total should be at least 200 words.
* Include the “Detailed Description” and the “Citations” from the TCIA website
* Upload two copies of your report (with and without the code block output)

Advice:

* Perform the work on one small image first before running the code on all of the full-size images