

Useful Functions in Matlab

Basics:

- * math operators: *, ./, +, -, ^, mod, floor, ceil, round
- * logical operators: ==, |, &, all, any, strcmp
- * if statements: if, else if, else, end
- * for loops: for, while, switch/case/otherwise, end
- * display: disp, fprintf, sprintf, num2str, plot, figure, imshow, imagesc, hold on/off, axis
- * initializing: zeros, ones, true, false, (0:0.5:2), rand
- * getting matrix size: size, length, numel
- * concatenating: cat, []
- * matrix operators: sum, mean, std, sort, sortrows, max, min, median, repmat
- * getting input: ginput, input
- * debugging: breakpoints, keyboard, dbstop if error, dbclear if error
- * saving/loading/clearing variables: save, load, clear

Cells and structs:

- * cell
- * struct, setfield, isfield

Images:

- * reading: imread
- * color conversion: rgb2gray, rgb2hsv, hsv2rgb
- * type conversion: im2double, im2single, im2uint8
- * resizing: imresize, padarray
- * displaying: imshow, imagesc
- * saving: print, imwrite
- * regions: poly2mask, regionprops, bwlabel

Indexing:

- * ind = find(..)
- * [y, x] = find(..)
- * values = im(logical_ind); % logical indexing
- * converting vector/matrix indices: ind2sub, sub2ind
- * create sets of x and y indices: meshgrid

Filtering:

- * imfilter, filter2, conv2
- * fspecial (for defining a filter)

Speed:

- * Initialize large matrices (even though you don't have to)
- * Avoid for loops (vectorize)
- * mex code (if you really want a particular part to be fast)
- * Use the profiler: profile on, profile report, profile off
- * timing: tic, toc