This MATLAB script reads the saved scans from the C++ Program and visualizes them in MATLAB as a bare frame to start extracting features of single scans. Users need to get the MATLAB script process\_scanline\_csv.m and data set from one of the two sources below. Please keep the MATLAB script and the data in one folder and modify the parameters as wished before running the code.

For running with the Mat data, Users need to have the BigShipScans.mat file in the same folder as the script and set the flag in the MATLAB script. [Download link](https://drive.google.com/drive/folders/1-IPh0ALoVPZu33MB6OO0cg6hi3v8IB1T?usp=sharing)

For running with the CSV files, users can keep the CSV files in one folder, and the script will pop a window for users to choose the folder and set the flag in the MATLAB script. [Download link](https://drive.google.com/file/d/1EnGrUI7JwQJerwKqbIoRcuZyi9zPTs1M/view?usp=sharing)

Parameters:

idx\_N: The script currently uses one laser if there are multiple lasers in the scan. This parameter figures out which to use. Be careful with the index. e.g., The laser index of M8 is from 0-7 for the eight lasers. While in Matlab, the first index is 1, not 0.

FLAG\_show\_Accum: Debugging flag, if you want to see the accumulation process through the scans, turn this on. But be aware that there is no pre-allocation of memory, so this will run slower and slower when accumulating the point cloud for display.

FLAG\_csv\_or\_mat: Data source flag. If you have the .mat data file, you can set this as 1 to read data from it. Or if you have the .csv data files for the scans. You can choose the folder containing the .csv files to parse them and run.