**Matlab Plotter Salter Smoother Documentation**

This is the MatLab documentation. It shows all the code that was used to create the graphs within the report. However, if you would like to access the graphs and the report (the outputs and explanations), please go to “Report on Matlab.doc”. If you would like to see the FULL tutorial worked through, it is out in the open. (MATLAB tutorial.docx). The MATLAB files are within the plotter salter smoother (MATLAB) folder in .m and .txt form.

Please open if you haven’t: https://byronproject2.carrd.co/

A purple background with text and a brush

Description automatically generated with medium confidence

(This came out of playing with Procreate for the first time on the pink iPad. Sorry. It was a break from all the heavy-duty parts.)

The first function is:

A screenshot of a computer code

Description automatically generated

The first line f identifies the equation that needs to be plotted. x states the range of the x points (-50 to 50). yOriginal is the original y points from the graph before salting and smoothing. ySalted gives the salted values which use the original graph, salt magnitude, multiplied by a random value and subtracts it by 0.5. The window size just alters how the popped-up graph looks. The ySmoothed value uses movmean on the salted value and makes the graph look nice according to the window size. Then all of them are plotted. Their line widths are chosen and their colors. I chose them to all be solid lines to be seen well against each other and gave them different colors. The x label became “x” and the y label became “y”. A grid was turned on for the look.

The section function was:

A screenshot of a computer code

Description automatically generated

In the next creation, there was an issue at first. The polynomial was producing such large values, the salting was hidden because the salt value wasn’t high enough. To fix this, the salt magnitude was changed to 20% of the original, using ‘abs’ as well, the absolute value function. The x points stayed -50 to 50. The smoothed value was created in the same way with movmean off the salted value. The lines were kept 1.5 except the salted one and denoted by blue, red and green. The x and y axis were labelled by x and y and the title remained “Original, Salted, Smoothed”.