Stepped Input Response

Given a stepped input (such as a step and hold temperature ramp), the output at the 'hold' regions are captured. This script will plot the input and output within these regions. Requires two csv files (Input.csv and Output.csv) each with their own MJD times in the first column and the data in the second column. The script returns two csv files; The averaged results and the transient responses. If script fails to work correctly for any reason, set the variable 'tolerance' to some value under the lowest peak in the derivative plot.
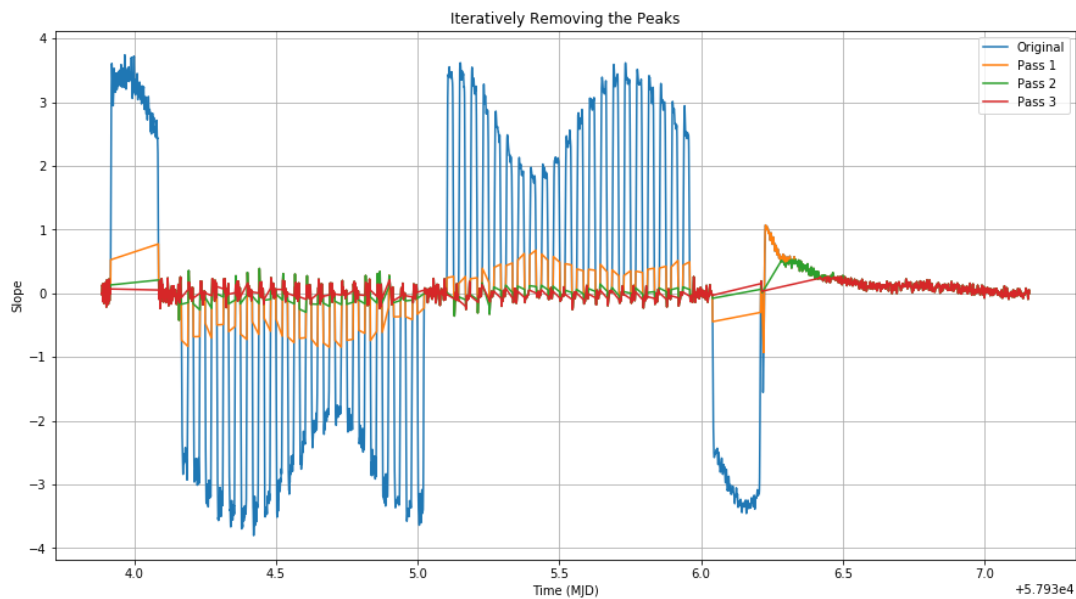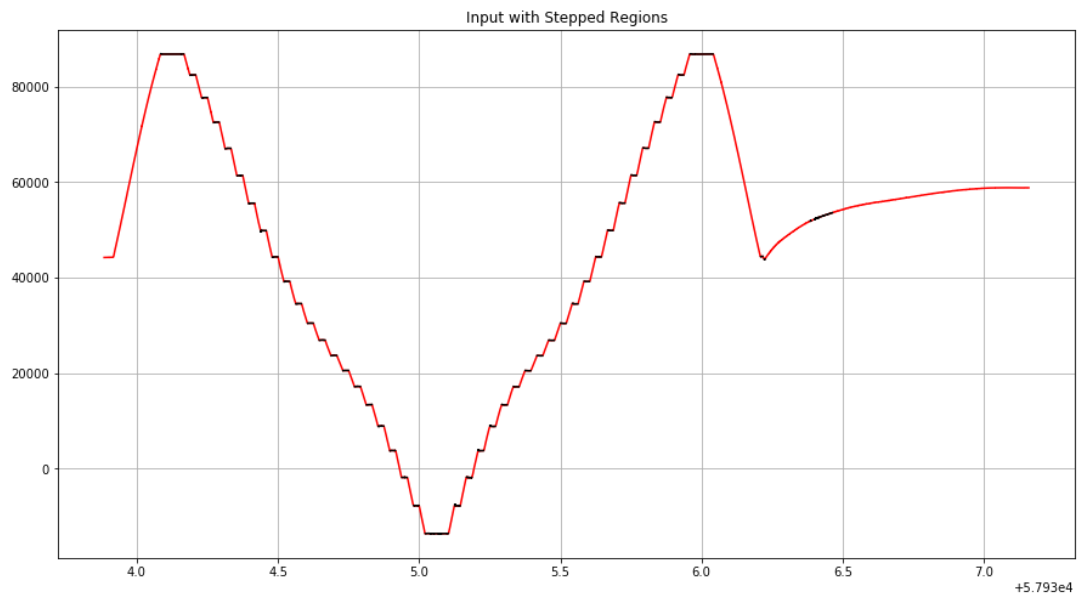
```
▸  # Imports↔
```

```
▸  #CSS↔
```

```
▸  # Grabbing the Input Data↔
```

```
▸  # Grabbing the Output Data↔
```

```
▸  # Removing Sloped Regions of the Input↔
```

Input with Stepped Regions

Derivative of Input with Stepped Regions
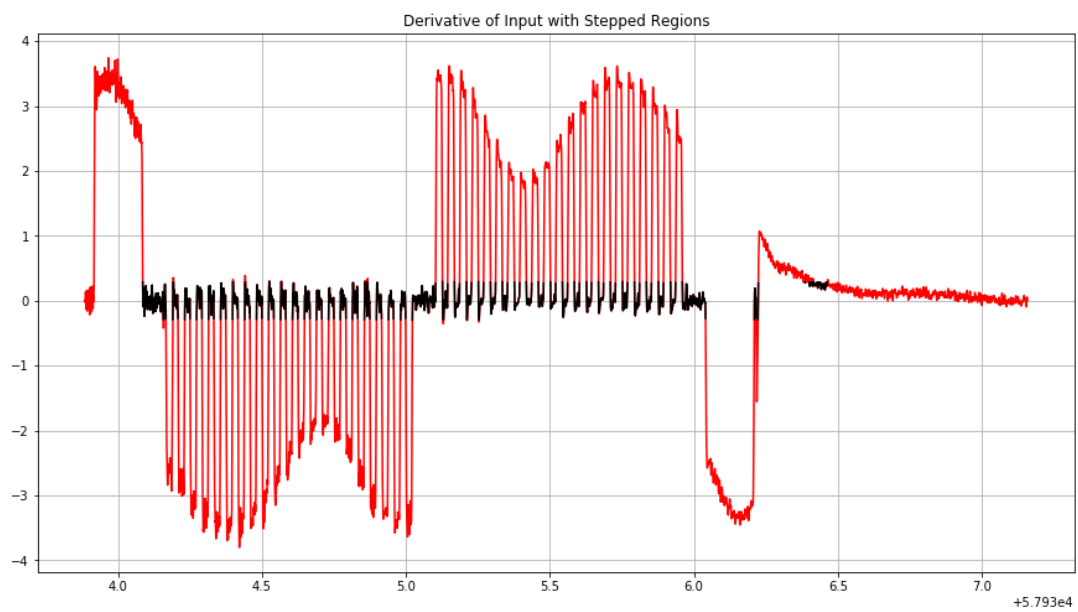
▸ # Converting to Time Axis of Output↩

Output with Stepped Regions
1e−10
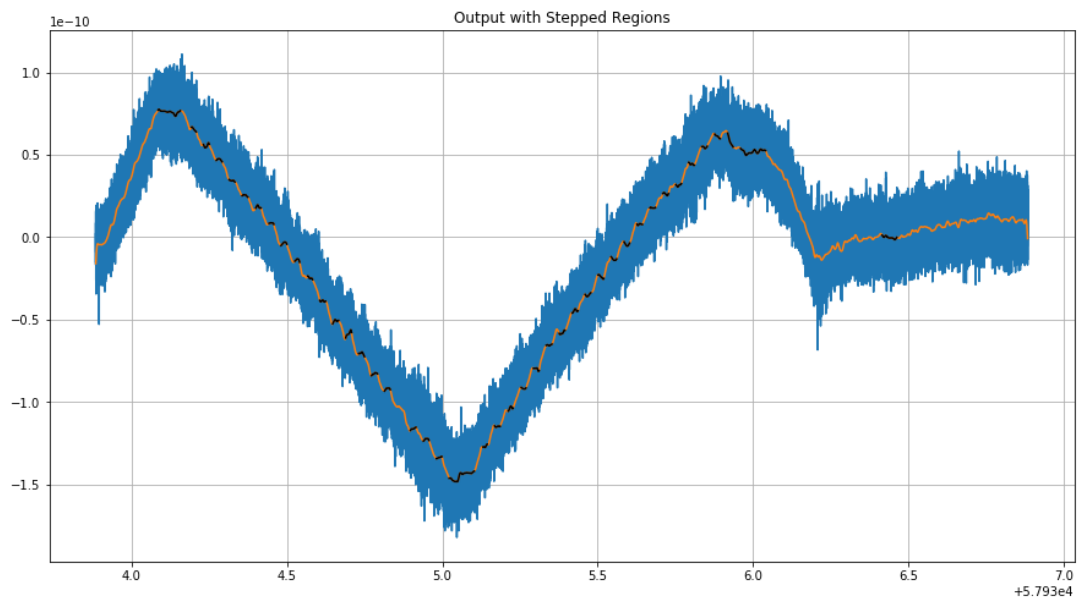
▸ # Removing Abnormally/Incorrect short/long times↩

▸ # Plotting each Region of Data↩

Output Response at the Held Input Regions
1e−10

Output

Time (Seconds)

Input Holding Values
— 82403.8156509
— 77647.2205419
— 72489.0495609
— 67018.5072191
— 61349.0322581
— 55555.7482517
— 49824.3410276
— 44306.7946815
— 39187.7042254
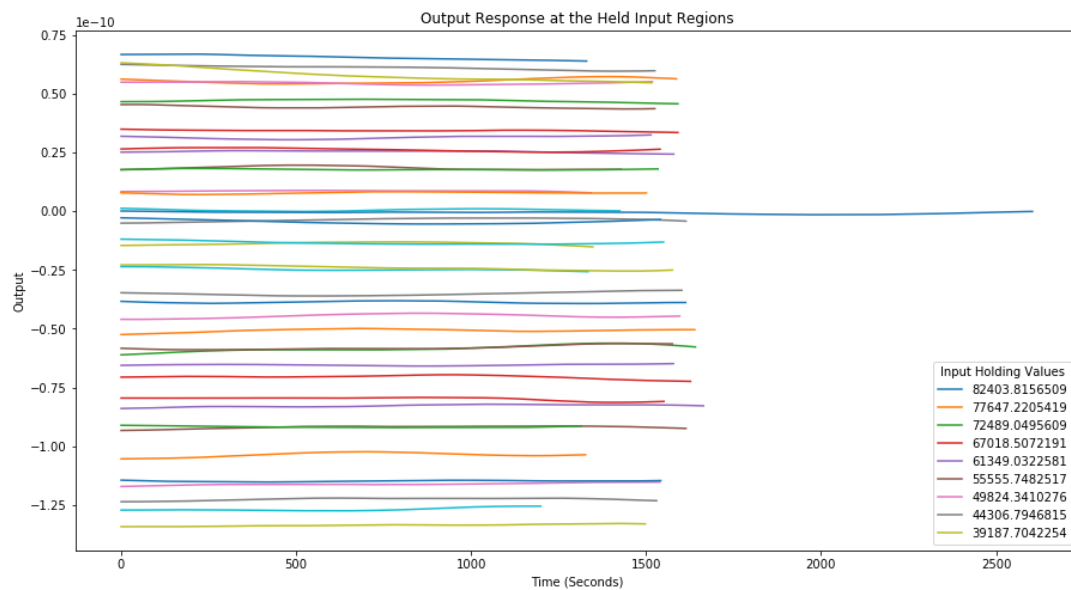
▸ # Creating csv File of Transient Results↩

▶ *# Plotting Averaged Results*↔

Averaged Output at Averaged Held Input Levels
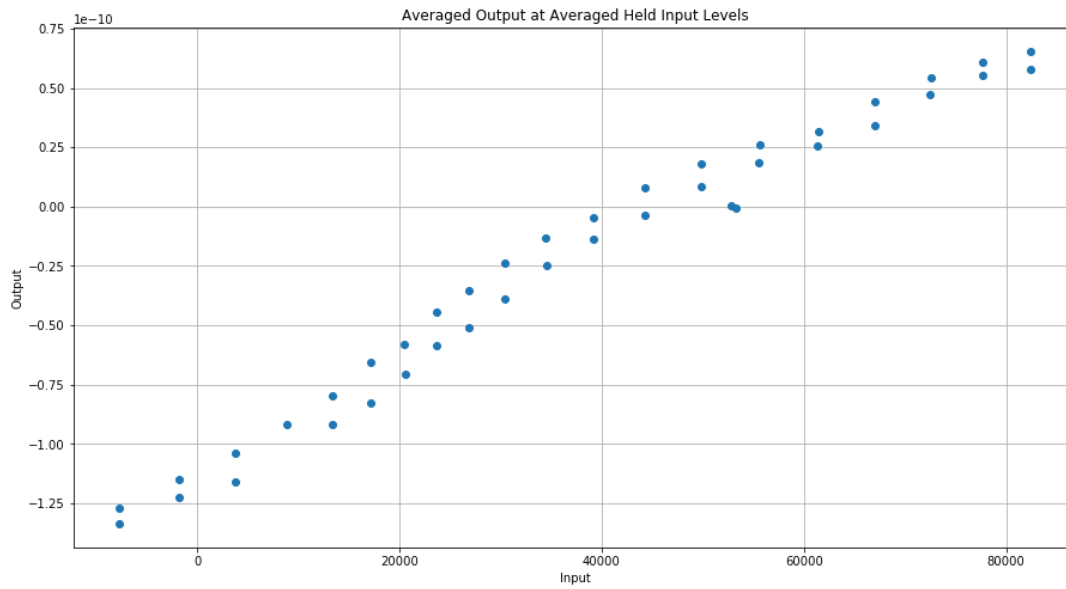
▶ *# Creating csv File of Results*↔