Etude #9 – Pulses Counting (Report)

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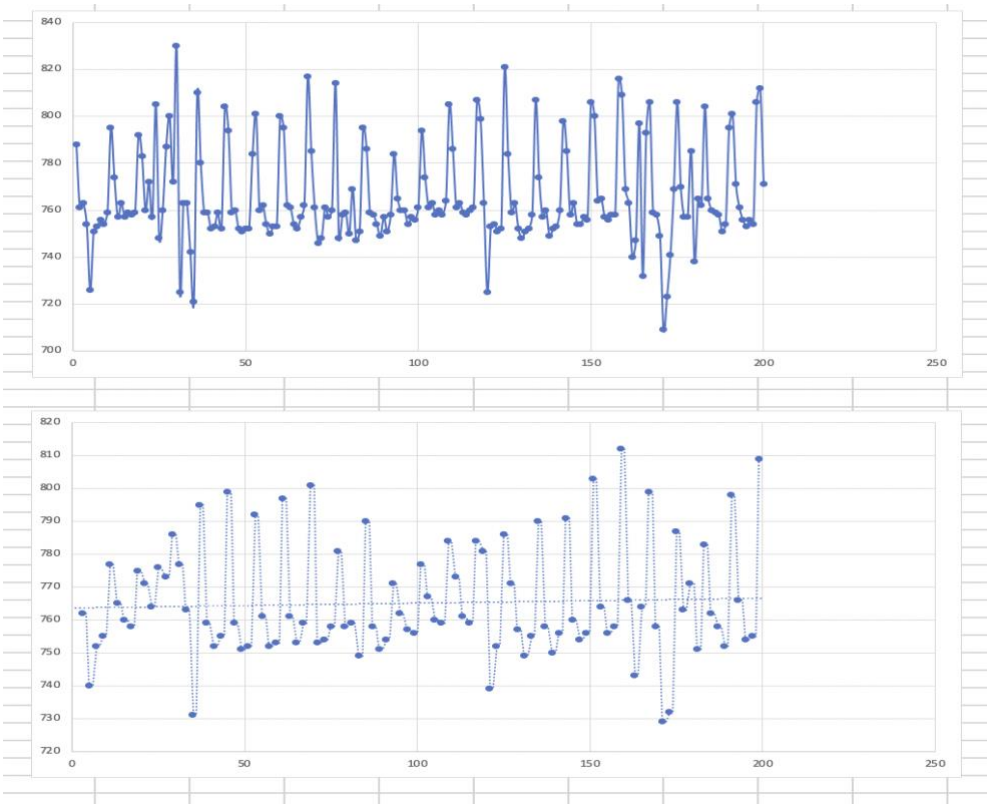
The goal was to eliminate noise from the text files so we could count the pulses. To do this, we used a **simple moving average**, which is basically taking the average of every two points and using this as a data set as it is more reliable than using every point on its own. This can be clearly seen in an excel graph, where much of the noise is reduced and we are left with clear peaks. To measure the number of pulses, we took anything above the average plus a standard deviation of the data. The following screenshot shows the noise reduction:



As you can see, the second graph has half as many data points and much less noise than the first graph. We came up with the idea after reading up about the Nyquist-Shannon Sampling theorem (https://en.wikipedia.org/wiki/Nyquist%E2%80%93Shannon_sampling_theorem)