Time analysis of the CYGNO reconstruction algorithm for number of clusters

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Recap

- After some optimizations, it was suggested that we looked into how the number of clusters and points over threshold influences the timing in the algorithm as is;

- This process was done after some modifications made in the iDBSCAN algorithm, switching the '3D' replicant method to a weighted array;

- All tests were done in Google Colab for 400 events with every reconstruction step, including energy measurements, but excluding configuration and setting-up overhead.
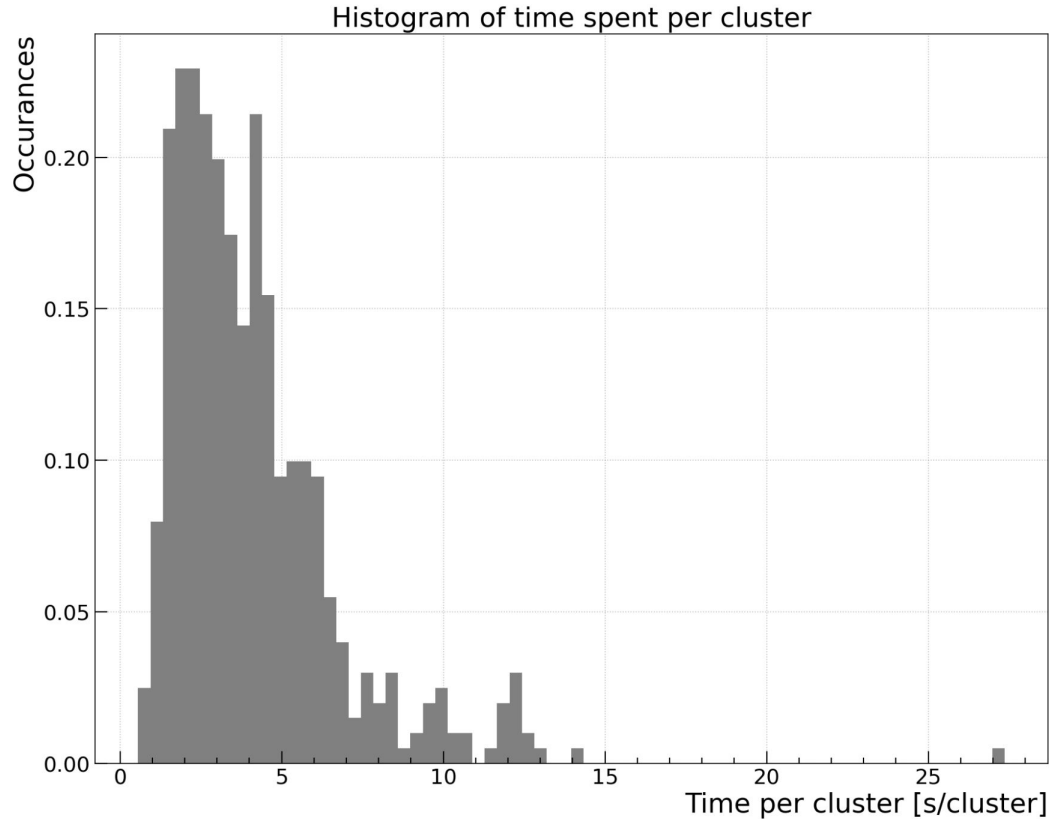
Timing by points and clusters

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Histogram of time spent per cluster
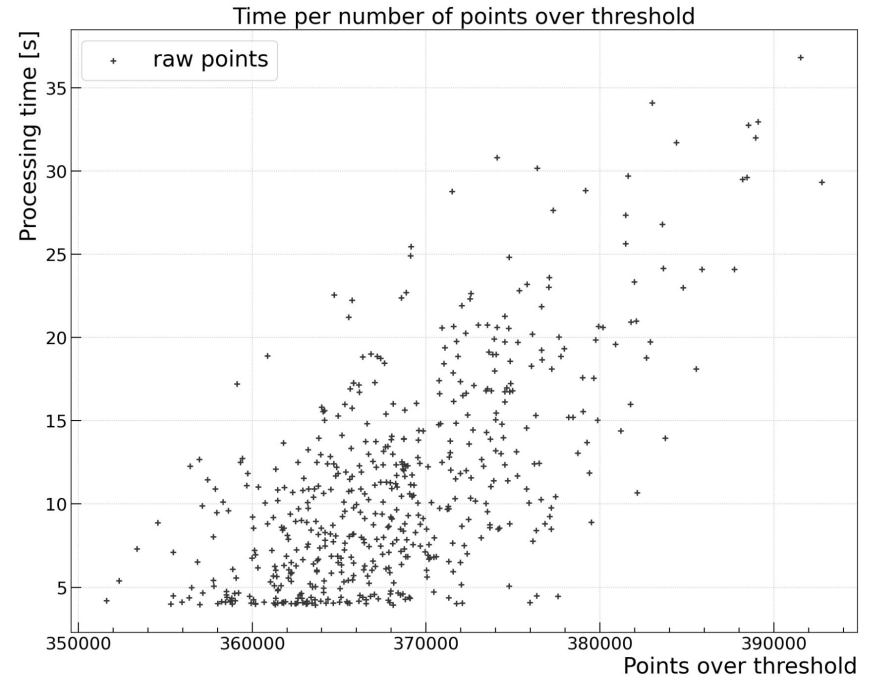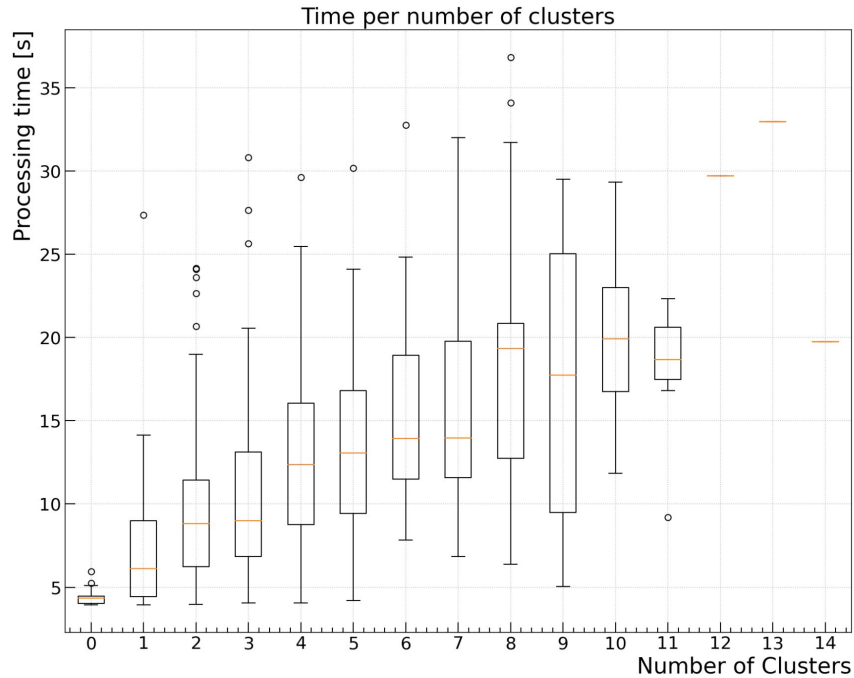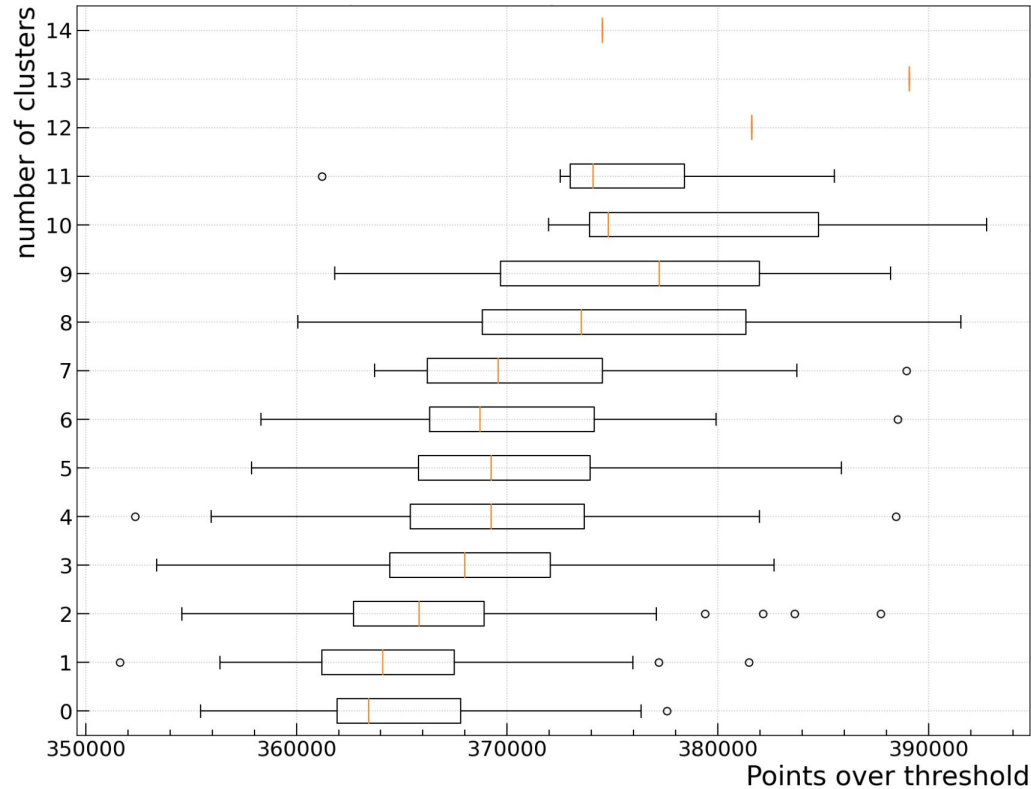
Final regards

- The number of clusters and points defines a trend for slowing the process time;

- In the histogram we have some smaller peaks after 8 seconds that could be some cosmic tracks, still to be investigated;

- We still need to define the first strategy for the software trigger implementation, accounting for timings .