Time optimization of the CYGNO reconstruction algorithm for the Trigger system

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Summary

- Recap
- Timing by points and clusters
- Conclusion

Recap

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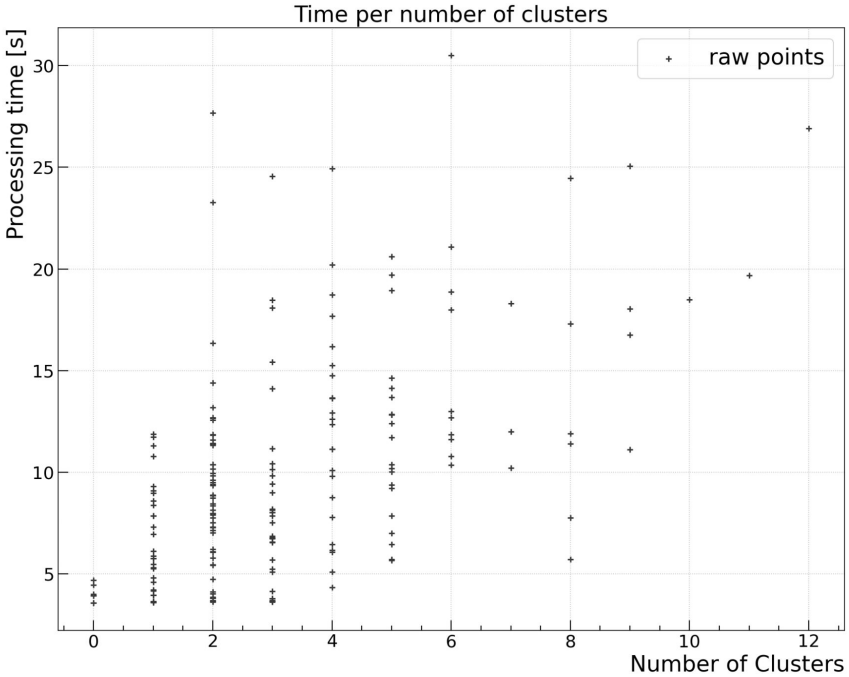
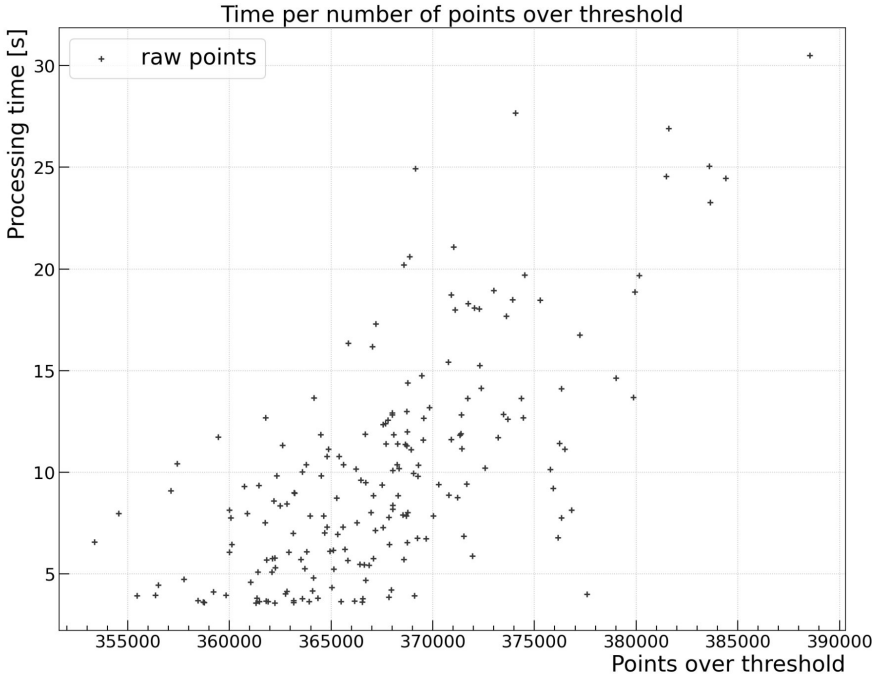
- In our last meeting, we timed some differences between the way we write some of the more time consuming functions ;
- After some optimizations, it was suggested that we looked into how the number of clusters and points over threshold influences the timing in the algorithm as is;
- This process was 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.

Timing by points and clusters





Conclusion

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- The number of clusters defines a less clear trend for slowing the process time;
- But the number of points to be processed by the algorithm shows a trend to increase process time;
- It is implied that the more points over a certain threshold enter the algorithm the the more likely to increase the number of clusters found;