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Putting the human back in the loop - vis for dynamic 4D tomography

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Dynamic experiments require careful planning and visualisation is key for the next generation of 4D control for dynamic objects.

Experience of integrating HPC/ visualisation and feedback of the human in the facility data capture is being built at SCD/STFC; UK.

Summary

As part of the Visualisation Group, within the Technology Division of SCD, we have been founded to support and maintain visualisation software and skills for large projects and user communities across STFC and the national facilities. This includes working with the Diamond Light Source and ISIS facilities in the UK making the data through visualisation them human understandable. This has included on related projects; for the TSB Space Application Catapult and European Space Agency (ESA) producing bespoke solutions for their data analytical and command and control needs; for ISIS and DLS data creating remote and distance data gathering and visualisation workflows to control the computational processes; and providing specialist local high-end equipment within the centres that are near to the main data capture locations.

Managed and setup high-end visualisation centres within STFC, with the key objective to consider the human-in-the-loop as an integral part to pre- mid- and post-data visualisation needs from the major facilities. This it is believed is a key component to increasing the efficiency of the major STFC facilities allowing researchers' work-plans to be controlled, changed and even stopped on the fly.

We have an emphasis to work in harmony with collaborators across the STFC mission and are building up for the needs of a dynamical experimental visualisation service.

This presentation considers how specialist remote GPU enabled workstations can assist in the data capture process, and followed by providing specialist reconstruction software and quantification utilities to gain understanding from data sets specifically tomographic ones.

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