



Contribution ID: 95

Type: Poster

Scientific Computing at MCT - a new era of CT at the Australian Synchrotron

The MCT beamline is designed for high throughput micro computed tomography imaging using different beam modes, experimental configurations along with step-and-shoot and on-the-fly imaging modalities. In order for MCT to achieve its goals of high-speed imaging and CT down to sub-micron resolution, state-of-the-art data acquisition, processing, visualisation and analysis systems are required.

The poster provides a look behind the scenes of the systems that the Scientific Computing team implemented at MCT. You will learn about Ophyd a Python library that allows the beamline to control and monitor hardware; Bluesky an advanced system for controlling every step of an experiment and collecting scientific data, including rich metadata. During the MCT hot commissioning phase, the team was able to test and use these systems to automate time consuming calibration and CT studies.

The poster will also present the implementation of an efficient and flexible CT processing pipeline using specialised software and hardware matched with an advanced pipeline architecture for processing data on a timescale that is comparable with data acquisition. The code is based on Python and C++, and runs in our HPC computing cluster, making use of modern GPUs for fast data processing.

Users control the data acquisition and processing through cutting-edge and intuitive user interfaces. Data acquisition is started with the click of a button in a modern web-based interface that will allow remote access in the future.

Last but not least, MCT will offer advanced visualisation packages in the form of Avizo and Dragonfly.

Level of Expertise

Expert

Presenter Gender

Woman

Pronouns

Do you intend to attend UM2022

In person - Melbourne

Students Only - if available would you be interested in student travel funding

Students Only –Do you wish to take part in the Student Poster Slam

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Yes

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