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Preliminary Analysis of Double Shell Tomography Data

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In this project we have collaborated with LLNL scientists Dr. Peer-Timo Bremer while performing our research work on algorithmic solutions for geometric processing, image segmentation and data streaming.

The main deliverable has been a 3D viewer for high-resolution imaging data with particular focus on the presentation of orthogonal slices of the double shell tomography dataset. Basic probing capabilities allow querying single voxels in the data to study in detail the information presented to the user and compensate for the intrinsic filtering and imprecision due to visualization based on colormaps.

On the algorithmic front we have studied the possibility of using of *non-local means* filtering algorithm to achieve noise removal from tomography data.

In particular we have developed a prototype that implements an accelerated version of the algorithm that may be able to take advantage of the multi-resolution sub-sampling of the ViSUS format. We have achieved promising results.

Future plans include the full integration of the non-local means algorithm in the ViSUS frameworks and testing if the accelerated method will scale properly from 2D images to 3D tomography data.

Please do not hesitate to contact me if you need further information

Sincerely,



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