

Grid Data Management for Medical and Liquid Time Projection Chamber Image Analysis

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Headline: Grid Data Management for Medical and LTPC Image Analysis

Leadtext:

The project is situated between two main domains: physics and medical image analysis. In the physics community much data is produced in terms of images of events and the classification of events is often done manually. Data sharing is done using Grid technologies. In the medical domain much research in image analysis on decision support exists, but data sharing and Grid technologies are often difficult to implement. This project combines the complementary features of both domains.

Text:

The project MedLTPC is situated in between the medical and physics domains and contains a common denominator in that both domains require the storage and analysis of large amounts of image data.

For the physics domain the automatic image analysis tools of the medical domain were adapted to automatically classify images into various image types. Thus the the time needed to analyze the images of events was reduced.

The medical imaging domain profited from the Grid knowledge of physics. An infrastructure was set up using several Grid applications to allow for a safe storage of medical image data and a retrieval of the data [1], including visual retrieval. All these tools are open source. Medical data used was anonymized as medical images of the scientific literature were used.

The entire project relied on the Swiss Grid infrastructure and its authentication. Tools were made available on the Grid and were used among the project participants in a shared infrastructure. The project highlights how research fields can profit from such interdisciplinary research and a common research infrastructure including authentication, allowing not only to share infrastructure but also research tools and expertise.

References:

[1] Jukka Kommeri, Marko Niinimäki, Henning Müller, Safe Storage and Multi-modal Search for Medical Images, Medical Informatics Europe 2011, IOS press, Oslo, Norway, 2011.

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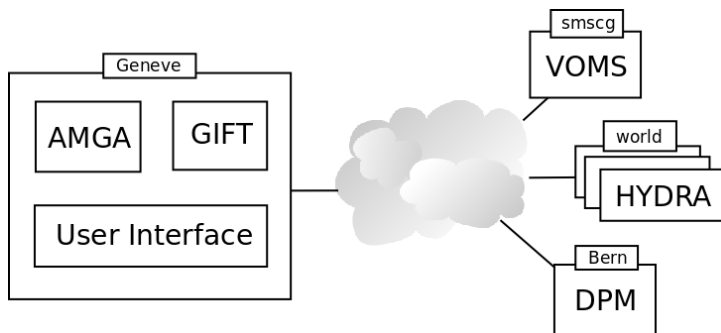


Figure 1: System overview form the medical data access and management.

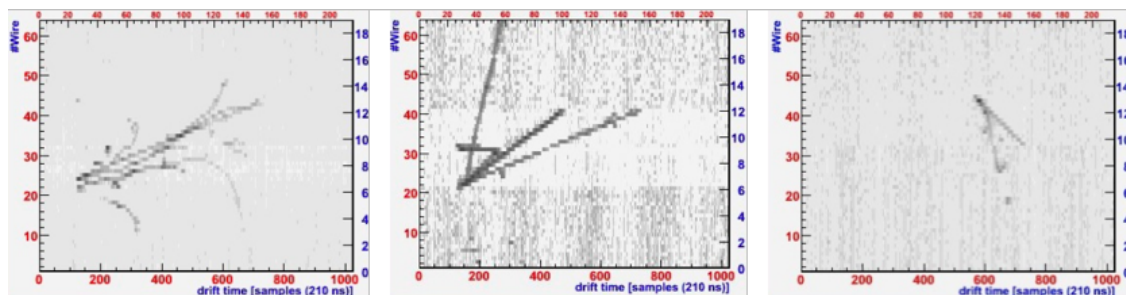


Figure 2: Examples of the LTPC images