Abstract: Medical Research Data Management Using MITK and XNAT

Connecting Medical Image Software and Data Management Systems in a Research Context

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Image and data processing plays an increasingly important role in medical research. Improvements in acquisition techniques and collaborations across traditionally separate research fields, such as fusing genomics and radiological information in decision making, lead to an ever increasing, in number as well as in size, amount of data. Managing and sharing this amount of data remains an important area of study. One well-known solution to this problem is the extensible neuroimaging archive toolkit (XNAT) [1], which provides a storage and management solution for large amounts of disparate data. However the processing of data remains largely separate and requires a lot of manual interaction.

We present a free and open source solution for managing such research data integrated with powerful tools for image processing. Our solution is based on the Medical Imaging Interaction Toolkit (MITK) [2] and offers the option to manage data in an XNAT from within an MITK application.

We will present an easy and intuitive workflow, downloading data from the server, segmenting the data and uploading the results back to the server, without leaving the application. This enables faster, more convenient interaction and improves the acceptance of research data management solutions, such as XNAT. This in turn improves traceability of data and processing done on data, as well as open the door to remote, or cloud based processing using the XNAT pipeline framework.

Our goal are workflows resulting in open software and open data publications, particularly in light of the concern which has been raised regarding the reproducability of research results in recent years [3, 4].

References

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