

Master Thesis Project: Registration of Whole-Body MR-images

Background:

Magnetic Resonance Tomography is an image acquisition technique that does not use ionizing radiation and is very useful in clinical use and in medical research, e.g., for analyzing the composition of the human body.

At the division of Radiology, Uppsala University, a huge amount of whole body-MR data is acquired for research on the connection between the composition of the human body and disease. Today, we can segment some of the tissues that are important in the project from acquired image data. The segmentation of the image data is the topic of another, ongoing master thesis project at the division of Radiology.

In this master thesis project, the segmented tissues and landmarks will be utilized to robustly compare whole body-MR volumes. One important tool for this analysis is image registration, where two images are aligned to enable pairwise analysis of the images.

Project description:

The goal of the master thesis is to:

- *Do a survey of relevant literature.
- *Plan the implementation and evaluation of state-of-the-art method(s).
- *Implement and evaluate the methods.
- *Write a report.

Conditions:

The master thesis project will be carried out at Uppsala University Hospital. Knowledge on MR, programming, image analysis and anatomy is a plus. The extent of the Master Thesis project is 20 weeks.

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