**Topic**

The Visible Human Project® was carried out by the National Library of Medicine in the USA. The initial aim was to create a digital image dataset of complete human male and female cadavers in magnetic resonance imaging (MRI), computer tomography (CT) and anatomical modes (cryosection images).

The images with the three modalities were acquired with the same characteristics for both the visible man and visible female datasets. First, they scanned the fresh bodies with MR and CT devices. Subsequently, the cadavers were frozen and rescanned in the frozen form with a computer tomograph (MRI is inappropriate for frozen objects since it works on the change of energy within the water molecules). At last, the frozen cadaver was sectioned physically and "photographed". The later scanned visible female dataset is about 40 Gigabytes in size.


**Assignment**

In this student project, you reconstruct the 2D slices of the visible human to a 3D volumetric dataset. For this purpose, you start to reconstruct the CT dataset first and then continue with the anatomical sections. Once both datasets are reconstructed, the task is to align/register the datasets such that the voxel grid of the two datasets is aligned (image registration).

**Requirements**

Interest in image processing and cross-platform application development in C++.

**Work Load**

- 20% theory
- 60% implementation
- 20% testing

**Project Type**

Based on the scope of the topic and optional tasks, this project can be done as Bachelor or Master thesis. Goals are adjusted depending on the project type.

**Supervision**

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**Contact**

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