Detection of interventional tools in moving images

Project type: klinisches Anwendungsprojekt (im Bachelor oder Master-Nebenfach Medizin) / Bachelorarbeit / Masterarbeit
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Figure 1: Detection and visualisation of a catheter in an image guided neurological intervention

Project Description

Fluoroscopic images are used in intravascular guided interventions to help physicians steer the tools towards a desired location. The goal of this project is to use state of the art image processing and modelling techniques in order to separate the background from the tools, thereby improving their visualisation for easier guidance. The challenges we want to address are both the low signal to noise ratio as well as the deformations caused by motion, e.g. respiratory and/or cardiac.

The difficulty of the project will be adapted to an IDP, Bachelor or Master Thesis.

Tasks

1. Detection and visualisation for static videos.
2. Detection and visualisation for videos with larger image deformations.
3. Quantitative Validation

Requirements

- Good programming skills in MATLAB
- Programming skills in C++ are a plus.
- Basic knowledge of image processing is a plus.

Contact

If you are interested in the project or if you have any questions please contact Diana Mateus