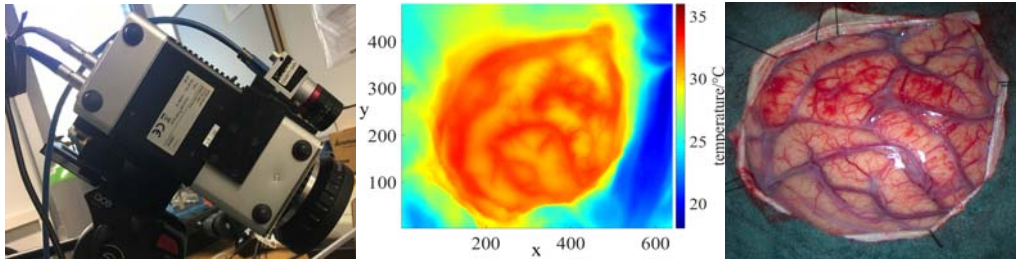# Theme for a Master- or Diplomarbeit

Real-time Motion Correction for IRT Imaging in Neurosurgery

In neurosurgery, the patient pulse and breathing motion artifacts during InfraRed Thermography (IRT) imaging cause critical problems such as image blurring and decreasing the visibility of small vessels, which leads to a poor analysis and diagnosis. Motion correction of IRT imaging in neurosurgery is a well-established process before image analysis. In our faculty, we were able to develop a motion estimation and correction method for IRT imaging for brain cortex images. In order to attain real-time processing, the method needs to be implemented on the hardware such as field programmable gate arrays (FPGAs).
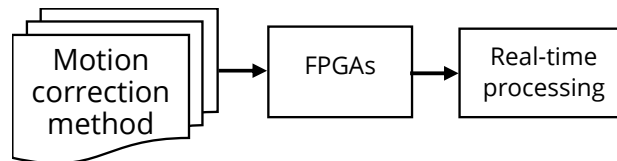
In this Diplomarbeit the obtained motion correction application (i.e., image alignment-/registration, local and global motion correction, and image fusion) shall be implemented in the FPGAs and process in real-time for analysis and diagnosis. Interested students should have knowledge and keen on medical image processing and FPGAs implementation, as well as some knowledge of MATLAB programming.

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