“Regularized Retrospective Image Registration And Its Application to In-vivo OCT Imaging”

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Datum: 08. Juli 2011, 11:00 – 13:00 Uhr

“Image registration algorithms are rather advanced and experienced an immense innovation boost in the past decade. Nowadays multi-modal rigid registration is in clinical routine use. Image quality, registration accuracy and registration efficiency are sufficient for many diagnostic and interventional procedures.

The major problem that is still considered to be unsolved in image registration is the estimation of deformations in the presence of unknown motion parameters. Periodic and non-periodic deformations can be due to patient motion, respiratory motion or cardiac motion.

In this talk I will present novel ideas to image registration and the usage of priors.
The core of the talk will focus on the design of objective functions for non-rigid image registration and their efficient optimization.

All introduced methods are tested on real clinical data. An overview of initial experimental results will be presented. I will show that intensity based image registration has a huge potential for applications in particular in OCT imaging.”