

7th Annual meeting of the German Society of Computer and Robot-assisted Surgery (CURAC.08)

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This issue of the *International Journal for Computer Assisted Radiology and Surgery* (IJCARS) is a special issue representing the best contributions to the 7th Annual Meeting of the German Society of Computer and Robot-assisted Surgery (CURAC.08), which took place in September 2008 in Leipzig, Germany. At CURAC.08, we accepted 44 papers out of 83 submissions as full presentations for the conference program. Based on the ranked results of the review process with three reviews per contribution, we invited 18 authors to submit an expanded and updated version of their CURAC.08 contributions for this special issue. After a rigorous multi-stage review process through *International Journal of Computer Assisted Radiology and Surgery*, eight papers were finally accepted, and they are included in this issue.

The contributions are organized in the common processing sequence of medical data and interventional applications. After segmenting anatomical data (Dworzak et al.), it is visualized pre- (Hlawitschka et al.) and intra-operatively (Hansen et al., Schulze et al.). Furthermore, the use of a surgical tool

may be simulated (Kahrs et al.) and used with mechatronic assistance (Hussong et al., Rau et al., Hagn et al.).

Dworzak et al. present an approach for the 3D reconstruction of the rib cage from 2D radiographs. A statistical shape model integrates information from two or more radiographs and for evaluation based on biplane images.

Hlawitschka et al. present an efficient approach to segment fiber traces into possible groups, based on a coherence metric. Applied to datasets from MR diffusion tensor imaging (DTI), the paper presents results for datasets as diverse as a (dog) heart and a (human) brain. Hansen et al. present a visualization method to overlay information extracted from image datasets of the patient into the OR suite. In contrast to current visualization methods, they use illustrative rendering techniques to reduce visual complexity. Another intraoperative visualization approach is presented by Schulze et al. focused on virtual endoscopy combined with video endoscopy.

Kahrs et al. present an approach to simulate the laser ablation of bone tissue. The proposed simulation method is based on measurements of actual removed bone.

Hussong et al. describe an automated electrode insertion tool for cochlear implants. This insertion tool was also evaluated on 30 artificial scala tympani models as well as on 20 human cochlea specimens. The insertion process itself is closely examined in a follow-up paper by Rau et al. Finally, Hagn et al. introduce DLR MiroSurge, a robotic system for bimanual endoscopy telesurgery. In contrast to typical dedicated surgical robots, MiroSurge is applicable in a variety of surgical scenarios.

We hope you find this selection of papers insightful and valuable.

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