MRW2021 Lab Visits

07.06.2021, 18:00 – 19:30h (20 minutes per group)

3D Print Lab, Radiology & Nuclear Medicine Clinic, University Hospital Basel

The 3D Print Lab is a service provider and research platform for data visualization and additive manufacturing processes. An interdisciplinary team of surgeons and radiologists aims at finding new forms of presentations and applications for three-dimensional image data. The starting point for this is the long-standing expertise of the Department of Oral and Maxillofacial Surgery, where 3D models are already routinely used today. 3D models produced by the 3D Print Lab also supports other surgical disciplines in the planning of operations and are also used for patient education. In addition, 3D-printed image data are used in teaching and training. As an institution within the University Hospital, the 3D Print Lab is an active research platform and available as project partner.

AOT Demonstration of the CARLO® system, Anatomy, University of Basel

50 years of research on medical laser technologies have achieved impressive results, especially in dermatology and ophthalmology. Until now, however, no solution had been found in the field of orthopaedic surgery to the problem of keeping bone tissue vital and intact at the site of the laser incision. This has now been achieved by AOT AG with the ground-breaking invention of the CARLO® system (Cold Ablation Robot-guided Laser Osteotome). This system allows for the direct collaboration of man and machine by means of a small, lightweight, and custom-designed tactile robotic arm, as well as navigation and control software and its corresponding hardware. All of these elements are combined in an ergonomic system, which fits easily into the operating room and allows the surgeon full control over this universal osteotomy device at any time. CARLO® is thus the world's first medical, tactile robot that can cut bone without contact and with cold laser technology. The device allows the surgeon to perform bone operations with unprecedented precision, and in freely-defined, curved and functional sectional configurations, which are not achievable with conventional instruments.

SpectoVR Demonstration, Anatomy, University of Basel

Specto is focused on advanced visualisation of medical image datasets in 3D. The current Specto visualisation algorithms implement state of the art raytracing technics providing stunning rendering in realtime. The basic Specto application provides medical image loading and intuitive visualisation including transfer function editing. Specto is available for Windows, MacOS and Linux systems.
At the University Hospital Basel this groundbreaking software is already used intensively. Four rooms in various departments (spinal surgery, neurosurgery, radiology/emergency, as well as training and education) have been equipped with in total eight SpectoVR stations, which are connected to the hospital information system. All operations with patients undergoing elective aneurysm repair at the University Hospital are prepared with SpectoVR technology. Besides, surgeons started using virtual reality glasses to inform patients about planned operations. Both sides can benefit from this: physicians can explain complex cases more clearly, and patients can better understand what is happening in their bodies.