Imaging Science Institute (ISI)

Speakers

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Aims and structure

The Imaging Science Institute (ISI) was founded in 2005 as a cooperation project between Siemens Healthcare and the Institute of Radiology. Its location within the UK Erlangen allows optimizing modern imaging systems to improve quality and efficiency of diagnostic analysis as well as treatment methods. ISI provides the prerequisites to transfer new developments regarding imaging methods and data processing systems into the clinical setting. Aside from scientific activities, ISI provides training courses for users and technicians to operate new hard- and software services in the field of biomedical imaging. Moreover, ISI is also a platform in which other medical centers and the public can get familiar with the latest developments regarding research and application of state-of-the-art medical imaging techniques. Aside from the acquisition of scientific findings, medical professionals and decision-makers working in public health all over the world will learn about quality improvement and opportunities to minimize costs by employing novel technologies.

Within the twelve years since its establishment, roughly 45,000 people from all over the world have visited ISI, among them numerous leaders of medical centers as well as representatives of public healthcare systems and politicians.

ISI partners

- Siemens AG
- Fujitsu Technology
- Medtron
- Medrad, INC.
- Barco
- Federal Ministry for Economic Affairs and Energy
- BMBF
- Medical Valley EMN e.V.

Research

Research projects aim at translating preclinical developments from industrial partners into improved patient care. New concepts of examinations and medical products are created by a direct and mutual dialogue between clinical users and industrial developers as well as technicians. These cooperations often result in corporate patents, underlying the competence of ISI. New medical products are further evolved and optimized. The Leading Edge Cluster Medical Valley EMN connects ISI to a strong regional network. Main research focus are:

Radiological information technology

Increasing radiology data are structured in „Big Data"-projects and future artificial intelligence algorithms are aimed at improving patient care. After finalization of the „Medico"-project of the Federal Ministry for Economic Affairs and Energy, the next funded research project „Klinische Datenintelligenz" (clinical data intelligence) was recently started.

Pediatric radiology

Clinical usability and impact on the clinical patient care of fast computed tomography techniques (High Pitch) are evaluated. Adult techniques of magnetic resonance imaging are adapted to pediatric patients.

Radiography

Next generation X-ray systems use industrial robotic arms to standardize examination protocols and to establish new examinations, like weight bearing imaging, and 3D images. Usability, dose performance and image quality are evaluated in comparison to conventional systems.

Computed tomography

Technological developments are evaluated for the use in clinical patient collectives and new indications are established (i.e. low kV, tin prefiltration, iterative reconstructions, Dual Energy). New concepts of mobile interfaces are used to economize the daily workflow and to improve patient compliance.

Teaching and advanced training

Offering a wide range of courses and workshops for physicians, technicians, engineers, and radiographers, ISI enjoys a very high national and international reputation owing to the professional competence of the course instructors and the excellent training conditions. Since the foundation of ISI in 2005, more than 25,000 people have already participated in advanced training courses.