RadSpeech – Mobile Speech Interaction for Radiologists

RadSpeech is a mobile work station for radiologists. Many experts in the field of radiology desire just such a mobile environment with interactive speech capability as a work place.

Via voice command, a radiologist or the attending physician can retrieve and review electronic medical files together with the associated images from an iPad touch screen and then arrange them as required. Using natural language and gestures, images of traditional radiologic and tomographic examinations can be annotated and retrieved at a later time by semantic search. The dialog-based image search and annotation supplies the foundation for future computer-aided clinical diagnosis and decision-making. RadSpeech supports the physician's work routine with intuitive operating controls and can be used in situations when there is no fixed work place available, for example, during visits or in meetings.

RadSpeech represents the next generation of intelligent, scalable, and intuitive user interfaces for semantic search in the area of medical image processing. Ontology-based knowledge representation is not only useful for image content, but also for the complex processes of speech recognition and dialog management. Most importantly, it aims to improve the efficiency of medical diagnosis while achieving better structured examination reports, including semantic image annotations.

At CeBIT 2012, DFKI and its project partners are presenting a “collaborative dialog scenario” at the stand of the Federal Ministry of Economics and Technology (BMWi) that demonstrates how patient data can be retrieved from image and text-based clinical findings onto an iPad or iPhone via interactive speech. In this scenario, the dialog system takes up the role of the medical specialist, who proposes a qualified radiologist for a second opinion and facilitates the correspondence.

In addition, the latest version of the RadSpeech diagnostic questionnaire for radiologists in mammography will be presented at the CeBIT stand. This interactive paper is a collaborative development with DFKI's Knowledge Management department. With the aid of a special pen and handwritten notes, it facilitates the generation of a structured diagnosis on the basis of standardized medical terminology. RadSpeech was created within the framework of the MEDICO application scenario of the THESEUS program, sponsored by the Federal Ministry of Economics and Technology. The research in MEDICO focuses on the intelligent structuring of heterogenous patient data – texts, images, lab data – and making it accessible.

DFKI research scientist Dr. Daniel Sonntag was selected as the winner of the German High Tech Awards 2011 for Medical Technologies for his work on RadSpeech. The award, valued at 10,000 Euro, and the business case were presented at the world's largest convention for medical imaging, the RSNA (Radiological Society of North America) in Chicago in December 2011.

The success of RadSpeech, as explained by the international panel of experts at the German High Tech Awards, is attributed, above all, to the marketability of mobile dialog technology for medically relevant applications and the maturity of DFKI technology in this segment, which has proven itself in the international marketplace.

Project partners
Siemens AG
FAU Clinic, Erlangen

More information
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THESEUS
Research program for a new Internet-based knowledge infrastructure