

RadSpeech - A Semantic Speech Dialogue System for Radiologists

Supported by

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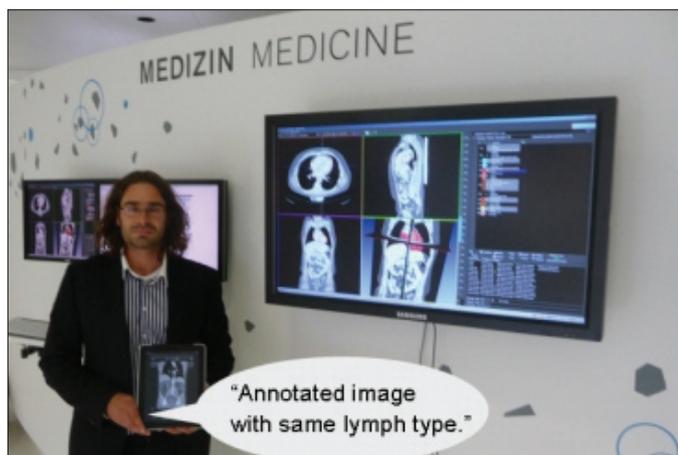
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Industrial Partners: Siemens Healthcare, Siemens Technology

Clinical Partner: University Hospital Erlangen

Motivation

With traditional user interfaces, users may browse or explore visualised patient data, but little to no help is given when it comes to the interpretation of what is being displayed. **Semantic annotations** should provide the necessary image information, and a **semantic dialogue system** should be used to ask questions about the image annotations while engaging the clinician in a natural speech dialogue. Our motivation in developing RadSpeech is the design and implementation of a multimodal dialogue system for the radiologist. Dialogue-based semantic image retrieval should provide the basis for help in clinical decision support and computer aided diagnosis.



Main Objectives

With RadSpeech, we aim to build the next generation of intelligent, scalable, and user-friendly semantic search interfaces for the medical imaging domain, based on semantic technologies. Ontology-based knowledge representation is used not only for the image contents, but also for the complex natural language understanding and dialogue management process. With the incorporation of higher level knowledge represented in ontologies, different semantic views of the same medical images (such as structural, functional, and disease aspects) can be explicitly stated and integrated.

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A radiologist's daily task in the SIEMENS patient image finding stations as installed at the University Hospital Erlangen defines the application scenario. We strive for more efficiency during the medical finding process and for more structured finding reports including semantic image annotations.

News

(September 2010) After the last scenario update of innovative radiology applications, we plan to extend the desktop-based dialogue interaction to mobile speech interaction with medical image contents. The THESEUS CTC-WP4 dialogue shell should provide architecture to include mobile speech-based interfaces into the complex medical finding workflow in order to implement "RadSpeech on Mobile Devices."

