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Presentation Details

Presentation Title: Fast search for radiology cases in hospital systems via content-based image retrieval

Presentation Number: B-0147

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Disclosure Block: **G. Langs:** None. **R. Donner:** None. **M. Holzer:** None. **D. Markonis:** None. **H. Mueller:** None. **E. Birngruber:** None.

Session Number: SS 105

Topic: Computer Applications

Session Title: IT infrastructure, learning support and teleradiology

Session Date/Time: Thursday Mar 7 2013, 10:30 - 12:00

Room: Z

Below is a view of your accepted abstract:

Purpose: Efficient and quick access to comparable cases and corresponding radiology reports is crucial during radiological assessment and increases quality. Currently, in most cases search queries within a PACS are limited to meta data. This limits the effectiveness of searches, since they do not use visual information in the images, such as patterns that correspond to specific diseases.

Methods and Materials: We present a computational framework for content-based image and report retrieval of radiological data. The system searches for cases that exhibit similar pathology patterns and displays them together with the radiology reports. It fully automatically identifies the anatomical location of an image and retrieves cases with similar pathology. We performed evaluation with approximately 61.000 image series sampled from a hospital PACS (3TB of imaging data).

Results: The system identified the position of a query case with a median error of 2.4cm within a search time below a second. On a pilot set, lung pathology retrieval achieved 67% correct diseases in the top ranked 3 cases.

Conclusion: A fast and efficient way to retrieve relevant data from hospital image data bases improves reporting quality and speed in radiology. Retrieval plays an increasingly important role in the clinical radiology environment. The computational system performs retrieval based on image content and is able to provide results that match in both anatomy and pathology. It supports radiologists to find relevant cases based on regions of interest in a matter of seconds, even if no specific keywords are given.

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