Application of Image Analysis in Musculoskeletal Radiology

Thematic Session within VipIMAGE 2017

VI ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing

Porto, Portugal, 18-20 October 2017

www.fe.up.pt/vipimage

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Description

According to Simone Waldt and Klaus Woertler (S.Walds, K.Woertler: Measurements and Classifications in Musculoskeletal Radiology", Thieme Medical Publishers, New York, 2014) "There is scarcely any subspecialty of clinical medicine in which we find such a bewildering array of measuring techniques and classification systems as in orthopaedics. They are so numerous that every radiologist, orthopaedist, or trauma surgeon cannot possibly keep all the methods and reference values in their head." Certainly, there could be no better motivation for development of computer systems which would assist radiologist, orthopaedist, or trauma surgeon than the aforementioned opinion of the experts in the field. Unfortunately, although automated support would be certainly welcomed, currently automated methods in orthopaedics seem to be somewhat under-explored field. Surely, the reason is that disorders faced by orthopaedists are rarely life-threatening. In big part the research on application of image analysis in radiology is focused on supporting diagnosis in oncology, neurology or cardiology. On the other hand measurement procedures in musculoskeletal radiology are frequently time-consuming and laborious. As automated methods are rare, high inter- and intra-observer variation of measurement results can be expected. Because the actual treatment is selected based on the results of a radiologist's work, any discrepancies may have direct consequences onto the health status of a patient. Moreover, with ever increasing number of patients the timetable of all staff engaged in therapy must be optimized. Any effort in supporting radiologists within the procedures related to musculoskeletal measurements and classifications are thus important. The session is intended to draw attention of the image analysis audience to the unexplored field of image-based diagnosis in musculoskeletal radiology.

Topics of interest include (but are not restricted to):

- Segmentation of bones in CT, MRI, X-rays images
- Automated quantitative methods in musculoskeletal radiology
- Automated classification systems in musculoskeletal radiology
- CAD systems in orthopaedics
- Image assisted orthopaedic surgery

Publications

The **proceedings book** will be **published by Springer** under the book series **"Lecture Notes in Computational Vision and Biomechanics"** and **indexed by Elsevier Scopus**.

A **special issue** of the **Taylor & Francis international journal** **"Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization"**, indexed in ISI Thomson Reuters, Elsevier Scopus and dblp, **will be published**. All authors of works presented in VipIMAGE 2017 will be invited to submit an extended version to the special issue.

Important dates

• **Submission of extended abstracts: March 15, 2017**

• Authors Notification: April 15, 2017

• Final Papers (not compulsive): June 15, 2017

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