

**Workshop
Medical Image Processing
Wednesday, 16 June 2004, 13-16:30
GSF-MEDIS, Room 160**



**Medical Image Processing for Health –
State of the Art, Challenges and Obstacles**

EFMI WG Medical Image Processing

www.efmi-wg-mip.net

Alexander Horsch, Munich, Chair

Thomas Wittenberg, Erlangen, Germany, Co-Chair

Vytenis Punys, Kaunas, Lithuania, Co-Chair

[20 minutes presentation + 10 minutes discussion]

13:00 Alexander Horsch

Munich University of Technology, Germany

The Potential of Medical Image Processing and the Need for Reference Data and Software to Accelerate its Exploitation for Patients' Health

13:30 Vytenis Punys

Kaunas University of Technology, Lithuania

An Initiative to build a European Network of Excellence for Medical Image Processing

14:00 Larry Clarke

National Cancer Institute, Rockville, MD, USA

Development of Image Databases as an International Resource to Standardize Software Validation for Cancer

14:30 Thomas Wittenberg

Fraunhofer Institute for Integrated Circuits, Erlangen, Germany

The Basic Principles of the Reference Image Database Concept of EFMI WG MIP

15:00 Markus Mohr

University of Regensburg, Germany

General Requirements for Reference Image Databases from the Medical Expert's point of view / The Role of Medical Advisory Board in the WG MIP Initiative

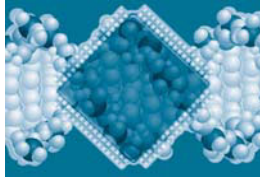
15:30 Karl-Heinz Englmeier

GSF - Forschungszentrum für Umwelt und Gesundheit, Germany

Virtual Reality – A Critical Overview.

16:00 Life Demonstration of VR Applications

17:30 END



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Topic summary

Medical Image Processing has become an essential component of modern healthcare in manifold way. Highly sophisticated applications such as Computer Assisted Diagnoses (CAD) and therapy (e.g. Computer Assisted Surgery – CAS) are just obvious and prominent examples. New imaging techniques, 3D reconstruction and visualization, quantitative image analyses, image-guided intra-interventional navigation, virtual and augmented reality, and other applications have significantly influenced clinical procedures and helped to increase the quality of interventions. These application have helped to reduce the stress for the patient, e.g. by enabling reduction of radiation through better analysis methods, or by reducing the invasiveness of surgery through accurate image-guided procedures.

Despite these successful contributions to healthcare, there are big challenges that have to be tackled. For example, the central processing step of segmenting regions of interest (e.g. a tumor or an anatomically relevant structure such as an organ or a blood vessel) in an image or volume is for many practically important situations still not solved in a fully automated way, not to speak about robustness and accuracy. Another challenge is the establishment of big reference image databases for the development and the standardized evaluation of methods and application performance.

1 Goal of the workshop

During the workshop, invited speeches on the topic will be presented. The goal is to give an overview of the state of the art of medical image processing, and to through some light on selected challenges and obstacles within this field. A discussion with the audience shall give the opportunity to gather ideas and to exchange experiences. The result will be documented and published on the WG Website. Last not least, interested colleagues can get into contact and also join the efforts of EFMI WG MIP.

2 Professional interests of the intended audience

The intended audience is colleagues working in the medical image processing field with an emphasis on clinical applications, as well as colleagues who are involved in evaluation of image-based applications. Possible motivations for to join the workshop can be:

- to get up-to-date information about the subject
- to participate in the discussion
- to identify possible own contributions to the work of EFMI WG MIP

3 Expected outcome

A documentation of the presentations and the discussion published on the WG Website.
New contacts between the WG and colleagues interested in the WG work.