Small Animal Imaging: Trends and Techniques

Thematic Session within the VipIMAGE2009 - II ECCOMAS Thematic Conference on
Computational Vision and Medical Image Processing
Porto, Portugal, 14-16 October 2009

www.fe.up.pt/~vipimage

http://paginas.fe.up.pt/~vipimage/conference/thematic_sessions.html

Description

Advances in the biomedical sciences have been accelerated by the introduction of many new imaging technologies in recent years. With animal models widely used in the basic and pre-clinical sciences, finding ways to conduct animal experiments with higher accuracy and efficiency becomes a key factor in the success of researches. Well-characterized models have been thus developed for a wide range of diseases to offer the possibility of studying their fundamental mechanisms as well as to test potential drugs. The mouse, in particular, has become a key animal model system for the study of human disease development. It offers the possibility to manipulate its genome and produce accurate models of many human disorders resulting in significant progress in the understanding of human diseases.
The increasing number of studies performed on animal models has stimulated the development of new imaging tools adapted to the particular constraints of *in vivo* studies in small animals. E*x vivo* experiments such as autoradiography have indeed showed their limitations when subjected to longitudinal analyses required in the studies involving animal models. Extension of modern biomedical imaging techniques to the small animal has presented therefore some interesting challenge and opportunities. This has led to the emergence of dedicated imaging systems technologies.
Small animal imaging technologies modify significantly our knowledge in biology by bringing new information on the physiology key-questions biologists ask. *In vivo* imaging is the tool that makes it possible to go from *in vitro* biology data to living organisms as a whole.
The aim of this thematic session is thus to present and discuss recent developments and future prospects in some fields of small animal imaging and to bring together multidisciplinary approaches.

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

- ✓ Small Animal Imaging
- ✓ Small Animal Imagers
- ✓ Application-Specific Imagers and Imaging
- ✓ Molecular Imaging Probes, Targets, Assays, and Applications
- ✓ Small Animal Handling
- ✓ Simulation and Modeling of Small Animal Imaging Systems
- ✓ Acquisition and Processing of Dynamic Data
- ✓ Quantitative Imaging and Techniques
- ✓ Image Processing and Evaluation
- ✓ Signal Processing and Data Acquisition
- ✓ Image Reconstruction
- ✓ Clinical and Research Applications of Biomedical Imaging
- ✓ Imaging in Drug Development and Biological Research

Publications

The proceedings book will be published by the Taylor & Francis Group, as happened with VipIMAGE 2007 (ISBN: 9780415457774). The organizers will encourage the submission of extended versions of the accepted

papers to related International Journals; in particular for special issues dedicated to the conference. One possibility already confirmed is the International Journal for Computational Vision and Biomechanics (IJCV&B). As what happened with VipIMAGE 2007, the organizers will also propose the publishing of a book by SPRINGER (ISBN: 978-1-4020-9085-1), under the Computational Methods in Applied Sciences series, with invited works from the most important ones presented in conference.

Important dates

- Deadline for Thematic Sessions proposals: January 15, 2009
- Submission of extended abstracts: March 15, 2009
- Lectures and Final Papers: June 15, 2009

Organizers

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