

Applications of Ontologies for Medical Image Analysis and Computer-Assisted Interventions

Thematic Session within VipIMAGE 2019

VII ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing

Porto, Portugal, 16-18 October 2019

www.fe.up.pt/vipimage

web.fe.up.pt/~vipimage/nav/conference/sessions.htm

Description

This thematic session will emphasize the application of medical and surgical ontologies, which are high-level representations of major clinical or computational phases of a therapy or treatment, to informing or potentiating medical image analysis and the planning of computer-assisted interventions. These models of therapeutic workflow can make explicit which particular requirements determine the imaging modalities most conducive to a positive patient outcome, as well as how to systematically optimize the computational planning, navigation or robotic assistance used in conjunction with a chosen therapy. Alternately, it can also be exploited to formalize requirements for a medical or surgical simulation. For example, prior knowledge of a specific neurosurgical approach can make explicit the likely surgical path and corridor between the craniotomy and the surgical target, and enable the clinician as well as computer system to anticipate a specific subset of neuroanatomical structures, including which specific blood vessels and/or cranial nerves are at risk. This thematic session will solicit contributions both on novel approaches to populating these medical and surgical models as well as emerging applications of these models in computer-assisted medicine.

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

- Development methodologies for medical or surgical ontologies.
- Application of ontologies to therapeutic gesture classification.
- Application of medical or surgical ontologies to therapy planning.
- Use of medical or surgical ontologies as requirements for medical/surgical simulation.
- Application of ontologies to medical device development.

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 Clarivate Analytics Emerging Sources, Elsevier Scopus and dblp, **will be published**. All authors of works presented in VipIMAGE 2019 will be invited to submit an extended version to the special issue.

Important dates

- **Submission of extended abstracts: May 31, 2019** (final deadline)
- Final Papers (non-mandatory): July 15, 2019

Organizers

Michel Audette

Department of Modeling, Simulation and Visualization Engineering

Old Dominion University

Email: maudette@odu.edu

URL: <https://fs.wp.odu.edu/maudette/>