SPEAKER:

Dr. Albert Burger

CS-MACS

DATE:

Wednesday the 23rd of March 2011

TIME:

15:15 - 16:15

LOCATION:

Heriot-Watt University, Earl Mountbatten Building; room 3.02

TITLE:

Integration of Biomedical Atlases: Current State, Future Challenges and Promises

ABSTRACT:

Biomedical imaging has become ubiquitous in both, basic research and the clinical sciences. Technology advances, and the resulting multitude of imaging modalities, have led to a sharp rise in the quantity and quality of such images. In addition, computational models are increasingly used to study biological processes involving spatio-temporal changes in organisms, e.g. the growth of a tumor, and models and images are extensively described in natural language, for example in research publications and patient records. Together this leads to a major spatio-temporal data and model integration challenge for the next generation of biomedical and eHealth information systems.

Biomedical atlases have emerged as a key technology in solving this integration problem; such atlases typically include an image-based (2D and/or 3D) component as well as a conceptual representation (ontologies) of the organisms involved. I will discuss the state of the art of computational biomedical atlases and current atlas integration efforts. In addition, the talk will outline the potential benefits of the next generation of integration frameworks (using semantic web technologies) and the computational challenges they present.