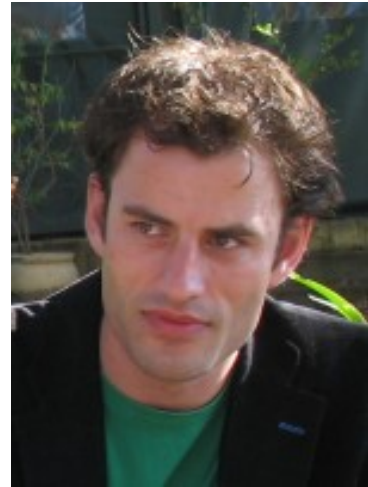


Charl Botha,
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Visualisation for Molecular Imaging

Tue., 2008-12-16, 13h–14h

Aud. 2, BB Building (near Haukeland hospital),
Jonas Lies vei 91



Abstract:

With the recent advancements in biomedical imaging technology, molecular processes in the cell can now be brought directly in relation to structural and functional changes at higher levels. Functional imaging (optical, nuclear and MR with targeted contrast agents) provides a window on cellular biochemistry and gene expression, while structural imaging (CT, MR, ultrasound) may be used to measure the resulting structural changes in the whole body. Disease processes and treatment effects can now be followed over time, from molecule to organism, both in pre-clinical small animal models and in humans.

For a single time point, a molecular imaging study may consist of photographs, photon emission images, serial CT, MR or PET slices, functional MR imaging, MR spectroscopy, and histology. We have recently started working on new visualization techniques that will enable the in-depth visual exploration of relations between disease evolution, underlying molecular processes and structural and functional changes that are locked up in combined molecular, functional and structural imaging data.

In this talk I will introduce molecular imaging and the role of visualisation in this new field, after which I will present our latest results on two important topics:

- Whole-body atlas-based articulated registration for small animal molecular imaging.
- A visualisation system for combined bioluminescence and uMRI/uCT imaging.