



Description of two vacant PhD positions in medical visualization

The Department of Informatics at the University of Bergen, Norway, announces two new PhD positions in the research field of medical visualization (and in the visualization research group at the UiB Department of Informatics). These positions are associated with the research project *Illustrated Ultrasound* – “IllustraSound” for short.

The focus of the project is on the visualization of medical ultrasound data. Ultrasound is a very important clinical imaging tool that is extensively used by medical doctors all around the world. For non-experts and also sometimes for experts, the ultrasound images are hard to understand, leading to special challenges in the communication between medical doctors and their patients. The vision of the IllustraSound project is to provide new visualization technology to address the readability problem by enriching the ultrasound data with other types of medical data. On top of the ultrasound images, intuitive illustrative renderings are added, so that the patient (or doctor) can get a better understanding of the images.

The IllustraSound project is part of the Bergen MedViz initiative (MedViz.UiB.no), headed by the Visualization Group at the UiB Department of Informatics (www.ii.UiB.no/vis), with CMR Computing (www.CMR.no) and Haukeland University Hospital (www.Helse-Bergen.no) as partners. The project receives funding for three years from the Norwegian Research Council through the VERDIKT programme – see also the web page at URL <http://forskingsradet.no/servlet/Satellite?c=Nyhet&pagenam=verdikt%2FHovedsidemal&cid=1238627834719&p=1226993814948>

The Department of Informatics is offering two PhD fellowship positions, which are granted for three years. The primary task will be to conduct world-class research in visualization technology for ultrasound data. The research will be done in a close cooperation with other group members, who focus on the visualization of ultrasound data. The outcome of the research will be integrated into the IllustraSound software platform developed by CMR as the industrial partner. Possible topics for this interdisciplinary research include (but are not limited to):

- multi-modal ultrasound visualization with PET/CT/US
- ultrasound enrichment with high-level semantics
- navigation for endoscopic ultrasound
- guiding visualization for ultrasound examination

The research will be carried out in the visualization group of the UiB Department of Informatics. The department has 20 professors / associate professors, 5 adjunct professors, a supporting staff



of eight, approximately 45 PhD students and 15 post doctoral researchers. The scientific staff is organized into six research groups: algorithms, bioinformatics, optimization, programming theory, secure communication, and visualization. Each research group is responsible for research in its field and for teaching courses within its subject area.

The UiB visualization group (www.i.uib.no/vis) is the newest of the six research groups at the UiB Department of Informatics. Currently one prof. (H. Hauser), one associate prof. (I. Viola), five PhD students, and several Master students work on medical visualization, the interactive visual exploration and analysis of data from the oil & gas sector, from meteorology & climate research, as well as from other application fields. The group publishes scientific results in world-wide best-possible journals and conference proceedings. At UiB it offers a visualization Master study program to students of computer science (dimensioned 120 ECTS in two years) with courses on computer graphics, visualization, special topics in visualization, etc.

All PhD research fellows enroll in the University's approved PhD program, leading to the degree within a time limit of three years. If financed through third-party funding (as in this case here), no teaching obligations are set by the University; the participation in coaching project students and master theses projects can be foreseen, however, as a form of integration of the PhD fellow into the university study program.

The applicants must have relevant background, which also must be sufficiently documented in the application, and their research interest should fit within existing activities in visualization. With this opening, we are primarily searching for a candidate in illustrative medical visualization (to fit into the research scope of the IllustraSound project). If applicants can report experiences with related research, they should verbosely document this (scientific papers written, talks given, participation in research projects and related documentation, aso.). Candidates are also encouraged to provide a short description of their research vision as well as letters of recommendation from their previous employers or university teachers.

Interested candidates can contact assoc. prof. Ivan Viola (ivan.viola@uib.no, +47/55584282) for more information.