UNIVERSITÄT ZU LÜBECK
GRADUATE SCHOOL FOR COMPUTING
IN MEDICINE AND LIFE SCIENCES

imt Institut für Medizintechnik

open position for a doctoral candidate (m/f):

New Concepts for Artifact Reduction in Digital Tomosynthesis

About this project

Digital Tomosynthesis (DT) is a limited angle X-ray imaging technique for producing a three-dimensional stack of cross-sectional images of an object. It is an attractive low dose and high resolution alternative to Computed Tomography (CT) in certain imaging applications. An accurate image reconstruction in DT is a challenging task due to the incompleteness of the projection data.

The choice of the reconstruction algorithm and the optimization of the reconstruction parameters greatly influence the properties of the reconstructed images. Various reconstruction approaches to improve image quality in tomosynthesis have been proposed so far. However, none of them is capable to provide artifact-free images.

The comprehensive understanding of the effect of the artifact formation in DT is an important step in solving tomosynthesis image quality problem. The aim of this project is to analyze in details which factors are responsible for the artifact formation in DT and to develop a new methodology for artifact reduction.

Requirements

We are looking for a candidate (m/f) an enthusiastic candidate (m/f) with a M.Sc. degreewith a strong background in the area of medical imaging, data acquisition and data processing as well as image reconstruction (esp. numerical methods and inverse problems). Programming skills in C++ and/or Matlab are required. GPU programming skills (especially CUDA) is an advantage.

Supervisors in this project

Prof. Dr. rer. nat. Thorsten M. Buzug
Institute of Medical Engineering
University of Lübeck, Germany

Prof. Dr. med. Jörg Barkhausen
Clinic of Radiology and Nuclear
Medicine, UKSH, Lübeck, Germany

How to apply

Interested candidates should send

- A motivation letter
- A detailed CV (including followed courses, grades, previous work, publications)
- Contact info of references

Please address your applications to:

Name: Prof. Dr. Thorsten M. Buzug
E-mail: buzug@imt.uni-luebeck.de

The initial scholarship will start not later than 31.01.2013
Closing date for applications: 15.12.2012

Additional information can be found:

Link to the Institute of Medical Engineering web-page: http://www.imt.uni-luebeck.de/
Link to the Graduate School web-page: http://www.gradschool.uni-luebeck.de/