

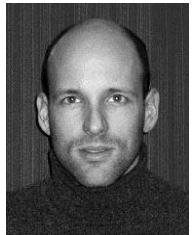


FROM VISION TO DECISION

SEMINAR FRIDAY 16.01.2015

PLACE: MedViz Facilities., Møllendalsbakken 7, 5th floor

TIME : 12:00-13:30



SPEAKERS/TITLE

Professor Jarle Rørvik

Title: MedViz Lighthouse Project – «Image-based quantitative assessment on abdominal organ structure and function».

PhD-student Eli Eikefjord

Title: Precision and accuracy of renal perfusion and filtration quantification from DCE-MRI data on twenty healthy volunteers

Postdoctor Erlend Hodneland

Title: Sensitivity analysis for filtration in human kidney

Postdoctor Are Losnegård

Title: Registration of multiparametric MRI and whole-mount sections of the prostate

ABSTRACT

Rørvik

The aim of the project is to develop knowledge and competences needed to establish robust techniques for non-invasive, image-based assessment of abdominal organ structure and function using the large, complex research infrastructure for imaging at UiB and HUS. The design of proper image acquisition protocols, quantitative image analysis, and interactive visualization will be achieved by a multidisciplinary research group (mathematicians, physicists, researchers in computer science and biomedicine, radiographers, radiologists and clinicians) within the MedViz consortium collaborating with national and international co-workers, and building on several years of joint research.

Eikefjord

To be clinical useful DCE-MRI renography must provide both precise and accurate estimates of renal function compared to a gold standard. In our study we used a two compartment filtration model and investigated the precision in single kidney perfusion and filtration estimates from repeated DCE-MRI scans of twenty healthy volunteers. MR-derived estimates of the glomerular filtration rate (GFR) was further investigated for accuracy compared to Iohexol-GFR which is the gold standard for determination of GFR. The results from our analyses will be presented in my talk.

Hodneland

The processing chain for analysis of DCE-MRI data has a number of crucial steps where each step can heavily influence the estimation of GFR values. Some of these steps are kidney segmentation, selection of AIF roi, the application of signal versus tracer concentration curves, and breath-hold timeline versus full dynamic timeline. We have conducted a screening to estimate the influence of each of these steps, in order to categorize the factors based on their significance.

Losnegård

Prostate cancer is the most common cancer among males in Norway and elsewhere, and computer-aided detection (CAD) systems using multiparametric MRI (mpMRI) are promising as diagnostic tools. In this project, we are developing automated methods for voxel-wise tumor localization and classification, with whole-mount prostate sections as ground truth. This talk will focus on registration of mpMRI and whole-mount sections.