CALL FOR PARTICIPATION

ISBI 2012 Challenge Workshop

Cardiac Delayed Enhancement Magnetic Resonance Image Segmentation
cDEMRIS

ISBI: The IEEE International Symposium on Biomedical Imaging (ISBI) is the premier forum for the presentation of technological advances in theoretical and applied biomedical imaging and image computing. ISBI 2012 will be the ninth meeting in this series and its 10th anniversary since the first edition. Previous meetings have played an important role in facilitating interaction between medical and biological imaging researchers. The 2012 meeting will continue this tradition of fostering knowledge transfer between different imaging communities and contributing to an integrative approach to biomedical imaging across all scales of observation.

ISBI Challenges: These will be held on the first morning of the conference (2nd of May), in parallel with ISBI 2012 Tutorials. Their organization is similar to that of previous challenges described in Grand Challenges in Medical Image Analysis (www.grand-challenge.org), i.e. a combination of a contest and a workshop. The competition, for which data with a known ground truth is to be analysed, will be held during the months prior to the conference. After the publication of the evaluations, teams will be invited to submit an abstract and present their methods and results during the conference.

cDEMRIS Challenge: Delayed-enhancement magnetic resonance imaging (DE-MRI) is a powerful tool for detecting myocardial fibrosis and scarring in both the ventricles and atria. The figure shows three examples of DE-MRI slices of the left atrium (LA) where scar (see arrows) appears as brighter signal in locations of myocardium. Recently there has been much interest in the quantification of DE-MRI for a variety of applications. The quantification of DE-MRI in the LA of patients with atrial fibrillation has been shown to be potentially useful for selecting suitable candidates for ablation therapy and the subsequent monitoring of this therapy. This quantification is particularly challenging due to the thin myocardium of the atrium, the variable geometry of the LA, and the difficulties in imaging these patients at sufficient resolution and signal-to-noise ratio. This challenge-workshop will make available 60 DE-MRI clinical data sets to challengers for segmentation of enhanced regions from patients with atrial fibrillation. 30 data sets will be from patients prior to ablation therapy for fibrosis segmentation and 30 will be at least 3-months post-ablation therapy for ablation-related scar segmentation. Data provided will include the DE-MRI scans and a segmentation of LA cavity from an anatomical MRI, which is a guide to the LA wall, within which the enhanced regions are found. Ground truth will be established by using manual segmentations from clinical experts. The cDEMRIS challenge workshop will be run as a collaboration between researchers, rather than a competition. There will be no “winner” and comparative results will be presented without rankings. We encourage participation by a broad selection of researchers using a range of methods, both complex and simple. Groups are encouraged to provide results from algorithms in preliminary stages of development. Each participant commits to submitting an abstract to the cDEMRIS’12 workshop summarizing the method used and results of the test dataset.

Important dates:
- Data available to challengers: December 9, 2011 (contact Dr. Karim for data download via FTP)
- Submission of results: March 16, 2012
- Notification of evaluation: March 30, 2012
- Submission of abstract: April 15, 2012
- Workshop: May 2, 2012

Website: see http://www.isd.kcl.ac.uk/cdemris/ for more details and contact information

Organisers
Dr. Kawal Rhode & Dr. Rashed Karim (King’s College London, UK), Dr. Rob MacLeod & Dr. Josh Cates (University of Utah, USA), Dr. Dana Peters (Yale University, USA)