Workshop on Breast Image Analysis

In conjunction with the 14th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2011)
18 September 2011, Westin Harbour Castle, Toronto, Canada

Instructions to Presenters:

Speakers: Your presentation time is **15min**, followed by **5min** question time. Please make yourself know to your session chair (as indicated below in the programme) before the session start. You may use your own laptop, or (preferably – but be careful with any movies) submit your USB stick with your powerpoint, keynote or PDF presentation to the relevant session chair before the session.

Poster presenters: The poster size is the same as for MICCAI 2011, at a maximum of **1200mm x 1200mm**. The conference will supply materials for mounting the posters. Please put up your poster before the workshop opening, from 8:30, and attend to it during the morning coffee break, the main poster session, and over lunch (if possible). You will need to take your posters down by 15:45 latest (during the afternoon coffee break).

Programme

08:30 - 09:00  Poster set-up

09:00 - 09:10  Opening *(Nico Karssemeijer)*

09:10 - 10.30  Motion Analysis and Reconstruction *(Chair: Julia Schnabel)*

09:10  Generating Coefficients for Regularization Terms in Nonrigid Registration of Contrast-Enhanced MRI
*Xi Liang; Ramamohanarao Kotagi; Qing Yang; Marius Staring; Alexander Pitman*
*National ICT Australia, University of Melbourne, Apollo Medical Imaging Technology, and Leiden University Medical Center*

09:30  Validation of breast MRI motion correction efficiency using a quantitative indicator
*Tobias Boehler; Heinz-Otto Peitgen*
*Fraunhofer MEVIS, Bremen*
Matching Regions for Mammographic Views: Comparison and Compensation for Deformations
Christine Tanner; Guido van Schie; Nico Karssemeijer; Gabor Szekely
ETH Zurich and Radboud University Nijmegen

Unconstrained Simultaneous Scheme to Fully Couple Reconstruction and Registration for Digital Breast Tomosynthesis: A Feasible Study
Guang Yang; John Hipwell; David Hawkes; Simon Arridge
University College London

10:30 - 11:00   Coffee Break and Posters

Segmentation (Chair: Mads Nielsen)

A Poisson-Laplacian framework for 3D automatic segmentation of the breast in MRI
Cristina Gallego; Anne Martel
University of Toronto and Sunnybrook Research Institute, Toronto

Pectoral Muscle Identification in Mammograms with a Layout Consistent Markov Random Field
Yuanjie Zheng; Diane Nathan; Yan Wang; Brad Keller; Emily Conant; James Gee; Despina Kontos
University of Pennsylvania

Chest Wall Segmentation in Automated 3D Breast Ultrasound Using a Cylinder Model
Tao Tan; Bram Platel; Henkjan Huisman; Nico Karssemeijer
Radboud University Nijmegen and Fraunhofer MEVIS, Bremen

12:00 - 13:00  Lunch (and posters)

13:00 - 14:00  Poster Session (continued)

14.00 - 14.50  Keynote Lecture (Chair: Mariellen Giger / Nico Karssemeijer)
“Breast imaging with tomosynthesis and CT”
Professor Martin Yaffe
Sunnybrook Health Sciences Centre, Toronto

14.50 - 15.30  CAD and Quantitative Analysis (Chair: Mariellen Giger)

Pre-Treatment Prediction of Neoadjuvant Chemotherapy Response in Breast Cancer Patients Using DCE-MRI Kinetic Statistics
Ahmed Ashraf; Bihwaj Gaonkar; Angela DeMichele; Carolyn Mies; Christos Davatzikos; Mark Rosen; Despina Kontos
The University of Pennsylvania
15.10 **Computerized Characterization of Breast Lesions using Dual-Temporal Resolution Dynamic Contrast-Enhanced MR Images**

Bram Platel; Henkjan Huisman; Hendrik Laue; Roel Mus; Ritse Mann; Horst Hahn; Nico Karssemeijer
Fraunhofer MEVIS, Bremen and Radboud University Nijmegen

**15:30 - 16:00** Coffee break *(posters to be taken down by 15:45)*

**16:00 – 17:00** Biomechanical Modelling *(Chair: Christine Tanner)*

**16:00** **An Automated Workflow for Patient-Specific Biomechanics-based Breast Image Analysis**
Vijay Rajagopal; Richard Boyes; Mihailo Azhar; Thiranja Prasad Babarenda Gamage; Poul Nielsen; Martyn Nash
The University of Auckland

**16:20** **Breast X-ray and MR Image Fusion using Finite Element Modelling**
Angela Lee; Vijay Rajagopal; Hayley Reynolds; Anthony Doyle; Poul Nielsen; Martyn Nash
The University of Auckland and Auckland City Hospital, New Zealand

**16:40** **Towards Navigated Breast Surgery Using Efficient Breast Deformation Simulation**
Markus Harz; Joachim Georgii; Kathy Schilling; Horst Hahn
Fraunhofer MEVIS, Bremen and Boca Raton Regional Hospital

**17:00 - 17:15** Closing

**Posters:**

Segmentation:

**Seed selection criteria for breast lesion segmentation in Ultra-Sound images**
Joan Massich; Fabrice Meriaudeau; Elsa Perez; Robert Martí; Arnau Oliver; Joan Martí
University of Girona, University of Burgundy, and Hospital Josep Trueta of Girona

**Segmentation of the Inner Breast Structures in 3D MRI**
Yolanda Noorda; Sven Kabus; Lambertus Bartels; Josien Pluim
University Medical Center Utrecht and Philips Research, Hamburg

**Fully automatic fibroglandular tissue segmentation in breast MRI: an atlas-based approach**
Albert Gubern-Mérida; Michiel Kallenberg; Robert Martí; Nico Karssemeijer
University of Girona and Radboud University Nijmegen
CAD and Quantitative analysis:

**Initial Experience with the Development of Quantitative Image Analysis Methods for Dedicated Positron Emission Mammography: Lesion Segmentation**
Karen Drukker; Maryellen Giger; Kirti Kulkarni; Adam Starkey; Claire Salling; Ken Yamaguchi; Gillian Newstead; University of Chicago

**Computer Aided Interpretation of Lesions in Automated 3D Breast Ultrasound**
Tao Tan; Bram Platel; Thorsten Twellman; Guido van Schie; Roel Mus; André Grivegnée; Laszlo Tabar; Nico Karssemeijer
Radboud University Nijmegen, Fraunhofer MEVIS Medical Solutions, Bremen, Jules Bordet Institute, Brussels, and Falun Central Hospital

**Fully-automatic breast density assessment from full field digital mammograms**
Harald Heese; Klaus Erhard; André Gooßen
Philips Research Europe, Hamburg

Biomechanical Modelling:

**Configurable Framework for Automatic Multimodal 2D/3D Registration of Volume Datasets with X-Ray Mammograms**
Torsten Hopp; Nicole Ruiter; Karlsruhe Institute of Technology

**Biomechanical Modelling of Breast Deformation Under Gravity: An Application for Prone-Supine Image Registration**
Lianghao Han; John Hipwell; Thomy Mertzanidou, Christine Tanner; Zeike Taylor; Sebastien Ourselin; David Hawkes
University College London, ETH Zurich, and the University of Queensland

**MRI to X-ray mammography registration using an ellipsoidal breast model and biomechanically simulated compressions**
Thomy Mertzanidou; John Hipwell; Lianghao Han; Henkjan Huisman; Nico Karssemeijer; David Hawkes
University College London and Radboud University Nijmegen

Multi-scale Analysis and Characterization:

**A Multi-Scale Blob Based Representation of Mammographic Parenchymal Patterns for Breast Density Classification**
Zhili Chen; Erika Denton; Reyer Zwiggelaar
Aberystwyth University, Norfolk and Norwich University Hospital, and Shenyang Jianzhu University

**Multiscale Breast Mass Analysis Using the Curvelet Transform**
Fabian Narvaez, Gloria Diaz; Francisco Gomez; Eduardo Romero; National University of Colombia and University of Liège