MICCAI 2010 WORKSHOP:
COMPUTATIONAL BIOMECHANICS FOR MEDICINE V (CBM V)

Final Program

8.30-9.00 Registration

09.00-09.10 Opening remarks (*Poul F. Nielsen*)

Part 1: Computational Biomechanics of Soft Tissues, Flow and Injury Biomechanics

9.10-10.00 *Invited Lecture 1: Development of Total Human model for safety version 4 capable of internal organ injury prediction*
Tsuyoshi Yasuki

10.00-10.30 *Investigation of brain trauma biomechanics in vehicle traffic accidents using human body computational models*
Jikuang Yang

10.30-10.45 **Short Break**

10.45-11.15 *Cardiac strain and rotation analysis using multi-scale optical flow*
H.C. van Assen, L.M.J. Florack, F.F.J. Simonis, J.J.M. Westenberg and G.J. Strijkers

11.15-11.45 *Patient specific hemodynamics: Combined 4D flow-sensitive MRI and CFD*
A.F. Stalder, Z. Liu, J. Hennig, J.G. Korvink, K.C. Li and M. Markl

11.45-12.15 *The effects of Young's Modulus on predicting prostate deformation for MRI-guided interventions*
Stephen McAnearney, Andriy Fedorov, Grand Joldes, Nobuhiko Hata, Clare Tempany, Karol Miller, Adam Wittek

12.15 – 13.00 Lunch

13.00 – 14.00 Poster Session

Blood flow simulation in a giant intracranial aneurysm and its validation by digital subtraction angiography
Harvey Ho, Jian Wu and Peter Hunter

On the effects of model complexity in computing brain deformation for image-guided neurosurgery
Jiajie Ma, Adam Wittek, Benjamin Zwick, Grand R. Joldes, Simon K. Warfield, Karol Miller

Total Langrangian explicit dynamics-based simulation of tissue tearing
Kumar Vemaganti, Grand Joldes, Karol Miller and Adam Wittek

Real-time nonlinear finite element computations on gpu – handling of different element types
Grand Joldes, Adam Wittek and Karol Miller

A quantitative description of pelvic floor muscle fibre organisation
Xiani Yan, Jennifer A. Kruger, Martyn P. Nash, Poul M. F. Nielsen

Incompressible biventricular model construction and heart segmentation of 4D tagged MRI
Albert Montillo, Dimitris Metaxas, Leon Axel

Part 2: Computational Biomechanics of Musculoskeletal System and Its Tissues. Generation of Patient-Specific Finite Element Meshes

14.00-14.50 **Invited Lecture 2:** *Computational foot-ankle-knee models for joint biomechanics and footwear design*
Zhang Ming

14.50-15.20 *Segmentation of skeletal muscle fibres for applications in computational skeletal muscle mechanics*
O. Röhrle, H. Köstler and M. Loch

15.20-15.50 *Mapping breast cancer between clinical X-ray and MR images*
Hayley M. Reynolds, Jaykumar Puthran, Anthony Doyle, Wayne Jones, Poul M.F. Nielsen, Martyn P. Nash, and Vijay Rajagopal

15.50-16.20 *An evaluation of tetrahedral mesh generation for non-rigid registration of brain MRI*
Panagiotis A. Foteinos, Yixun Liu, Andrey N. Chernikov, and Nikos P. Chrisochoides