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Medical Computer Vision

Large Data in Medical Imaging

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Revised Selected Papers

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Preface

This book includes articles from the 2013 MICCAI (Medical Image Computing for Computer-Assisted Intervention) workshop on Medical Computer Vision (MCV) that was held on September 26, 2013, in Nagoya, Japan. The workshop followed up on similar events in the past years held in conjunction with MICCAI and CVPR.

The workshop received 25 high-quality submissions that were all reviewed by at least three external reviewers. Borderline papers were further reviewed by the organizers to obtain the most objective decisions for the final paper selection. Seven papers (28%) were accepted as oral presentations and another 12 (48%) as posters including a short presentation. The review process was double blind.

In addition to the accepted oral presentations and posters, the workshop had two invited speakers. Leo Grady of HeartFlow Inc., USA, discussed the challenge of employing segmentation routines in real clinical settings, addressing the problem of cardiac CT analysis. He stressed that segmentation routines should not remain in academic settings but should be evaluated for their impact in real applications, as small differences in the segmentation can sometimes lead to totally differing decisions. Then, Ron Kikinis of Harvard Medical School presented an overview of the development of the medical imaging community. He used the 3D Slicer software as an example and showed how the impact of methods increases when they can easily be modified by other researchers.

The award for the best paper was sponsored by Siemens Corporate Technology. It was given to Stefan Bauer et al., who presented the paper "Integrated Spatio-temporal Segmentation of Longitudinal Brain Tumour Imaging Studies." In particular the longitudinal nature of the analysis and the detailed evaluation of the automatic segmentation over time were considered important.

In general, the workshop resulted in many lively discussions and showed well the current trends and tendencies in medical computer vision and how the techniques can be used in clinical work. These proceedings start with a short overview of the topics that were discussed during the workshop as well as the discussions that took place during the sessions, followed by the 19 accepted papers of the workshop and two invited and reviewed papers that were presented in the "VISCERAL Challenge Session" – describing the segmentation task and data set of the VISCERAL benchmark challenge.

We would like to thank all the reviewers who helped in selecting high-quality papers for the workshop and the authors for submitting and presenting high-quality research all of which made MICCAI-MCV 2013 a great success. We plan to organize a similar workshop in next year's MICCAI conference in Boston.

November 2013

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