

IJCARS MICCAI 2015 Special Issue

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In 2015, the 18th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2015) was held in Munich, Germany. It was organized by the Technical University Munich (TUM) in collaboration with the Friedrich Alexander University Erlangen-Nuremberg (FAU). The conference took place in the Philharmonic Hall “Gasteig” from October 6 to 8. MICCAI 2015 and its satellite events attracted world-leading scientists, engineers and clinicians, who presented high-standard papers, aiming at uniting the fields of medical image processing, medical image formation, medical robotics and computer-assisted interventions.

MICCAI 2015 received 810 valid paper submissions from which 263 papers were accepted after a rigorous double-blind three-phase review process. Upon the invitation for submissions to IJCARS MICCAI 2015 special issue, we required that the authors of invited papers extend their corresponding MICCAI papers and then once again undergo the regular IJCARS review process. The current issue of the International Journal of Computer Assisted Radiology and Surgery (IJCARS) includes six research papers nominated from the papers presented at MICCAI 2015 in Munich, Germany, for which the review and revision process could be finalized in time for inclusion in this special issue. Furthermore, we are very pleased to announce that these papers are candidates for “IJCARS-MICCAI Best Paper Award” denoted with 1000€ which will be given for the first time in MICCAI 2016.

In this MICCAI 2015 special issue, Esposito et al. present a collaborative medical robotic system, which provides live multimodal visualization and guidance by combining 2D robotic gamma imaging with 2D ultrasound. With the use of a biomechanical model combined with machine learning algorithms, Wong et al. investigate the potential of contrast-enhanced CT images in computer-aided regional infarction identification. Brusini et al. introduce two additional microstructural indices as numerical biomarkers for neuronal plasticity after stroke and report on their potential for predicting the clinical outcome. Furthermore, Armin et al. provide a visibility map of the colon surface to improve the quality of the colonoscopy by enhancing the clinicians’ awareness of uncovered areas. The paper by Schneider et al. presents a calibration method for laser deflecting tilting mirror and its integration into a sophisticated laser osteotome, involving next-generation robots and optical tracking. Finally, Zia et al. present an automated system for surgical skills assessment using video data and compare different techniques for video-based surgical skill evaluation.

We believe that this special issue provides a small snapshot of various topics covered in MICCAI. We hope that the readers will enjoy this collection of papers. We would like to thank the reviewers of the papers and the staff in the editorial office of IJCARS for their efforts and contributions.

Nassir Navab, Asli Okur and Ralf Stauder
Guest editors of MICCAI 2015 Special Issue of IJCARS