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Computer-Assisted and Robotic Endoscopy

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Revised Selected Papers

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Preface

Medical endoscopy, e.g., bronchoscopy, laparoscopy, and cystoscopy, is a widely performed procedure that involves either diagnosis of suspicious lesions or guidance for minimally invasive surgery in a variety of organs within the body. Conventional endoscopy is on the way to its next generation of computer-assisted and robotic endoscopy (CARE). It nevertheless remains challenging to develop the context-aware CARE systems.

The objective is to bring together researchers, clinicians, and medical companies to help advance the scientific research in the field of CARE to boost surgical procedures. Endoscopic interventions are a complicated procedure relative to surgical knowledge and skills. CARE integrated multimodalities relative to the patient anatomy, the control status of medical endoscopes and surgical accessary tools, and the actions of surgical staffs to guide endoscopic interventions. To realize CARE systems, recent technical advances associated with computer vision, graphics, robotics, and medical imaging, external tracking systems, medical device controls systems, information processing techniques, endoscopy planning, and simulation should be introduced for a thorough analysis on CARE. The technical program of this workshop was comprised of previously unpublished, contributed, and invited papers. Original and high-quality papers were submitted concentrated on innovative research and development in the analysis of CARE. The first CARE 2014 in conjunction with MICCAI created a specialized community on CARE and provided a platform for scientific discussion on different aspects of CARE. It is the only workshop dedicated to these particular aspects of interventional endoscopy.

Beyond all accepted papers presented at CARE 2014, it was our great honor and pleasure to welcome Prof. Dr. Nassir Navab (Technische Universität München, Germany and Johns Hopkins University, USA) as the CARE's keynote speaker, talking on recent advances in robotic endoscopic interventions.

The CARE 2014 Organizing Committee would like the sincerely thank to Advisory Committee members for their suggestions and assistance in the best paper selection, and all Program Committee members for putting their best effort on reviewing all the submissions. We also extend our specific thanks and appreciation to KUKA Laboratories GmbH, Munich, Germany for sponsoring the best paper award and to Springer-Verlag GmbH, Germany for the acceptance of publishing our CARE proceedings on Lecture Notes in Computer Science. We also warmly thank all authors, researchers, and attendees at CARE 2014 for their scientific contribution, enthusiasm, and support. We are looking forward to all the continuing support and participation in our next CARE event that will also be in conjunction with MICCAI 2015 in Munich, Germany.

October 2014

Xiongbiao Luo
Tobias Reichl
Daniel Mirota
Timothy Soper

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