



IPCAI 2018 Special Issue: Information Processing for Computer-Assisted Interventions, 9th International Conference 2018—Part 1

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It is a pleasure to present this special issue of IJCARS that includes the proceedings of the 9th edition of the International Conference on Information Processing for Computer-Assisted Interventions (IPCAI). IPCAI will be held at Hotel NH Collection Berlin Mitte in Berlin, Germany, on June 20–21, 2018, in conjunction with the Computer Assisted Radiology and Surgery (CARS) Congress.

The IPCAI series of meetings was created in 2010 in Geneva, as a forum to discuss the latest developments in Computer-Assisted Interventions (CAI). CAI is a field of research and practice, where medical interventions are supported by computer-based tools and methodologies. CAI systems enable precise, safe and minimally invasive medical interventions by providing enhanced planning, real-time imaging, instrument guidance and visualization, as well as situation awareness and cognition. To promote translational research, the IPCAI meetings seek to showcase papers presenting novel technical algorithms and theory, clinical applications and hardware as well as software systems and their validation.

With substantial support from the scientific community, IPCAI has consistently grown in the past 8 years in terms of

the number of submissions and the presented manuscripts. This year IPCAI has received 85 manuscripts spanning a strong geographic representation from Europe, North America and Asia.

Unlike most conferences, manuscripts submitted to IPCAI 2018 are expected to have journal quality, as our goal is to publish all accepted manuscripts in this special volume of the International Journal of Computer Assisted Radiology and Surgery (IJCARS). The review process was rigorous and involved evaluation of each manuscript by two Area Chairs and at least three external reviewers. Authors were able to provide a revised version of their manuscript and a response to reviewers based on the reviewers' comments. The revised manuscripts were subject to an additional review process ensuring that all reviewers' critiques were properly addressed and that the quality was appropriate for journal publication. Prior to acceptance, manuscripts were discussed by the Program Chairs, Program Board members and the Conference chairs.

In total, 40 manuscripts were accepted for presentation at IPCAI 2018, with 14 of them appearing in this issue. The remaining manuscripts will be published in subsequent IJCARS Special Issues, dependent upon the authors completing the appropriate revisions. The accepted manuscripts reflect the breadth of key topics in CAI and include: (i) Endoscopy and Surgical Training; (ii) Interventional Ultrasound; (iii) Preoperative Planning and Simulation; (iv) Intraoperative Navigation and Registration; (v) Image Processing and Instrumentation for CAI; and (vi) Medical Robotics.

The 2018 format of IPCAI is designed to encourage interaction and allow time for constructive discussion. All authors of accepted manuscripts were asked to deliver a short, 5-min platform presentation. In addition, each manuscript was presented as a poster during an interactive session. The conference delegates will be asked to vote for papers that they would like to see discussed further. The papers with the highest number of votes will be presented in extended format

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followed by questions from the attendees and the committee members.

We would like to take this opportunity to thank the Area Chairs, the Program Board and all of the reviewers for their dedication to maintaining the high quality of IPCAI and for selecting outstanding manuscripts that will no doubt stimulate exciting discussions at the meeting.

We acknowledge our generous sponsors for their continued support over the years that has enabled us to recognize both IPCAI authors and reviewers for their much deserved dedication and scientific enthusiasm through several paper awards. The awards include the Outstanding Reviewer Award, Young Investigator Travel Award, Bench-to-Bedside Award and Best Paper Award, all made possible through their generous sponsorship. A big thank you on behalf of all awardees!

Last but not least, we also thank the CARS Congress Organizers and Editorial Office for their help and support with the logistics and with the IJCARS manuscript management and review process.

We are grateful to all authors for choosing to submit their manuscripts to IPCAI and hope that the readers will enjoy this special issue. The continued success of IPCAI demands our ongoing commitment.

Pascal Fallavollita, Etsuko Kobayashi, Stefanie Speidel
(Program Chairs)

May 2018

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Compliance with ethical standards

Conflict of Interest The authors declare that they have no conflict of interest.