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Medical Image Computing and Computer Assisted Intervention – MICCAI 2018

21st International Conference
Granada, Spain, September 16–20, 2018
Proceedings, Part IV

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Preface

We are very pleased to present the conference proceedings for the 21st International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), which was successfully held at the Granada Conference Center, September 16–20, 2018 in Granada, Spain.

The conference also featured 40 workshops, 14 tutorials, and ten challenges held on September 16 or 20. For the first time, we had events co-located or endorsed by other societies. The two-day Visual Computing in Biology and Medicine (VCBM) Workshop partnered with EUROGRAPHICS¹, the one-day Biomedical Workshop Biomedical Information Processing and Analysis: A Latin American perspective partnered with SIPAIM², and the one-day MICCAI Workshop on Computational Diffusion on MRI was endorsed by ISMRM³. This year, at the time of writing this preface, the MICCAI 2018 conference had over 1,400 firm registrations for the main conference featuring the most recent work in the fields of:

- Reconstruction and Image Quality
- Machine Learning and Statistical Analysis
- Registration and Image Guidance
- Optical and Histology Applications
- Cardiac, Chest and Abdominal Applications
- fMRI and Diffusion Imaging
- Neuroimaging
- Computer-Assisted Intervention
- Segmentation

This was the largest MICCAI conference to date, with, for the first time, four volumes of *Lecture Notes in Computer Science* (LNCS) proceedings for the main conference, selected after a thorough double-blind peer-review process organized in several phases as further described below. Following the example set by the previous program chairs of MICCAI 2017, we employed the Conference Managing Toolkit (CMT)⁴ for paper submissions and double-blind peer-reviews, the Toronto Paper Matching System (TPMS)⁵ for automatic paper assignment to area chairs and reviewers, and Researcher.CC⁶ to handle conflicts between authors, area chairs, and reviewers.

¹ <https://www.eg.org>.

² <http://www.sipaim.org/>.

³ <https://www.ismr.org/>.

⁴ <https://cmt.research.microsoft.com>.

⁵ <http://torontopapermatching.org>.

⁶ <http://researcher.cc>.

In total, a record 1,068 full submissions (ca. 33% more than the previous year) were received and sent out to peer-review, from 1,335 original intentions to submit. Of those submissions, 80% were considered as pure Medical Image Computing (MIC), 14% as pure Computer-Assisted Intervention (CAI), and 6% as MICCAI papers that fitted into both MIC and CAI areas. The MICCAI 2018 Program Committee (PC) had a total of 58 area chairs, with 45% from Europe, 43% from the Americas, 9% from Australasia, and 3% from the Middle East. We maintained an excellent gender balance with 43% women scientists on the PC.

Using TPMS scoring and CMT, each area chair was assigned between 18 and 20 manuscripts using TPMS, for each of which they suggested 9–15 potential reviewers. Subsequently, 600 invited reviewers were asked to bid for the manuscripts they had been suggested for. Final reviewer allocations via CMT took PC suggestions, reviewer bidding, and TPMS scores into account, allocating 5–6 papers per reviewer. Based on the double-blind reviews, 173 papers (16%) were directly accepted and 314 papers (30%) were directly rejected – these decisions were confirmed by the handling area chair. The remaining 579 papers (54%) were invited for rebuttal. Two further area chairs were added using CMT and TPMS scores to each of these remaining manuscripts, who then independently scored these to accept or reject, based on the reviews, rebuttal, and manuscript, resulting in clear paper decisions using majority voting: 199 further manuscripts were accepted, and 380 rejected.

The overall manuscript acceptance rate was 34.9%. Two PC teleconferences were held on May 14, 2018, in two different time zones to confirm the final results and collect PC feedback on the peer-review process (with over 74% PC attendance rate). For the MICCAI 2018 proceedings, the 372 accepted papers⁷ have been organized in four volumes as follows:

- Volume LNCS 11070 includes: Image Quality and Artefacts (15 manuscripts), Image Reconstruction Methods (31), Machine Learning in Medical Imaging (22), Statistical Analysis for Medical Imaging (10), and Image Registration Methods (21)
- Volume LNCS 11071 includes: Optical and Histology Applications (46); and Cardiac, Chest, and Abdominal Applications (59)
- Volume LNCS 11072 includes: fMRI and Diffusion Imaging (45); Neuroimaging and Brain Segmentation (37)
- Volume LNCS 11073 includes: Computer-Assisted Intervention (39) grouped into image-guided interventions and surgery; surgical planning, simulation and work flow analysis; and visualization and augmented reality; and Image Segmentation Methods (47) grouped into general segmentation methods; multi-organ segmentation; abdominal, cardiac, chest, and other segmentation applications.

We would like to thank everyone who contributed greatly to the success of MICCAI 2018 and the quality of its proceedings. These include the MICCAI Society, for support and insightful comments; and our sponsors for financial support and their presence on site. We are especially grateful to all members of the Program Committee for their diligent work in the reviewer assignments and final paper selection, as well as the 600

⁷ One paper was withdrawn.

reviewers for their support during the entire process. Finally, and most importantly, we thank all authors, co-authors, students, and supervisors, for submitting and presenting their high-quality work which made MICCAI 2018 a greatly enjoyable, informative, and successful event. We are especially indebted to those reviewers and PC members who helped us resolve last-minute missing reviews at a very short notice.

We are looking forward to seeing you in Shenzhen, China, at MICCAI 2019!

August 2018

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