

Preface

The 24th biennial international conference on Information Processing in Medical Imaging (IPMI 2015) was held at the Sabhal Mor Ostaig College on the Isle of Skye, UK, June 28 – July 3, 2015. The conference was the latest in a series of biennial scientific meetings, the last being held in July of 2013 at the Asilomar Conference Grounds near Pacific Grove, California, USA, during which new developments in acquisition, formation, analysis, and display of medical images are presented, discussed, dissected, and extended.

IPMI is one of the longest running conferences devoted to these topics in medical imaging. Over the last five decades, IPMI has evolved with the medical imaging community it serves. The first IPMI conference was held in 1969, when a group of young scientists working in nuclear medicine gathered to discuss the current problems in their field. Since that time the conference has expanded into other medical imaging acquisition modalities, including ultrasound, optics, magnetic resonance, and x-ray imaging techniques. IPMI is now widely recognized as one of the most exciting and influential meetings in medical imaging, with a unique emphasis on active participation from all attendees and a strong commitment to vigorous discussion and open debate.

A wide variety of topics are covered at IPMI meetings, all within a single-track format. This year 195 full-length manuscripts were submitted to the conference. Of these, 22 papers were selected for oral presentation and 41 were accepted as posters. Submissions were carefully reviewed by four members of the Scientific Review Committee, who evaluated the novelty, methodological development, and scientific rigor of each manuscript. The Paper Selection Committee, along with the co-chairs, took on the difficult task of creating a meeting program. Using the rankings and detailed comments of the reviewers of each manuscript, and adding to that their own judgment of the merits of each manuscript, they designed the meeting program represented in this volume. The many high-quality manuscripts submitted for consideration made the selection process extremely difficult, and many excellent papers did not make it into the final program. This is an unfortunate inevitability of the high selectivity for which IPMI is known.

One of the key goals of IPMI is to encourage participation of the most promising and talented young researchers in the field, allowing them to explore new ideas with some of the leading researchers in this area. Active involvement is stimulated by preparation before the sessions in small study groups, in which everyone participates. After reading the papers of their session, the study group members meet to discuss the papers before they are presented, and to formulate questions and comments to kick off the discussions. The study groups thus lead off the discussion of each paper, ensuring a lively and vigorous dialog. The prestigious Francois Erbsmann Prize for first-time IPMI presenters adds an extra stimulus for young researchers for active involvement in the meeting. The Francois Erbsmann Prize is awarded for the best contribution by a young

scientist who is the first author of a paper and a first-time IPMI oral presenter. This year 16 (of 22) oral presenters were eligible for the Erbsmann Prize.

IPMI 2015 featured a keynote talk describing the Allen Brain atlas and its impact in neuroimaging research by Boudewijn Lelieveldt, Professor of Biomedical Imaging at Leiden University Medical Center, and Delft University of Technology, The Netherlands.

The conference features the traditions that past IPMI attendees have come to expect as part of the unique character of the meeting. Most importantly, each oral presentation has unlimited time for discussion to give the audience the opportunity to resolve all questions regarding the methods and results. IPMI discussions can go on for hours, involving virtually every attendee in the room! Session chairs play a key role at IPMI as they strive to ensure that these extended discussions are productive and continuing to add to the group's understanding of the nature and significance of each presentation's original contribution.

This year, also for the first time, the conference featured an elective oral session. Meeting attendees voted for the poster presentations they would most like to see presented orally. The IPMI board selected several poster presenters from those most popular among the attendees. The selected presenters gave their oral presentation during the closing session of the conference providing extra exposure to work of key interest to the community.

IPMI is traditionally held in a small and sometimes remote location. This year's venue, the Sabhal Mor Ostaig on the Isle of Skye, Scotland, is a unique venue, situated above the shoreline of the picturesque Sound of Sleat in Scotland, known worldwide as the University for Gaelic Language. Sabhal Mor Ostaig is spread over two campuses, Arainn Ostaig and Arainn Chaluim Chille. The two are interlinked by a well-lit pathway and are only a short walk apart. The venue itself is conveniently located just two miles north-east from the main ferry terminal at Armadale village. The venue has great facilities: The Talla Dhonaigh Caimbeul lecture theater can seat up to 190 people, there are two additional board rooms that can accommodate up to 25 people each, and the restaurant consists of a glass-fronted dining room that offers magnificent views over the Sound of Skye and the nearby Knoydart peninsula.

Conference delegates relaxed and enjoyed various group excursions on the afternoon of day 3 of the conference. The excursions made the most of the unique location and culture ranging from whale-spotting in the Sound of Skye, through axe-throwing competitions, to visiting the Talisker distillery (the most famous of Skye's malt whiskies). The afternoon of day 4 of the conference saw the traditional IPMI soccer match, pitting the American team against "the rest of the world." After the disappointing 0-0 draw in 2013, "the rest of the world" are still looking to avenge their first-ever defeat in the history of IPMI in 2011 – an embarrassment that still scars deep.

These proceedings contain the IPMI 2015 papers in the order presented at the meeting. We hope that this volume serves as a valuable source of information for the participants, as well as a reminder of the great conference experience. For those who were not able to attend the conference, we hope that these proceedings provide you with an excellent summary of the latest research contributions to the medical imaging field. We look forward to the next IPMI.

The organization of the 24th IPMI conference was only possible through the efforts and contributions of several organizations and many individuals. First of all, the IPMI 2015 co-chairs would like to thank the members of the Scientific Review Committee for providing so many high-quality reviews within a very limited time frame; because of these reviews, we were able to make a fair selection of the best papers for the final program. We also express our gratitude to the Paper Selection Committee members, who each read many papers and their reviews and travelled to London for a marathon organizational meeting that resulted in an outstanding final program.

Thanks also to Microsoft Corporation for assistance with their excellent CMT conference management system, which we used for the automation of submissions and review of manuscripts. We also thank Jerry Prince for providing the template for this front matter. Finally, we thank Ron Gaston and Dominique Draï for their invaluable administrative support, without which the conference would most certainly not have happened, and the many local organizers at Sabhal Mor Ostaig for their dedicated support.

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Sebastien Ourselin
Daniel C. Alexander
Carl-Fredrik Westin
M. Jorge Cardoso

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Ourselin, S.; Alexander, D.C.; Westin, C.-F.; Cardoso, M.J.

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