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Medical Image Computing and Computer-Assisted Intervention – MICCAI 2012

15th International Conference
Nice, France, October 1-5, 2012
Proceedings, Part I

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Preface

The 15th International Conference on Medical Image Computing and Computer Assisted Intervention, MICCAI 2012, was held in Nice, France, at the Acropolis Convention Center during October 1–5, 2012.

Over the past 14 years, the MICCAI conferences have become a premier international event with full articles of high standard, indexed by Pubmed, and annually attracting leading scientists, engineers and clinicians working at the intersection of sciences, technologies and medicine.

It is interesting to recall that the MICCAI conference series was formed in 1998 by the merger of CVRMed (Computer Vision, Virtual Reality and Robotics in Medicine), MRCAS (Medical Robotics and Computer Assisted Surgery) and VBC (Visualization in Biomedical Computing) conferences, and that the first CVRMed conference was held in Nice in April 1995. At that time the CVRMed conference was a single event and the proceedings, also published in Lecture Notes in Computer Science (LNCS), consisted of a single volume of 570 pages. In 2012 the MICCAI proceedings span three volumes and more than 2000 pages, and the conference was complemented by 32 MICCAI satellite events (workshops, challenges, tutorials) publishing their own proceedings, several of them in LNCS.

MICCAI contributions were selected through a rigorous reviewing process involving an international Program Committee (PC) of 100 specialists coordinated by a Program Chair and 2 Program Co-chairs from 3 continents. Decisions were based on anonymous reviews made by 913 expert reviewers. The process was double blind as authors did not know the names of the PC members/reviewers evaluating their papers, and the PC members/reviewers did not know the names of the authors of the papers they were evaluating.

We received 781 submissions and after the collection of over 3000 anonymous review forms, the final selection was prepared during a 2-day meeting in Nice (12–13 May 2012) attended by 50 PC members. They finalized the acceptance of 252 papers (i.e., acceptance rate of 32%) and also prepared a short list of candidate papers for plenary presentations. The accepted contributions came from 21 countries and 5 continents: about 50% from North America (40% USA and 8% Canada), 40% from Europe (mainly from France, Germany, the UK, Switzerland and The Netherlands), and 10% from Asia and the rest of the world.

All accepted papers were presented during 6 poster sessions of 90 minutes with the option, this year for the first time, of displaying additional dynamic material on large screens during the whole poster session. In addition, a subset of 37 carefully selected papers (mainly chosen among the short list of candidate papers recommended by PC members) were presented during 7 single-track plenary oral sessions.

Prof. Alain Carpentier, President of the French Academy of Sciences, was the Honored Guest of MICCAI 2012 for his pioneering and visionary role in several of the domains covered by MICCAI. Prof. Carpentier addressed the audience during the opening ceremony along with Prof. Michel Cosnard, the CEO of Inria, and introduced one the keynote lectures.

Prof. Jacques Marescaux, director of the Strasbourg IHU (Institut Hospitalo-Universitaire) delivered the keynote lecture “Surgery for Life Innovation: Information Age and Robotics” and Prof. Michel Haïssaguerre, director of the Bordeaux IHU, delivered the keynote lecture “Preventing Sudden Cardiac Death: Role of Structural and Functional Imaging”. Both of these lectures were outstanding and inspiring.

The conference would not have been possible without the commitment and hard work of many people whom we want to thank wholeheartedly:

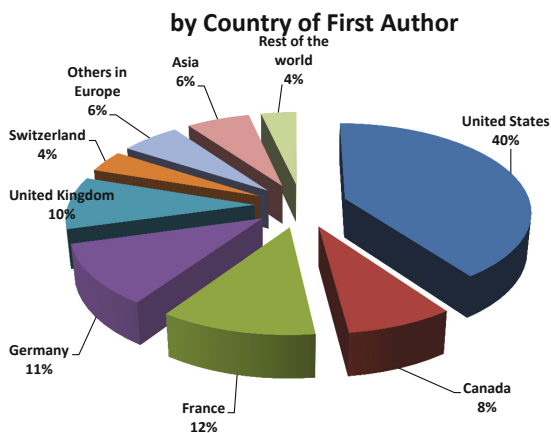
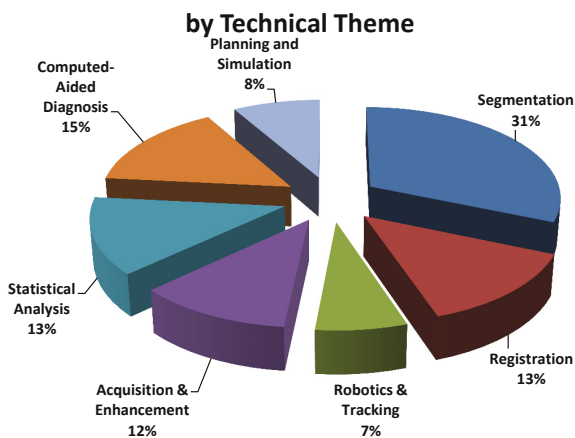
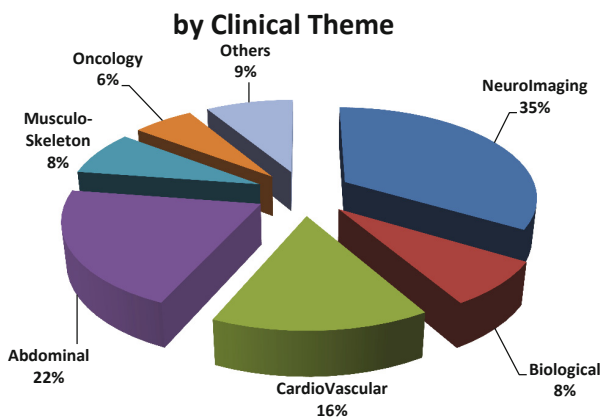
- The 100 Program Committee members and 913 scientific reviewers, listed in this book, who worked closely with us and prepared many written reviews and recommendations for acceptance or rejection,
- Xavier Pennec as the Chair for the organization of the 32 satellite events (workshops, challenges, tutorials) with the assistance of Tobias Heimann, Kilian Pohl and Akinobu Shimizu as Co-chairs, and all the organizers of these events,
- Agnès Cortell as the Local Organization Chair, who successfully coordinated all the details of the organization of the event with the support of a local organizing team (composed of Marc Barret, Grégoire Malandain, Xavier Pennec, Maxime Sermesant and two of us), several Inria services (involving heavily Odile Carron and Matthieu Oricelli), and the MCI company,
- Maxime Sermesant as MICCAI Website Chair,
- Grégoire Malandain for the new organization of posters including digital screens,
- Isabelle Strobant for the organization of the PC meeting in Nice, the invitations of the MICCAI guests, and her constant support during the preparation of the event,
- Gérard Giraudon, director of Inria in Sophia Antipolis, for his constant support,
- Sebastien Ourselin for his help in coordinating industrial sponsorship,
- All students and engineers (mainly from Asclepios and Athena Inria teams) who helped with the scientific and local organization,
- Emmanuelle Viau, who coordinated the team at MCI including in particular Thibault Claisse and Thibault Lestiboudois,
- Jim Duncan as the President of the MICCAI Society and its board of directors who elected MICCAI 2012 to be held in Nice,
- Janette Wallace, Johanne Guillemette and Chris Wedlake for the liaison with the MICCAI Society,
- James Stewart for his precious help with the Precision Conference System,
- All our industrial and institutional sponsors and partners for their fantastic support of the conference.

Finally, we would like to thank all the MICCAI 2012 attendees who came to Nice from 34 countries from all around the world, and we look forward to meeting them again at MICCAI 2013 in Nagoya, Japan, at MICCAI 2014 in Cambridge, Massachusetts, USA and at MICCAI 2015 in Munich, Germany.

October 2012

Nicholas Ayache
Hervé Delingette
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Accepted MICCAI 2012 Papers



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Awards Presented at MICCAI 2011, Toronto

MICCAI Society Enduring Impact Award Sponsored by Philips: The Enduring Impact Award is the highest award of the MICCAI Society. It is a career award for continued excellence in the MICCAI research field. The 2011 Enduring Impact Award was presented to *Chris Taylor*, Manchester University, UK.

MICCAI Society Fellowships: MICCAI Fellowships are bestowed annually on a small number of senior members of the society in recognition of substantial scientific contributions to the MICCAI research field and service to the MICCAI community. In 2011, fellowships were awarded to:

- *Christian Barillot* (IRISA-CNRS, France)
- *Gabor Fichtinger* (Queens University, Canada)
- *Jerry Prince* (Johns Hopkins University, USA)

Medical Image Analysis Journal Award Sponsored by Elsevier: *Ola Friman*, for the article entitled: “Probabilistic 4D Blood Flow Tracking and Uncertainty Estimation”, co-authored by: *Ola Friman*, *Anja Hennemuth*, *Andreas Harloff*, *Jelena Bock*, *Michael Markl*, and *Heinz-Otto Peitgen*

Best Paper in Computer-Assisted Intervention Systems and Medical Robotics, Sponsored by Intuitive Surgical Inc.: *Jay Mung*, for the article entitled “A Non-disruptive Technology for Robust 3D Tool Tracking for Ultrasound-Guided Interventions”, co-authored by: *Jay Mung*, *Francois Vignon*, and *Ameet Jain*.

MICCAI Young Scientist Awards: The Young Scientist Awards are stimulation prizes awarded for the best first authors of MICCAI contributions in distinct subject areas. The nominees had to be full-time students at a recognized university at, or within, two years prior to submission. The 2011 MICCAI Young Scientist Awards were given to:

- *Mattias Heinrich* for his paper entitled “Non-local Shape Descriptor: A New Similarity Metric for Deformable Multi-modal Registration”
- *Tommaso Mansi* for his paper entitled “Towards Patient-Specific Finite-Element Simulation of Mitral Clip Procedure”
- *Siyang Zuo* for his paper entitled “Nonmetallic Rigid-Flexible Outer Sheath with Pneumatic Shapelocking Mechanism and Double Curvature Structure”
- *Christof Seiler* for his paper entitled “Geometry-Aware Multiscale Image Registration via OBB Tree-Based Polyaffine Log-Demons”
- *Ting Chen* for her paper entitled “Mixture of Segmenters with Discriminative Spatial Regularization and Sparse Weight Selection”

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