

## Preface

Medical imaging and medical image analysis are rapidly developing. While medical imaging has already become a standard of modern medical care, medical image analysis is still mostly performed visually and qualitatively. The ever-increasing volume of acquired data makes it impossible to utilize them in full. Equally important, the visual approaches to medical image analysis are known to suffer from a lack of reproducibility. A significant research effort is devoted to developing algorithms for processing the wealth of data available and extracting the relevant information in a computerized and quantitative fashion.

Medical imaging and image analysis are interdisciplinary areas combining electrical, computer, and biomedical engineering; computer science; mathematics; physics; statistics; biology; medicine; and other fields. Medical imaging and computer vision, interestingly enough, have developed and continue developing somewhat independently. Nevertheless, bringing them together promises to benefit both of these fields. We were enthusiastic when the organizers of the 2004 European Conference on Computer Vision (ECCV) allowed us to organize a satellite workshop devoted to medical image analysis.

In a short time after the announcement, we received 60 full-length paper submissions, out of which 13 were accepted for oral and 25 for poster presentation after a rigorous peer-review process. The workshop included a keynote lecture and two invited talks. The keynote, entitled *Progress in Quantitative Cardiovascular Imaging*, was presented by Prof. Johan H.C. Reiber from the Leiden University Medical Center, The Netherlands. The first invited talk was given by Prof. Michael Unser from the Swiss Federal Institute of Technology, Lausanne (EPFL), Lausanne, Switzerland – titled *Wavelets, Fractals and Medical Image Analysis*. The second invited talk dealt with *Inverse Consistent Medical Image Registration* and was presented by Prof. Gary E. Christensen from the University of Iowa, Iowa City IA, USA.

The workshop logistics were handled by the organizers of the ECCV 2004, associated with the Centre for Machine Perception of the Czech Technical University in Prague, Czech Republic. We are grateful to all Centre members and students for the smooth organizational support during the entire workshop, as well as for providing a friendly working atmosphere. Finally, we extend our sincere thanks to the program committee members, to the reviewers, and to everyone else who made this workshop possible.

May 2004

Milan Šonka  
Ioannis A. Kakadiaris  
Jan Kybic

# Organization

The 2004 *Computer Vision Approaches to Medical Image Analysis* (CVAMIA) and *Mathematical Methods in Biomedical Image Analysis* (MMBIA) Workshop was held in conjunction with the 8th *European Conference on Computer Vision* (ECCV) in Prague, on May 15, 2004. The ECCV conference was organized by the Centre for Machine Perception, Department of Cybernetics, Faculty of Electrical Engineering, Czech Technical University, Prague, Czech Republic.

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