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Energy Minimization Methods in Computer Vision and Pattern Recognition

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Preface

Over the last decades, energy minimization methods have become an established paradigm to resolve a variety of challenges in the fields of computer vision and pattern recognition. While traditional approaches to computer vision were often based on a heuristic sequence of processing steps and merely allowed very limited theoretical understanding of the respective methods, most state-of-the-art methods are nowadays based on the concept of computing solutions to a given problem by minimizing respective energies.

This volume contains the papers presented at the 7th International Conference on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR 2009), held at the University of Bonn, Germany, August 24–28, 2009. These papers demonstrate that energy minimization methods have become a mature field of research spanning a broad range of areas from discrete graph theoretic approaches and Markov random fields to variational methods and partial differential equations. Application areas include image segmentation and tracking, shape optimization and registration, inpainting and image denoising, color and texture modeling, statistics and learning. Overall, we received 75 high-quality double-blind submissions. Based on the reviewer recommendations, 36 papers were selected for publication, 18 as oral and 18 as poster presentations. Both oral and poster papers were attributed the same number of pages in the conference proceedings.

Furthermore, we were delighted that three leading experts from the fields of computer vision and energy minimization, namely, Richard Hartley (Canberra, Australia), Joachim Weickert (Saarbrücken, Germany) and Guillermo Sapiro (Minneapolis, USA) agreed to further enrich the conference with inspiring keynote lectures.

We would like to express our gratitute to those who made this event possible and contributed to its success, in particular to a strong international Program Committee for providing excellent reviews and to the Hausdorff Center for Mathematics for providing financial support and guidance. We are particularly grateful to Heidi Georges-Hecking, Mohamed Souiai and the staff of the Hausdorff Center for administrative support.

It is our belief that this conference will help to advance the field of energy minimization methods and to further establish the mathematical foundations of computer vision.

August 2009

Daniel Cremers
Yuri Boykov
Andrew Blake
Frank R. Schmidt

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