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# Graphics Recognition

Recent Advances  
and New Opportunities

7th International Workshop, GREC 2007  
Curitiba, Brazil, September 20-21, 2007  
Selected Papers

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## Preface

This book contains refereed and improved papers presented at the Seventh IAPR Workshop on Graphics Recognition (GREC2007), held in Curitiba, Brazil, September 20-21, 2007. The GREC workshops provide an excellent opportunity for researchers and practitioners at all levels of experience to meet colleagues and to share new ideas and knowledge about graphics recognition methods. Graphics recognition is a subfield of document image analysis that deals with graphical entities in engineering drawings, sketches, maps, architectural plans, musical scores, mathematical notation, tables, diagrams, etc. GREC2007 continued the tradition of past workshops held at Penn State University, USA (GREC 1995, LNCS Volume 1072, Springer, 1996); Nancy, France (GREC 1997, LNCS Volume 1389, Springer, 1998); Jaipur, India (GREC 1999, LNCS Volume 1941, Springer, 2000); Kingston, Canada (GREC 2001, LNCS Volume 2390, Springer, 2002); Barcelona, Spain (GREC 2003, LNCS Volume 3088, Springer, 2004); and Hong Kong, China (GREC 2005, LNCS Volume 3926, Springer, 2006). GREC2007 was also the first edition of a GREC workshop held at the same location of the ICDAR conference and it facilitated people to attend to both events.

The program of GREC2007 was organized in a single-track 2-day workshop. It comprised several sessions dedicated to specific topics. For each session, there was an invited presentation describing the state of the art and stating the open questions for the session's topic, followed by a number of short presentations that contributed by proposing solutions to some of the questions or presenting results of the speaker's work. Each session was then concluded by a panel discussion. Session topics included technical documents, maps and diagrams understanding, symbol and shape description and recognition, information retrieval, indexing and spotting, sketching interfaces and on-line processing, feature and primitive analysis and segmentation, performance evaluation and ground truthing. In addition, a panel discussion on the state of the art and new challenges was organized as the concluding session of GREC2007.

Continuing with the tradition of past GREC workshops, the program of GREC2007 also included two graphics recognition contests: a symbol recognition contest, organized by Philippe Dosch and Ernest Valveny, and an arc segmentation contest, organized by Daniel Keysers and Faisal Shafait. In these contests, test images and ground truths are prepared in order for contestants to have objective performance evaluation conclusions on their methods.

After the workshop, all the authors were invited to submit enhanced versions of their papers for this edited volume. The authors were encouraged to include ideas and suggestions that arose in the panel discussions of the workshop. Every paper was evaluated by two or three reviewers. At least one reviewer was assigned from the attendees to the workshop. Papers appearing in this volume were selected, and most of them were thoroughly revised and improved based on the reviewers' comments. This volume is organized in seven sections, reflecting the workshop session topics.

We want to thank all paper authors and reviewers, contest organizers and participants, and workshop attendees for their contributions to the workshop and this volume.

Specially, we gratefully acknowledge Karl Tombre for leading the panel discussion and Luiz Eduardo S. Oliveira for his great help in the local arrangement of the workshop.

The Eighth IAPR Workshop on Graphics Recognition (GREC2009) is planned to be held at La Rochelle, France.

April 2008

Liu Wenyin  
Josep Lladós  
Jean-Marc Ogier

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