INTERNATIONAL ASSOCIATION FOR PATTERN RECOGNITION

IAPR Newsletter

Volume 29 Number 4
October 2007

* * * Calls for Papers on Page 2 * * *

In this issue...

Calls for Papers

CIP 2008
1st IAPR Workshop on
Cognitive Information Processing
Santorini, Greece
deadline: January 5, 2008
June 9-10, 2008

ANNPR 2008
3rd International Workshop on
Artificial Neural Networks in Pattern Recognition
Paris, France
Deadline: January 15, 2008
July 2-4, 2008

ICFHR 2008
11th International Conference on
Frontiers in Handwriting Recognition
Montreal, Quebec, Canada
Deadline: January 15, 2008
August 19-21, 2008

ICISP 2008
International Conference on
Image and Signal Processing
Cherbourg-Octeville, France
Deadline: January 25, 2008
July 1-3, 2008

DAS 2008
8th International Workshop on
Document Analysis Systems
Nara, Japan
deadline: March 1, 2008
September 17-19, 2008

ICPR 08
19th International Conference on Pattern Recognition
Tampa, Florida
deadline: April 8, 2008
December 8-11, 2008

ICDAR 2009
10th International Conference on
Document Analysis and Recognition
Barcelona, Spain
Deadline: January 12, 2009
July 26-29, 2009

Call for Submissions

IAPR Newsletter

Articles, announcements, book reviews,
conference and workshop reports

Contact the editor: *logorman@avaya.com*

Deadline: December 14, 2007

IAPR Newsletter

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Lawrence O'Gorman
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Feature Article

www.dfki.de/web

Global Pattern Recognition Series: German Research Center for Artificial Intelligence GmbH (DFKI)

By Andreas Dengel

Professor of Computer Science, University of Kaiserslautern
Scientific Director and Member of the Board, German Research Center for Artificial Intelligence (DFKI)

Founded in 1988, DFKI today is the largest nonprofit contract research institute in the field of innovative software technology based on Artificial Intelligence (AI) methods. DFKI focuses on the complete cycle of innovation—from world-class basic research and technology development through leading-edge demonstrators and prototypes to product functions and commercialization. An important element of DFKI's mission is to move innovations as quickly as possible from the lab into the marketplace. Only by maintaining research projects at the forefront of science can DFKI have the strength to meet its technology transfer goals.

Currently, the DFKI GmbH employs 244 highly skilled people. More than 200 student research assistants support them on a part time basis. With an overall annual budget in 2006 of more than €21.0 million, the previous year's record results of €18.1 million were surpassed and once again a positive annual net profit was reported. The circle of DFKI industrial shareholders includes DaimlerChrysler AG, Deutsche Telekom AG, SAP AG, IDS Scheer AG, Bertelsmann AG, and Microsoft Deutschland GmbH, and has recently been expanded by Deutsche Post World Net (DPWN) and BMW AG. DFKI is involved in "Igniting Ideas!", the high-tech strategy of the German Government. DFKI has created 1200 new Jobs in IT industry and 47 start-up and spin-off companies. The company is a hot spot for academic talent, 49 former DFKI employees are now professors in 11 different countries.

Pattern Recognition research and technology development is carried out at two of the DFKI research labs: Image Understanding and Pattern Recognition (IUPR) and Knowledge Management (KM).

The IUPR research lab at DFKI conducts basic and applied research in pattern recognition, machine learning, image understanding, and artificial intelligence, with practical applications to digital libraries, network security, bioinformatics, historical document analysis, and scientific data analysis. Current significant projects include the IPeT project, which aims to create easy-to-use libraries and tools for integrating image analysis technologies into personal computing environments; as part of the IPeT project, we have developed image matching, OCR, and image retrieval libraries and servers, and demonstrated applications to image-based spam detection, analyzing and mediating accessibility, and automatic usability analysis. The Netshield project is concerned with applying pattern recognition and machine learning to identifying and automatically defending against network attacks. The OCRopus project aims to apply state-of-the-art techniques in machine learning and pattern recognition to optical

(Continued on page 4)

(Continued from page 3)

character recognition for massive document conversion effort (e.g., Google Books). Other application areas include automated detection of forged documents, historical document analysis, and camera-based document interaction.

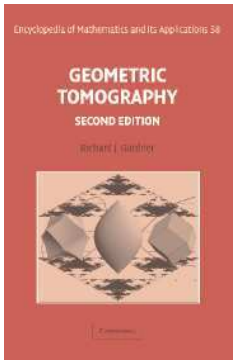
Today, the KM research lab at DFKI conducts mainly applied research in text- and image-based document analysis, information retrieval and information extraction. The current project HyperPrinting aims at a new paper-based interaction paradigm, allowing the user to interact with the computer by means of annotations on the printed pages of a document. Therefore specific markers indicating well defined commands are overlaid on the print image. The generated markers are related to logical elements which in turn are determined by analysis specialists. These logical elements are e.g. title, author, abstract, and bibliography on a scientific publication but also more complex objects such as tables. The project strongly relies on technologies that were developed in more basic research related former projects of the KM department. One of these technologies is T-Recs++, a model free table recognition and structure analysis system which neither requires table delineation nor column spacing nor known column headers.

The Global Pattern Recognition Series:

China's National Laboratory of Pattern Recognition (NLPR), Jul. 07
PR in Two National Labs, Jan. '06

Feature Articles on uses of Pattern Recognition (PR)

PR in Digital Libraries, Jul. '06
PR at the US Postal Service: A Decade of Achievement, Apr. '06
PR in Two National Labs, Jan. '06
PR in Traffic Engineering, Jul. '05
PR in Astronomy and Photonics, Apr. '05
PR in Origami, Jan. '05
PR in Defense Applications, Jan. '04
PR in Maps, Sep. '03
PR in Security and Entertainment, Jun. '03
PR in Sports, Apr. '03



Geometric Tomography

by Richard J. Gardner
Cambridge University Press, 2006

Reviewed by: Arjan Kuijper

> "Geometric tomography deals with the retrieval of information about a geometric object from data concerning its projections (shadows) on planes or cross-sections by planes. It is a geometric relative of computerized tomography, which reconstructs an image from X-rays of a human patient. The subject overlaps with convex geometry and employs many tools from that area, including some formulas from integral geometry. It also has connections to discrete tomography, geometric probing in robotics and to stereology. This comprehensive study provides a rigorous treatment of the subject. Although primarily meant for researchers and graduate students in geometry and tomography, brief introductions suitable for advanced undergraduates are provided to the basic concepts. More than 70 illustrations are used to clarify the text. The book also presents 66 unsolved problems. Each chapter ends with extensive notes, historical remarks, and some biographies. This new edition includes numerous updates and improvements, with some 300 new references bringing the total to over 800."

This text, taken from the back cover of the book gives a true description of the book. It is a comprehensive study, covering the field of geometric tomography from principles to recent state-of-the-art, including problems that are still open.

The main topics are discussed in the text of the 9 chapters. Following each chapter, extensive notes are given of excursions, scientific elaborations, difficulties, and historic facts of prominent researchers.

The book starts with a chapter on background material and then discusses *Parallel X-rays of planar convex bodies* and *Parallel X-rays in n dimensions*. This chapters relate to tomography in medical imaging. Here, for instance, the Sepp Logan phantom and the Radon transform are discussed.

Chapters 3 and 4 deal mainly with classical convexity, including *Projections and projection functions*, and *Projection bodies and volume inequalities*.

The following two chapters deal with *Point X-rays* and *Chord functions and equichordal problems*, which are rather different from the parallel case. The last three chapters discuss various cases related to the 'core' chapters 3-6. They discuss *Sections, section functions, and point X-rays*, *Intersection bodies and volume inequalities*, and *Estimates from projection and section functions*.

Three appendices provide more details on *Mixed volumes and dual mixed volumes*, *Inequalities*, and *Integral transforms*.

This book is the second edition, and the differences with the one published 11 years earlier are mainly in the number of references – indicating the active research in the field in geometric tomography. Since most references occur in the notes accompanying the chapters, this doesn't harm the readability of the text. This edition demonstrates the need for a standard work on the basics of geometric tomography.

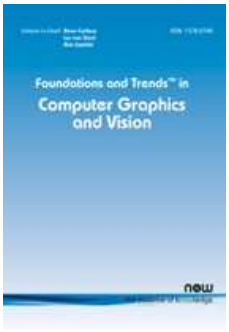
(Continued on page 6)

(Continued from page 5)

The author has been professor of Mathematics at Western Washington University since 1991 and this is clearly visible in the way the chapters are structured: After a short introduction of the topic and the required knowledge, one encounters ***Definition i.j.k***., ***Theorem i.j.k+1.***, ***Lemma i.j.k+2.***, and, of course, for the latter two cases the corresponding proofs. This makes the book a rigorous treatment of the topic.

For people in computer vision who are interested in geometric tomography and like such a mathematical approach, this book fulfils all their needs. However, it requires the reader to go through some tough and non-trivial mathematics. This book may also serve as a useful reference for scientists and engineers who need to understand concepts of geometrical tomography applied to various fields. Two such examples are: *Segmentation of tomographic data without image reconstruction* (IEEE Transactions on Medial Imaging, 11, 102-110, 1992) by J.-P. Thirion, or *Fundamental stereological formulae based on isotropically orientated probes through fixed points with applications to particle analysis* (Journal of Microscopy 153, 249-267, 1989), by E.B. Jensen and H.J.G. Gundersen.

BOOKSBOOKSBOOKS



"Foundations and Trends in Computer Graphics and Vision"

Editors-in-chief:
Brian Curless, Luc Van Gool, and Richard Szeliski.
Now Publishers, Inc.

Reviewed by: Larry O'Gorman

In the course of my job as editor of the *IAPR Newsletter*, I am always on the lookout for newly published books to review here. I saw a couple of book announcements a few months ago and requested review copies from the publisher. I was informed that these books came from individual issues in a journal, *Foundations and Trends in Computer Graphics and Vision* published by Now Publishers. The charter of this journal is to publish survey and tutorial articles. I found this very interesting and somewhat rare (ACM Computing Surveys has a similar charter). Since I've long encouraged survey, tutorial, and comparison papers as a necessary complement to "new material" papers, I decided to look into the journal more deeply and convey my thoughts here.

Foundations and Trends in Computer Graphics and Vision began publication in 2005 and publishes 4 issues per year. Each issue contains only one article. Issue page lengths are targeted at 100 pages, but one issue I saw reaches 178. Since the issues are book-length, they are available both by journal subscription and by purchase as individual books. As for many new publications, both journal and books are available in paper or online (html and pdf) formats. The editors-in-chief of this journal are Brian Curless, Luc Van Gool, and Richard Szeliski.

The issues published to date are:

> "Monocular Model-Based 3D Tracking of Rigid Objects", by V. Lepetit and P. Fua (Vol. 1-1, 2005)
>
> "Computational Studies of Human Motion", by David Forsyth, Okan Arikan, Leslie Ikemoto, James O'Brien, Deva Ramaman (Vol 1-2/3, 2005)
>
> "Object Categorization", by Axel Pinz (Vol. 1-4, 2005)
>
> "Image Alignment and Stitching: A Tutorial", by Richard Szeliski (Vol. 2-1, 2006)
>
> "Mesh Parameterization Methods and Their Applications", by Alla Sheffer, Emil Praun and Kenneth Rose (Vol. 2-2, 2006)
>
> "Image-Based Rendering", by Sing Bing Kang, Yin Li, Xin Tong, Heung-Yeung Shum (Vol. 2-3, 2006)
>
> "A Stochastic Grammar of Images", by Song-Chun Zhu and David Mumford (Vol. 2-4, 2006)

Upcoming issues include: "Deterministic methods for MRFs", "Passive 3D Reconstruction", "Computational Symmetry", "Recognizing and Learning Object Categories", "The Appearance of Human Skin: A Survey", and "Local Feature Extraction".

I examined a couple of issues in more depth and report on them here. The 1:4 (2005) issue was titled, "Object Categorization", written by Axel Pinz. It is a 100-page tutorial article with 210 ref-

(Continued on page 8)

(Continued from page 7)

erences. Since the article starts from fairly basic principles, it is appropriate for a student who has done a course in signal/image processing and/or pattern recognition, and is perhaps interested in learning background for doing an undergraduate project or Master's thesis in this area.

Chapter 1 consists of a problem statement (assigning a specific object to a certain category by extraction and use of visual features), a short history of the field, and some potential applications. Chapter 2 describes categorization as related to a number of methods, including classification, learning, and datasets. Chapter 3 describes what it calls the "building blocks", which include concepts that follow a logical processing sequence: pixels, edges, scale-space, moments, segments, recognition, and learning. Finally, Chapter 4 leaves behind general teaching to describe the author's own prototype system for categorization. This includes region- and boundary-based image categorization. Although this article does not deal deeply with any particular aspect of object categorization, many students and practitioners will find this the right level of detail to understand some of the topic's methods and challenges.

The other article I examined was in the 1:2/3 (2005) issue titled, "Computational Studies of Human Motion: Part 1, Tracking and Motion Synthesis", by Forsyth, Arikan, Ikemoto, O'Brien, and Ramaman. While this is also a tutorial article, it has a different style than the previously described article in a number of ways. Quantitatively, it is much longer at 178 pages with 433 references. Its topic is narrower than above, but it treats it with more depth. In addition to describing the general field well, this article includes the authors' own work throughout, as opposed to just the final chapter as above. This article is likely best aimed at graduate students with some background in computer vision who desire to learn more about the specific challenge of human motion. The authors describe this article as one half of a future book, where this half describes the earlier stages of motion tracking and synthesis, and the future half covers representation and motion generation.

Chapter 1 defines some fundamental notions of tracking including: by detection, using flow, and with probability. Chapter 2 discusses the relationships between 2- and 3-D. Chapter 3 digs deeper into human body tracking, discussing how to match the human body, generative and discriminative appearance models, human body part codebooks, and how to evaluate these approaches. Chapter 4 is on motion synthesis, how to take the features found from computer vision methods and begin synthesizing for the purpose of animation. I suspect this article and the subsequent book will be very useful for those whose work straddles the fields of computer vision and animation of the human body.

Back to the journal as a whole, there are a number of advantages that it brings to technical publishing that are, if not new, at least uncommon. Instead of forcing an article to fit into the roughly 20-page constraint of most technical journals, this journal allows substantially longer articles. This is very appropriate for surveys and tutorials. Articles are available both in series as a journal, which is most appropriate for libraries and teachers, and in book form, which is appropriate for practitioners only interested in a particular topic. Additionally, for authors, the copyright is retained by the authors.

1st Intl. Summer School on Computer Vision for Cultural Heritage 2007

Vienna, Austria
August 20th - 24th, 2007

Summer School Chairs
Robert Sablatnig
Martin Kampel

Report prepared by the CVCH2007 Chairs

Summer School Chairs Robert Sablatnig and Martin Kampel, lecturer Angelo Beraldin with the participants of CVCH2007 in front of the Mozart fountain in Vienna, Austria.

The 1st International Summer School on Computer Vision for Cultural Heritage was organized by the Pattern Recognition and Image Processing Group of the Vienna University of Technology as an activity of IAPR-TC19: Computer Vision for Cultural Heritage Applications. It was held in the beautiful city of Vienna at the Vienna University of Technology.

The purpose of CVCH2007 was to bring together talented students from both image based sciences and Cultural Heritage research for a series of lectures and tutorials covering the current frontiers of applying computer vision technology to Cultural Heritage research and was aimed at PhD students and young academics who wanted to get seriously involved in new sensor technologies and methods for field recording and data capture. The summer school was split into a theoretical lecture part covering the topics: 3D scanning, 3D reconstruction and 3D surface modeling, Visualization and Virtual Reconstructions, and High Resolution Multispectral Imaging with applications in Cultural Heritage. For the practical part, students had the opportunity to work with the Time of Flight scanner: RIEGL LMS-Z420i, the Triangulation scanner: Konica Minolta VIVID 9i, the photogrammetry based scanner Breuckmann 'smartSCAN 3D' and the UV/VIS/nIR camera Hamamatsu C9300-124 to get experience with devices used for Cultural Heritage scanning.

Due to the limited capacities for the practical scanning (6 groups of 5 people), participants of the summer school where selected based on academic record. The organizers received 45 applications of which 31 students from 16 different countries were accepted as participants for this international summer school. The organizers also tried to have a multidisciplinary group of students to stimulate discussions among them, which resulted in a group with main areas of expertise in Computer Vision, Computer Graphics, Archaeology, Photogrammetry, Civil Engineering, Architecture, and Heritage Management. With the generous support of EPOCH, the European Network of Excellence on ICT Applications to Cultural Heritage (see *www.epoch-net.org*), 19 students were partly supported financially by bursaries.

The lectures at CVCH2007 where given by Angelo Beraldin, National Research Council of Canada (*Three-dimensional Sensing and Modelling: Theory and Applications aimed at the Cultural Heritage sec-*

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tor), Martin Sauerbier, ETH Zürich, Switzerland (*Photogrammetric 3D documentation and modeling of medium and large scale Cultural Heritage sites*), Tomas Pajdla, Czech Technical University in Prague, Czech Republic (*3D from Photographs, Towards a digital Langweil Model of Prague*), and Martin Lettner, Vienna University of Technology, Austria (*Multispectral Imaging (MSI) for Cultural Heritage Applications*), which provided the technical background for the exercises with the scanning devices. The results of the work performed in the groups were presented by the students at the end of the summer school and are available in form of reports to be downloaded at the summer school homepage *www.prip.tuwien.ac.at/cvch07* , where further material (presentation material, literature and photos) can also be found.

A lively social evening program stimulated discussion among students, tutors and instructors and made the participants feel comfortable in the city of Vienna.

Conference Report: CIVR 2007

6th International Conference on Image and Video Retrieval

7-9 July 2007
Amsterdam, The Netherlands

Conference Chairs: Nicu Sebe and Marcel Worring

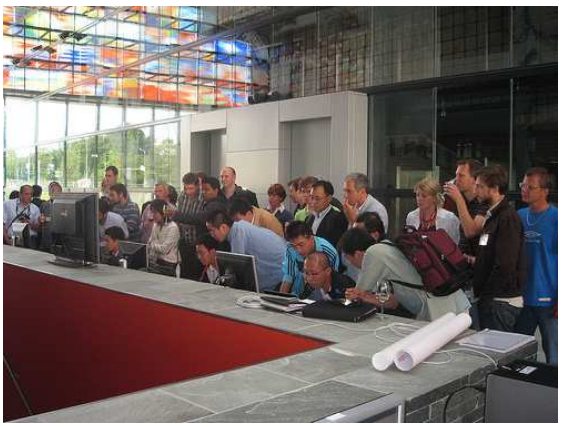
Proceedings are available online through the ACM Portal Digital Library *portal.acm.org/dl.cfm*.

CIVR 2007 was held from the 7th to the 9th of July, in Amsterdam in a 17th century church. After 5 editions, CIVR has now become an official ACM Conference and an IAPR co-sponsored event. IAPR TC12 on multimedia and visual collections took an important role in organizing CIVR 2007 with Marcel Worring and Nicu Sebe as general co-chairs and Pietro Pala as one of the publications co-chairs. CIVR is set up to present the state of the art in image and video retrieval by researchers and practitioners from throughout the world and to provide an international forum for the discussion of challenges in the fields of image and video retrieval. The conference is one of the most important and influential events in this area and successfully gathered the important researchers and practitioners from academia and industry.

This year 191 submissions from 41 countries were received and, after being reviewed by the Program Committee members, 71 were accepted for presentation (22 orals and 49 posters). Additionally, there were two excellent invited presentations given by Prof. Keith van Rijsbergen from the University of Glasgow, UK, and Prof. Andrew Zisserman, from the University of Oxford, UK, internationally renowned experts in information retrieval and computer vision respectively. With well over 150 participants the conference was a great success.

A unique feature of the conference was the high level of participation from practitioners, such as content owners, producers, creators, archivists, service providers, and policy makers. This year the practitioner day was organized together with CHORUS, which is a European coordination action bringing together different European projects in the area of Audio-visual search engines. The two practitioner chairs, Jan Nesvadba and Johan Oomen did a tremendous job and succeeded in inviting key persons from the European Commission, academia, and industry, bringing them together in lively discussions.

The potential of academic results are best communicated through demos. This year the demo session contained 15 technical demos. In addition we had three life competitions on image retrieval, video copy detection and video retrieval, called the VideoOlympics, which were all being held at the Netherlands Institute for Sound and Vision, the national archive for all broadcasted material. The conference dinner was also held in this highly acclaimed building.



The VideOlympics is a competition, which had its first edition at this CIVR, in which several state-of-the-art systems are competing simultaneously on a video retrieval task.

We saw a lively event with 9 systems competing and a highly involved audience, following the searchers and their interfaces as well as their achievements which were communicated live on large scoreboards.

To get a better understanding of this event, check out the video that was made, which can be viewed at *www.videolympics.org*.

Conference Report: ICB 2007

2nd International Conference on Biometrics

27-29 August 2007
Seoul, Korea

General Chair
Seong-Whan Lee, Korea University

The 2nd International Conference on Biometrics (ICB2007) was held at Korea University, Seoul, Korea. ICB2007 was organized by the Center for Artificial Vision Research, Korea University and was endorsed by the International Association for Pattern Recognition (IAPR). In addition to IAPR, there were a number of sponsors of ICB2007, including the IEEE, Korea Information Science Society, Korea University, Korea University BK21 Software Research Division, Korea Science and Engineering Foundation, Institute of Computer, Information and Communication – Korea University, Korea Biometrics Association, Lumidigm Inc., Ministry of Information and Communication of Republic of Korea, and Springer.

ICB2007 received a large number of high-quality research papers. 303 papers were submitted from 29 countries around the world. Of these, 34 papers were accepted for oral presentation, and 91 papers were accepted for poster presentation. 125 accepted papers were published by Springer in the volume of Advances in Biometrics, LNCS 4642, edited by Seong-Whan Lee and Stan Z. Li.

In addition to 7 oral sessions and 3 poster sessions, the program had 4 keynote speeches:

1. "Real World, Most Demanding Biometric Applications" by Dr. Gordon Levin of Walt Disney World, USA
2. "Biometrics Standards Development - Rising to the Challenge of Technology Innovation" by Dr. Fernando Podio of NIST, USA
3. "Audio-Visual Biometrics" by Professor Thomas S. Huang of University of Illinois at Urbana-Champaign, USA
4. "Computer Analysis of Face Video" by Professor Takeo Kanade of Carnegie Mellon University, USA.

The 2nd International Conference on Biometrics was held in August 27-29, 2007 at Korea University, Seoul, Korea.

In addition, two tutorials also were offered:

1. "Fingerprint Recognition" by Professor Davide Maltoni of University of Bologna, Italy
2. "Biometric System Security" by Dr. Anthony Vetro of Mitsubishi Electric Research Laboratories and Professor Nasir Memon of Polytechnic University, USA.

187 scientists from 32 different countries participated to discuss the selected papers representing the great variety of ongoing research in the field of biometrics.

Proceedings are available in the Springer Lecture Notes in Computer Science Series, Volume 4642.

Many people collaborated to organize ICB2007. We would like to thank all the members of the program committee and reviewers who spent their valuable time providing comments on each paper. Finally, we would like to thank the authors who submitted their papers and the attendees of ICB200. We are looking forward to seeing you at ICB2009 in Italy.

Conference Report: CAIP 2007

12th International Conference on Computer Analysis of Images and Patterns

27-29 August 2007
Vienna, Austria

Co-Chairs: Walter Kropatsch and Martin Kampel

Report prepared by Vaclav Hlavac

The series of Conferences on Computer Analysis of Images and Patterns were started by Reinhard Klette and Gerald Sommer in 1987 as a bi-annual scientific meeting. Actually, both gentlemen participated in CAIP 2007.

CAIP has been always successful in bringing together researchers and students. CAIP has covered a broad scope of topics similar to the International Conference of Pattern Recognition (ICPR). CAIP has been an event adjoined to the International Association for Pattern Recognition for many years. CAIP also has helped to include Eastern European researchers into the world community after the iron curtain fell18 years ago. Since that time, Eastern Europe has opened to the world, and this role of CAIP's has been of lesser importance.

CAIP has always been a single track conference. In addition to oral presentations, CAIP 2007 had four poster sessions which obtained enough room in the program and enabled many face-to-face discussions.

CAIP received 251 full paper contributions out of which 120 papers were accepted. Each submission was reviewed by three reviewers. There were 40 oral presentations and 80 posters in four poster sessions. Each poster session was preceded by a plenary poster presentation. Authors of each poster had a one minute space to present typically two slides, which was efficient and sometimes witty.

CAIP 2007 hosted three top invited speakers: Zygmunt Pizlo, Purdue University, "Human Perception of 3D Shapes"; Arnold Smeulders, University of Amsterdam, "The notion of an object in computer vision"; and Steven Zucker, Yale University, "Connection Geometry, Color, and Stereo".

CAIP 2007 attracted 147 participants from 33 nations. The only continent not represented was Antarctica.

Two additional events were organized in conjunction with CAIP 2007: International Summer School Computer Vision for Cultural Heritage 2007 *(see related article in this issue)* and MUSCLE NoE Coins Competition Workshop.

The CAIP 2009 will be held in Münster, Germany in summer, 2009. CAIP 2009 will be hosted by Xiaoyi Jiang, University of Münster, Institute for Computer Science.

Proceedings of CAIP 2007 are available in the Springer Lecture Notes in Computer Science Series, Volume 4673

Workshop Report: CCIW '07

2007 Computational Color Imaging Workshop

14 September 2007
Modena, Italy

Report prepared by the Workshop Organizers/Chairs:
Raimondo Schettini
Rastislav Lukac
Alain Tremeau

The 2007 Computational Color Imaging Workshop (CCIW'07) was held in Modena, Italy, on September 14, 2007. The workshop, with the endorsement of the International Association on Pattern Recognition (IAPR), was organized along with the 14th International Conference on Image Analysis and Processing (ICIAP).

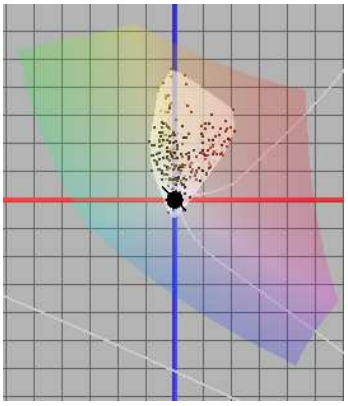
While planning the CCIW'07 workshop, its organizers/chairs, Raimondo Schettini (Univ. of Milano-Bicocca, Italy), Rastislav Lukac (Epson Canada Ltd., Canada) and Alain Tremeau (Univ. of Saint-Etienne, France), aimed at bringing together the international community of imaging scientist and technologists to discuss recent advances in the areas of color image processing and analysis, ranging from theoretical developments to practical applications. Twelve papers selected for presentation at the CCIW'07 workshop documented importance and challenges of computational color imaging and provided a good starting point for the valued discussion of the workshop participants.

The workshop program included three sessions. After opening the workshop, the introductory session began with a discussion on color constancy (A. Gijsenij, Univ. of Amsterdam, Netherlands), followed by presentations on white chromaticity estimation (S. Bianco, Univ. of Milano-Bicocca, Italy) and color vision-based modeling (T. Jetsu, Univ. of Joensuu, Finland).

In the next session, the attention of workshop participants was brought to mathematical morphology for color images (O. Lezoray, Univ. of Saint-Lô, France), gamut expansion (M.R. Gupta, Univ. of Washington, USA), red eye removal (by L. Marchesotti, Xerox Research Center Europe, France), and color image sharpening and denoising (T. Horiuchi, Chiba University, Japan).

The images below are from Alain Tremeau's talk "Gamut preserving image dependent color sampling".

Image Lighthouse quantized in 256 colors.



Distribution of 256 samples in the L*a*b* color space.

In the final session, the discussed themes included color bleeding removal from JPEG images (G. Spampinato, STMicroelectronics, Italy), animation movie abstract construction (P. Lambert, Univ. of Savoie, France), compacigram-based color image segmentation (O. Losson, Univ. of Lille, France), resampling for the OSA-UCS color space (G. Menegaz, Univ. of Siena, Italy) and gamut preserving image dependent color sampling (A. Tremeau, Univ. of Saint-Etienne, France). The workshop ended with

(Continued on page 15)

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an open discussion moderated by the workshop chairs on the recent trends and future research directions in computational color imaging.

It is our hope that the workshop provided a convenient forum where researchers and practitioners in digital imaging, multimedia, visual communications, computer vision, and the consumer electronics industry, who are interested in the fundamentals of color image processing and its emerging applications, could interact and benefit from these interactions. We are looking forward to seeing you at future events devoted to computational color imaging.

Proceedings of CCIW '07
will be published by the
IEEE Computer Society Press

Workshop Report: GREC2007

7th IAPR International Workshop on Graphics Recognition

Grand Hotel Rayon, Curitiba (Brazil).
20-21 September 2007

General Chair: Josep Llados
Program Co-chairs: Liu Wenyin and Jean-Marc Ogier

Report prepared by the General Chair

The IAPR International Graphics Recognition Workshop (GREC) is the main activity of the IAPR-TC10. The seventh edition GREC2007 was held in the Grand Hotel Rayon, Curitiba (Brazil) in September 20-21, 2007 previous to the 9th International Conference on Document Analysis and Recognition ICDAR2007 *(see related article in this issue)*. GREC2007 was chaired by Josep Lladós, Liu Wenyin and Jean-Marc Ogier. 39 valid papers were presented in the scientific program. The workshop had 49 registered participants from 13 countries.

Following the tradition of the previous workshops in the series, the scientific program was organized in a single-track 2-day workshop. It comprised 6 sessions dedicated to specific topics. 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; and Performance evaluation and ground truthing. We aimed to restore the original GREC model, a true workshop with interaction rather than a mini-conference. With this purpose, only extended abstracts were published, thus giving the opportunity to present works in any stage of maturity. Electronic proceedings with full papers were available to registrants allowing "electronic" discussions prior to the workshop. Authors gave short presentations, leaving time for panel discussions. Finally, the role of chairpersons was of key importance in this format. Session chairs were asked not just to introduce speakers, but to read papers before his/her session, and to prepare a survey presentation on the topic and a list of questions to foster active discussions and encourage participation. Chairs did a great job in preparing their corresponding sessions, and we had a truly interactive workshop.

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The last session of GREC2007 consisted in a panel discussion chaired by Karl Tombre. He prepared an excellent summary of the issues discussed during two days, and addressed the hot topics on the present and the future of Graphics Recognition.

Continuing with the tradition of past GREC workshops, the program of GREC2007 included graphics recognition contests. In particular, two contests were held: an arc segmentation contest, organized by Daniel Keysers, and a symbol recognition contest, organized by Philippe Dosch and Ernest Valveny.

The GREC2007 participants had the opportunity to socialize, spending one day after the workshop in the historic city of Lapa. It was a nice trip with a lunch in a farm surrounded by araucarias, an indigenous tree of the Parana State.

The next workshop, GREC2009, will take place in La Rochelle, France, in July 2009. It will be organized by Jean-Marc Ogier (Université de La Rochelle).

Selected papers from GREC2007 will be published in a book in the Springer Lecture Notes in Computer Science series.

Conference Report: ICDAR 2007

9th International Conference on Document Analysis and Recognition

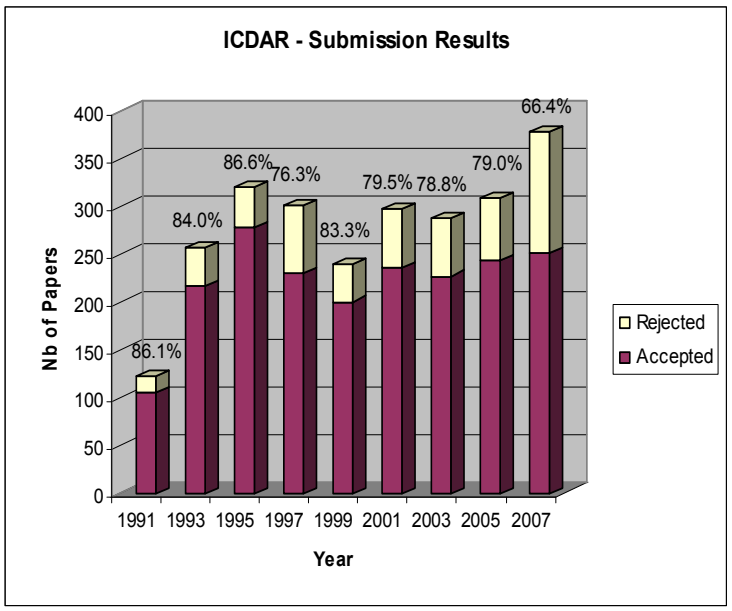
Pontifical Catholic University of Parana, Curitiba, Brazil
23-26 September 2007

Conference Chairs: Flavio Bortolozzi, Robert Sabourin
Local Organization Chair: Luiz S. Oliveira

ICDAR is co-sponsored by the IAPR Technical Committees TC10 (Graphics Recognition) and TC11 (Reading Systems). ICDAR 2007 was organized by Flavio Bortolozzi (Brazil) and Robert Sabourin (Canada). The event was a real success with 307 participants coming from seven continents (37 countries). The distribution of participants among academic and industry is quite interesting. 25% of the attendees came from the industry, 30 were registered as students and 45% as academics. The huge number of industrial researchers demonstrates the maturity of the DAR area. To sum up, more than 36 different companies were represented at ICDAR. About the tutorials, very interesting topics were presented during the first day. Four topics were offered: Forensic document examiners approach (25 attendees), Computational Forensic (14), HMM for handwriting recognition (34) and Document image compression techniques (8). All participants were very satisfied about the quality of the presentations.

As we proposed to the ICDAR community during the TC10-11 meeting in Edinburgh (2003), both satellite workshops GREC2007 *(see related article in this issue)* and CBDAR2007 were organized just before ICDAR in Curitiba. All events were very successful and the local organization team leaded by Luiz S. Oliveira did a tremendous job. Concerning the satellite workshops, GREC2007 attracted 50 attendees and 40 for CBDAR2007. Moreover, 75% (GREC) and 85% (CBDAR) of the participants stayed in Curitiba to attend ICDAR as well.

Coming back to ICDAR, the review process was managed by Abdel Belaid, Dave Dormann and Hiromichi Fujisawa. We received 378 submissions, which surpassed all the previous editions of ICDAR (see Figure 1). The program committee accepted 251 papers (66.4%). According to the standard layout of ICDAR, the technical program was organized with three tracks in parallel for a 3-day event. 102 papers were retained for oral presentations and 149 as posters. According to the feedback of several attendees, the scientific level of the conference was very good. The ICDAR 2007 organizing committee would like to thanks the 313 reviewers for their very



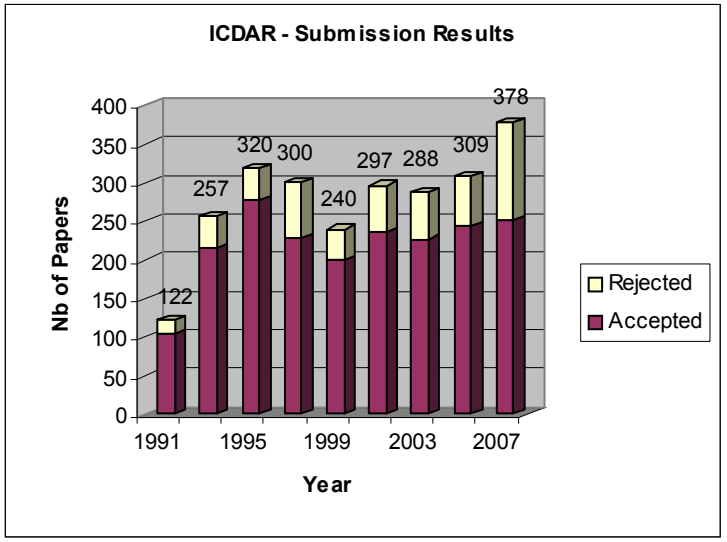


Figure 1: Submission vs acceptation since ICDAR 1991

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(Continued from page 18)

good reviews. We received more than 98% of the review reports which is excellent compared to past editions of ICDAR.

In addition to the regular sessions, four prestigious keynotes were presented by Hiromichi Fujisawa (*A View on the Past and Future of Character and Document Recognition*), Yann LeCun (*Energy-Based Learning in Document Recognition and Computer Vision*), Luc Vincent (*Google Book Search: Document Understanding on a Massive Scale*) and Lambert Schomaker (*Advances in Writer Identification and Verification*). All Keynotes were really appreciated by the participants who were motivated to ask questions after the talks. It is worth remarking that Google offered each participant a database composed of 68 scanned books for research purposes. A bigger database, which contains 1000 books (something like 300.000 pages) is also available upon request.

Coming back to the official aspect of the conference, two IAPR/ICDAR awards were given this year. The *IAPR/ICDAR Outstanding Achievements Award* was presented at the end of the opening session to **Dr. Hiromichi Fujisawa** for outstanding contributions to industrial document analysis and to the ICDAR community. Moreover, the *IAPR/ICDAR Young Investigator Award* was presented during the banquet to **Prof. Josep Llados** for his outstanding service to the ICDAR community and his innovative research in graphics recognition. Both awardees were nominated by the ICDAR 2007 AWARDS COMMITTEE composed of Dr. David Doermann (IJDAR EIC), Dr. Wanyin Liu (TC10 Chair), Dr. Jianying Hu (TC11 Chair), Prof. Robert Sabourin (ICDAR 2007 Co-Chair), Prof Ching Y. Suen (Previous winner of Outstanding Achievements Award), Dr. Apostolos Antonacouplous (TC11 representative / Previous winner of Young Investigator Award) and Prof. Young-Bin Kwon (TC10 representative).

Dr Bortolozzi, Sabourin, Fujisawa, and Suen during the opening session.

Several technical meetings were organized during ICDAR. The ICDAR 2009 executive meeting was chaired by Josep Llados. Among other things, a review of several aspects related to the conference organization, proceedings, venue and review process were discussed. Moreover, technical meetings related to the planning of the next DAS 2008 and ICFHR 2008 were held as well. Finally, the traditional TC10-11 meeting was very popular this year. The bid for ICDAR 2011 was presented by Dr. Cheng-Lin Liu and it was accepted by all participants. Hence, ICDAR 2011 will be hosted by Tsinghua University and Chinese Academy of Sciences, Beijing, China.

This year, we offered great visibility to the presentation of the competition reports. In order to do it, the session was designed as a plenary session just before the closing session. In this way, all ICDAR participants attended the presentation of the competition reports. Three competitions were organized in ICDAR 2007: Arabic Handwriting Competition (Organizers: Volker Margner and Haikal El Abed); Page Segmentation (Organizers: Apostolos Antonacopoulos and Basilis Gatos); and Handwriting Segmentation (Organizers: Basilis Gatos and Apostolos Antonacopoulos). The winners were T. Alary, J. Rottland, and M-P.

(Continued on page 20)

(Continued from page 19)

Schamback from Siemens AG Industrial Solutions and Services, Germany (Arabic Handwriting Recognition), S. P. Chouwdhury, S. Mandal, A. K. Das, and B. Chanda from the Bengal Engineering and Science University and Indian Statistical Institure, India (Page Segmentation), and V. Papavassiliou, T. Stafylakis, V. Katsouros, and G. Carayannis from the Institure for Language and Speech Processing, Greece (Handwriting Segmentation). Since GREC 2007 was organized in Curitiba the week before ICDAR, it was decided to present the results of GREC contests (Arc segmentation and the Symbol recognition competitions) during the same section.

The announcements of the IAPR/ICDAR Best Paper Award, the IAPR/ICDAR Best Student Paper Award and the IAPR/ICDAR Best Poster Award were done during the closing session. In this ICDAR edition, besides the quality of the paper related by the reviewers, the quality of the presentations and the clarity of the answers to the questions were considered in the overall evaluation of the awards by the Award Committee. The Award Committee was composed of Henryi Baird (Lehigh University, USA), Alessandro Koerich (PUCPR, Brazil), Young-Bin Kwon (Chungang University, South Korea), Umapda Pal (ISI, Kolkata, India), Rolf Ingold (Fribourg Univ, Switzerland), and Abdel Belaïd (Loria, France). The Award committee was chaired by Abdel Belaid and Hiromichi Fujisawa.

The 2007 IAPR/ICDAR Awards are:

IAPR/ICDAR Best Paper Award: *Extraction of Embedded Class Information from Universal Character Pattern,* S. Uchida, M. Sakai (Kyushu University), M. Iwamura (Osaka Prefecture University), S. Omachi (Tohoku University) and K. Kise (Osaka Prefecture University, Japan).

IAPR/ICDAR Best Student Paper Award: *Language Models for Handwritten Short Message Services,* E. Prochasson, C. Viard-Gaudin and E. Morin (University of Nantes).

IAPR/ICDAR Best Poster Award: *Novel Binarization System for Degraded Document Images,* Y. Xi and Y. Chen (Tsinghua University, China).

On behalf the ICDAR 2007 organizing committee we would like to congratulate the awardees for their excellent contribution.

ICDAR 2009 will be held in Barcelona, Spain. We congratulate the organizers and wish them a lot of success with the organization!

Proceedings of ICDAR 2007
will be published by the
IEEE Computer Society Press

ICPR 2008

www.icpr2008.org/

Call for Papers

ICPR 2008 is the **nineteenth conference** of the **International Association for Pattern Recognition (IAPR)**.

ICPR 2008 will be an international forum for discussions on recent advances in the fields of C**omputer vision, Pattern recognition (theory, methods and algorithms), Image, speech and signal analysis, Multimedia and video analysis, Biometrics, Document analysis, and Bioinformatics and biomedical applications**.

Important dates

Paper submission deadline:	**8 Apr 08**
Tutorial submission deadline:	**5 May 08**
Workshop submission deadline:	**15 Jan 0**

e-mail contact: *Secretary@icpr2008.org*

Free Books!

I have a number of books that need to be reviewed. If you have interest and some knowledge in the topic, let me know. I will send you the book — which you will be able to keep — and expect in return a review for the *Newsletter*. If you think you might like to review a book, but need more information, just go to the web site of the publisher or a web book seller to see more book detail.

Below are some of the books I'd appreciate help reviewing:

Classification and Learning Using Genetic Algorithms, by Bandyopadhyay and Pal Springer

Character Recognition Systems, Cheriet, Kharma, Liu, Suen, Wiley

Please email me at *logorman@avaya.com*,

Larry O'Gorman, *IAPR Newsletter* Editor

Call for Submissions...

Call for Submissions to a Special Issue on

ADVANCES IN MULTIMODAL BIOMETRIC SYSTEMS
Journal of Visual languages and Computing
Elsevier Press

http://mailserver.di.unipi.it/pipermail/grin/special_issue_biometrics_jvlc.pdf

IMPORTANT DATES
Manuscript Due May 31, 2008
Major Revisions Due October 1, 2008
Notification of Final Acceptance December 01, 2008
Final Manuscript Due February 01, 2009

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Conference Planner

*NOTE: This is not an exhaustive list of conferences. It is a list of conferences sponsored or endorsed by IAPR plus additional conferences that have been brought to the attention of the editor (these non-IAPR events are denoted with an *). The IAPR web site has more up-to-date information about IAPR conferences and a link to USC's Institute for Robotics and Intelligent Systems list of Computer Vision Conferences (L. O'Gorman, ed.)*

Highlighting indicates that paper submission deadline has not yet passed.			
2007			
VIPImage 2007*	*ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing*	Porto, Portugal	17-19 Oct 07
CORES 2007	*5th International Conference on Computer Recognition Systems*	Wroclaw, Poland	22-25 Oct 07
CIARP 2007	*12th Iberoamerican Congress on Pattern Recognition*	Viña del Mar-Valparaíso, Chile	13-16 Nov 07
DICTA 2007	*Digital Image Computing: Techniques and Applications*	Adelaide, Australia	3-5 Dec 2007
ICMB'2007	*The International Conference on Medical Biometrics*	Hong Kong	12-14 Dec 07
PReMI'07	*2nd International Conference on Pattern Recognition and Machine Intelligence*	Kolkata, India	18-22 Dec 07
2008			
DGCI 2008	*14th International Conference on Discrete Geometry for Computer Imagery*	Lyon, France	16-18 Apr 08
CIP 2008	*1st IAPR Workshop on Cognitive Information Processing*	Santorini, Greece	9-10 Jun 08
ICISP 2008	*International Conference on Image and Signal Processing*	Cherbourg-Octeville, France	July 1-3, 2008
ANNPR 2008	*3rd International Workshop on Artificial Neural Networks in Pattern Recognition*	Paris, France	July 2-4, 2008
ICFHR 2008	*11th International Conference on Frontiers in Handwriting Recognition*	Montreal, Quebec, Canada	19-21 Aug 08
DAS 2008	*8th International Workshop on Document Analysis Systems*	Nara, Japan	17-19 Sep 08
ICPR 08	*19th International Conference on Pattern Recognition*	Tampa, Florida, USA	8-11 Dec 08
2009			
ICDAR 2009	*10th International Conference on Document Analysis and Recognition*	Barcelona, Spain	July 26-29, 2009