

IAPR Newsletter

Volume 34, Number 1
January 2012

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Calls for Papers

MCPR2012

4th Mexican Conference on Pattern Recognition
Huatulco, Mexico
Deadline: January 30, 2012
June 27-30, 2012

ICFHR2012

*13th International Conference on
Frontiers in Handwriting Recognition*
Bari, Italy
Deadline: February 28, 2012
September 18-20, 2012

CIARP 2012

17th Iberoamerican Congress on Pattern Recognition
Buenos Aires, Argentina
Deadline: March 12, 2012
September 3-6, 2012

ICPR2012

21st International Conference on Pattern Recognition
Tsukuba Science City, Japan
Deadline: March 31, 2012
November 11-15, 2012

K.S. Fu Prize

To be presented at ICPR 2012
Deadline: April 6, 2012

J.K. Aggarwal Prize

To be presented at ICPR 2012
Deadline: April 11, 2012

S+SSPR2012

*Joint IAPR International Workshops on
Structural and Syntactic Pattern Recognition (SSPR)
and
Statistical Techniques in Pattern Recognition (SPR)*
Itsukushima, Hiroshima, Japan
Deadline: July 6, 2012
November 7-9, 2012

Call for Submissions

IAPR Newsletter

*Articles, announcements, book reviews,
conference and workshop reports*

Contact the editor:

Alexandra Branzan Albu, aalbu@ece.uvic.ca

Deadline: March 23, 2012

To contact us:

Newsletter Editor-in-Chief:

Alexandra Branzan Albu

aalbu@ece.uvic.ca

www.ece.uvic.ca/faculty/abranzan-albu.shtml

Associate Editor for Book Reviews:

Arjan Kuijper

arjan.kuijper@igd.fraunhofer.de

www.gris.tu-darmstadt.de/~akuijper/

Layout Editor:

Linda J. O’Gorman

logorman@alumni.duke.edu

The logo for the IAPR Newsletter. It features the acronym 'IAPR' in a bold, sans-serif font, followed by a circular icon containing a stylized globe or network pattern. Below this, the word 'Newsletter' is written in a large, elegant, cursive script.

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during the third week of January, April, July, and October.



Getting to know... Theo Pavlidis, IAPR Fellow

Why Applications are Important

By [Theo Pavlidis](#), IAPR Fellow (USA)

Professor Theo Pavlidis, IAPR Fellow

ICPR 1994, Jerusalem, Israel

*For contributions to computer graphics and image processing
and service to IAPR*

I was born in Greece in 1934 from parents who had been born in Turkey and found themselves in Greece as a result of the Greek/Turkish wars and the infamous “population exchange” of 1924. I grew up listening to stories of the “lost fatherlands,” and I developed a keen interest in history. I might have become a historian if it were not for the poverty of my parents, a result of their disastrous relocation. Instead, I went into Engineering, the usual pathway to middle class status. I graduated in 1957, and I won a scholarship for graduate work at MIT. However the Greek authorities would not give me a deferment for my military service, and I had, instead, to serve for two years in the Greek army. Fortunately, in 1961 I was able to start graduate work at the University of California at Berkeley. In 1964 I received my Ph.D. with a thesis in Control Theory. From there I accepted a position at Princeton University.

I had become interested in Pattern Recognition in the spring of 1964 when I took the course *Learning Machines* taught by Nils Nilsson. However, given the realities of academic life, I could not pursue my new interest right away. I continued to work on Control Theory, focusing on its applications in Biology. My main project had to do with mathematical models of Circadian

Theo Pavlidis received a Ph.D. in Electrical Engineering from the University of California at Berkeley in 1964. He was on the faculty of Princeton University during 1964-80, a member of the technical staff at AT&T Bell Labs during 1980-86 and on the faculty of Stony Brook University as a Leading Professor during 1986-1995 and as a Distinguished Professor during 1995-2001. During 2001-2002 he was chief computer scientist of Symbol Technologies. He is now Distinguished Professor Emeritus at Stony Brook University.

He has consulted for numerous companies in the past including Symbol Technologies, Ricoh of Japan, AT&T Bell Labs, Datacopy, Exxon, RCA, etc.

He became a fellow of IEEE (Institute of Electrical and Electronic Engineers) in 1979 and of IAPR (International Association for Pattern Recognition) in 1994. In 1999 he became a Life Fellow of IEEE. In 2000 he was awarded by IAPR the *King-Sun Fu prize* for “fundamental contributions to the theory and methodology of structural pattern recognition.”

He has authored more than 150 technical papers. He also authored five books, co-edited three books and received fifteen patents on various aspects of bar coding and document analysis. He is the co-inventor of the two-dimensional bar code PDF417.

(Continued on page 4)

Rhythms (biological clocks). This research eventually led to a book, *Biological Oscillators: Their Mathematical Analysis* (Academic Press, 1973).

After I received tenure at Princeton in 1968, Pattern Recognition became my focus. I have narrated my transition into this field in my K. S. Fu Prize lecture that I gave in Barcelona in the year 2000. I will now cover my later years. In 1980 I

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joined Bell Labs, and there I was able to focus on research without having to worry about writing proposals. I could ignore the prevailing wisdom, and I realized that there was something wrong with machine vision. I was invited to give a lecture at the 1986 ICPR in Paris and I chose to speak on "Why Progress in Machine Vision is so Slow." Most of the researchers in Machine Vision thought that I was too pessimistic but my real views were even more negative.

My pessimism was rooted in the realization that human vision is neither purely bottom up nor purely top down but, instead, is cycling between bottom up and top down processes. The general idea goes back to Helmholtz and there is significant literature on this issue. I found (years later) the best exposition of this point of view in the book *Phantoms in the Brain* by V.S. Ramachandran where (on page 56) he states that "Perceptions emerge as a result of reverberations of signals between different levels of the sensory hierarchy, indeed across different senses." He then goes on to criticize the view that "sensory processing involves a one-way cascade of information (processing)." Many machine vision researchers have tried to deal with this issue by imposing mathematical smoothness constraints on the results of bottom up vision but such constraints are at the same time too severe and too lax. Too severe because they do not allow for discontinuities and too lax because they may not capture all the constraints expected in the physical world. I think that until we understand such "middle vision" the general machine vision problem cannot be solved. As a result, the most promising research areas are in specific applications where there is a fairly complete model of the images under consideration. Research should also aim for high performance solutions that, as my former colleague Henry

(Continued from page 3)

He was the editor-in-chief of the *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)* from 1982 to 1986, and has been a member of the editorial board of many other journals, including the *IEEE Proceedings*. He was the program chairman of *IDCAR'93 (Intern. Conf. on Document Analysis and Recognition)* and has served in the past as general chairman of the *Fifth International Conference on Pattern Recognition (1980)* and the *1988 IEEE Conference on Robotics and Automation*. From 1993 to 1996 he was on the board of governors of the *IEEE*

Baird has pointed out, are needed if we are going to make credible claims that we have solved a problem.

I decided to focus on Document Image Analysis (mainly OCR) because the problems there are well constrained while still quite challenging. Ironically, there are claims that OCR is a solved problem. I will agree with that view when I see recognition methods that need to be trained like humans, using only a handful of samples rather than the several thousand that are currently needed. After I left Bell Labs to join Stony Brook University I continued research in that field (supported by NSF, the U.S. Postal Service, and Ricoh) but also in other application areas. I had two projects on aerial image analysis from the aerospace industry; one from Lockheed on building detection and the other from Grumman on road detection. Since the two sponsors were competitors, one of the challenges was to keep the projects separate.

I also spent considerable time on problems related to bar codes in a collaborative effort with Symbol Technologies. I supervised three PhD theses by people who were employed by the

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company while they were enrolled as graduate students at Stony Brook. The best known result of these collaborations is the development of the two-dimensional bar code PDF417 shown below.



My student, Y. P. Wang not only did the theoretical work leading to the development of the code but also led an engineering team that made the new code a product. However, the idea with the most widespread impact was to decode barcodes directly from gray scale without binarization. The power of that approach was demonstrated in the Ph. D. thesis of E. Joseph but his method was not practical for the low end processors used in scanners. S. J. Shellhammer and D. P. Goren developed another way to implement the concept and that method is used in most bar code scanners today. The reading of

bar codes may appear to be a trivial problem until one realizes the demands of the application. Misreads (substitution errors) must not occur more than once in a million scans while the rejection rate should be under 1%. In addition there are severe constraints on the cost of the scanners so that captured signal is quite blurred. There is a vast distance between solving a problem in the laboratory and solutions that are viable for a commercial application.

The success of bar code reading without binarization encouraged me to pursue text recognition without binarization. I supervised two PhD theses on this methodology (and we published several papers) but I am not aware of the methodology being used in any commercial products.

For the last few years I have been able to find the time to satisfy my early interest in history, and I teach a two-semester course on Middle East History in the Osher Lifelong Learning Institute at Stony Brook. My engineering background is helping me to look for the deep currents of history. You can find out what I am currently up to from my web site theopavlidis.com.



News from the **IAPR EXECUTIVE COMMITTEE**

by Ingela Nyström (Sweden)

Uppsala January 14, 2012

We have now entered 2012, the year when the 21st International Conference on Pattern Recognition will take place in Tsukuba, Japan. We are very much looking forward to the many things that will occur in connection with this major event for the IAPR community.

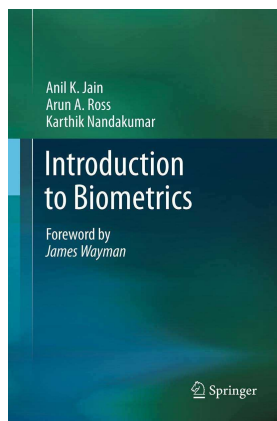
Please visit the conference website, www.icpr2012.org/, and especially the information available on the paper submission page. The deadline for submission is March 31. Note also the information on Awards and Prizes that will be given at the time of the conference.

I take this opportunity to welcome new members of the Governing Board. Recently, new IAPR GB representatives for Austria, Cuba, Denmark, Israel, Portugal, and Taiwan were elected. On behalf of the IAPR ExCo, it is my pleasure to welcome Professors Robert Sablatnig, Edel García-Reyes, Rasmus Larsen, Chen Sagiv, J. Miguel Sanches, Jin-Jang Leou, and Chung-Lin Huang as new Governing Board representatives for the Austrian, Cuban, Danish, Israeli, Portuguese, and Taiwanese member societies, respectively. Their contribution to IAPR will be greatly appreciated.

The ExCo would also like to express our gratitude to Professors Walter Kropatsch, José Ruiz-Shulcloper, Knut Conradsen, Moshe Porat, Helder Araújo, Shiaw-Shian Yu, and Yung-Chang Chen for their work as Governing Board representatives for the past years.

In this January edition of the IAPR Newsletter, we are "Getting to Know" Professor Theo Pavlidis, well-known in the IAPR community for many years. We can also read a book review and a number of conference reports thanks to our contributors.

From the ExCo, we extend to you our best wishes for a successful 2012!



BOOKSBOOKSBOOKS

Introduction to Biometrics

by

Anil K. Jain, Arun A. Ross, and Karthik Nandakumar

Reviewed by

[Rangachar Kasturi](#), IAPR Fellow (USA)

This textbook on Biometrics by leading experts in the field is very timely. After many decades of significant research advances, Biometrics has matured to its current state in which products deploying this technology have become a part of our daily lives. This book, written primarily at an introductory level, would be popular among not only educators, students, and practitioners but also among those in the technology industry who need to have an understanding of the basic principles, strengths, and limitations of various biometrics modalities.

Principal biometrics modalities of fingerprint, face, and iris recognition are covered in depth in their own chapters, whereas other evolving modalities based on traits such as gait, ear, and hand geometry are introduced in a single chapter. An excellent coverage of the topic of combining evidence from multiple modalities, indispensable in very large scale deployments such as those in national identity systems, is provided in the *Multibiometrics* chapter. The book concludes with a chapter on the security of biometric systems, an important concern for everyone, which includes an analysis of its vulnerabilities and available countermeasures.

While most chapters contain introductory material appropriate for upper level undergraduate students or for those who wish

to learn on their own, advanced topics which are a significant part of some of the chapters require a good background in statistical pattern recognition and image analysis. I had used a draft of the book to teach a semester long first year graduate course in biometrics at my university last year. Not all of my students had taken formal courses in these background topics. While they had some difficulty following the advanced sections in the iris and face recognition chapters, they were quite comfortable in understanding the concepts presented in the rest of the book. I would recommend the authors to include necessary background material in appendices to such topics in a future edition of the book or on the book's website to prepare such readers. I much enjoyed teaching this course and appreciated the value of having a book that covered all important biometrics topics.

In summary, *Introduction to Biometrics* is an excellent contribution to the literature and would be of immense help to the large community of people working as researchers, designers, developers, and practitioners in this rapidly growing field.

Conference Report: [CAIP 2011](#)
**14th International Conference on
Computer Analysis of Images and Patterns**

August 29-31, 2011
Sevilla, Spain

General Chairs:

[Walter G. Kropatsch](#), IAPR Fellow (Austria)
[Pedro Real Jurado](#) (Spain)

Report prepared by Pedro Real Jurado (Spain)



This year's CAIP was held in beautiful Sevilla in Spain. It took place in the Escuela Técnica Superior de Ingeniería Informática of Sevilla University. Following the tradition of the CAIP conference series it featured three days of single-track oral and poster presentations.

The conference had more than 300 submissions of which 150 were selected for presentation in oral and poster sessions. Highlights were certainly the two invited talks. On Monday, Facundo Memoli from Stanford University talked about stability and classification of algorithms related to metric structures on databases. Equally interesting, but

from a historical perspective, the other invited speaker, Peter Sturm (INRIA, Grenoble, Rhône-Alpes, France), talked on Wednesday about an ongoing historical study of geometric computer vision.

The flavor of cross-disciplinarity was carried on in the conference itself. Presentation of novel results in the fields of computer vision and image processing was the main issue of all talks and poster presentations. Still, many presentations gave a clear insight into the extent to which image analysis aspects influence areas of everyday life in

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the world. Examples were applications in biology and medicine, in identification and surveillance, in traffic observation and vehicle support systems and in optical character recognition.

Methodologies presented at the conference covered all aspects of image-based pattern recognition and analysis. If a common topic of presentations as diverse as image processing and high level computer vision could be defined, then it was probably the incorporation of domain knowledge into the analysis process in a concise but generalizable way. In a way, this is self-evident of course, but the broadness of presented topics at this conference allowed the listener to draw connections between strategies used in the different fields. This is just the kind of added value one wishes to receive when attending such a meeting.

Two events in the evenings provided ample time for the participants to get together and gave them a chance to get to know some of the long history of the city of Seville. On the first evening, we were taken on a guided tour exploring the old centre of the city (Barrio de Santa Cruz) and Reales Alcázares. The CAIP2011 Gala Dinner was held on Tuesday, August 30, at the Abades Restaurant.

The 2011 edition of the CAIP conference series was a high quality event conveying a good overview on the current research in Computer

**Proceedings of the
conference have been
published in two volumes
by Springer
in the series
Lecture Notes in
Computer Science
(Volumes 6854 and 6855)**



Vision and Pattern Recognition to all participants in a pleasant and communicative environment. The main sponsors of CAIP were the Universidad de Sevilla, Ministerio Español de Educación y Ciencias, and IAPR.

The next CAIP will be held 2013 in York, United Kingdom.

Conference Report: [GREC 2011](#)

9th IAPR International Conference on Graphics Recognition

September 15-16, 2011
Seoul, Korea

General Chair:
[Young-Bin Kwon](#) (Korea)

Program Chair:
[Jean-Marc Ogier](#) (France)

Report prepared by the GREC 2011 Chairs



The Ninth International Workshop on Graphics Recognition (GREC2011), organized by IAPR TC-10 (Technical Committee on Graphics Recognition), was held just before the 11th International Conference on Document Analysis and Recognition (ICDAR), Beijing, China (see ICDAR 2011 report in this issue). It was chaired by Young-Bin Kwon (General Chair, Professor, Chung-Ang University), Jean-Marc Ogier (Program Chair, Professor, University of La Rochelle), and Jaehwa Park (Local Arrangement Chair, Associate Professor, Chung-Ang University).

The GREC series of conferences is the main event of IAPR TC-10. They 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, maps, architectural plans, musical scores, mathematical notation, tables, diagrams, etc.

The previous workshops in the series are [GREC'95](#) in University Park, Pennsylvania, USA (LNCS Volume 1072, Springer, 1996), [GREC'97](#) in Nancy, France (LNCS Volume 1389, Springer, 1998), GREC'99 in Jaipur, India (LNCS Volume 1941, Springer, 2000), GREC01 in Kingston, Ontario, Canada (LNCS Volume 2390, Springer, 2002), [GREC03](#) in Barcelona, Spain (LNCS Volume 3088, Springer, 2004), [GREC05](#) in City University of Hong Kong, Hong Kong (LNCS Volume 3926, Springer, 2006), [GREC07](#) in Curitiba, Brazil (LNCS Volume 5640, Springer, 2008), and [GREC09](#) in La Rochelle, France (LNCS Volume 6020, Springer, 2010).

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GREC2011 was organized in a single-track, two-day program of several sessions dedicated to specific topics. For each session, there was an overview talk (long presentation) that presented the state of the art and noted 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 by presenting results of the speaker's work. Authors gave short presentations, leaving time for panel discussions. Each session was concluded by a panel discussion. The role of the chairpersons was of key importance in this format. Session chairs were asked not just to introduce speakers, but to read papers before his session and to prepare a survey presentation on the topic with a list of questions to foster active discussions and encourage participation. With this purpose, electronic proceedings with full papers were available to registrants allowing electronic discussions before the workshop.

The scientific program consisted of 36 scientific presentations and three contests. It contained both classical and emerging topics of Graphics Recognition. Session topics included map and ancient documents, symbol and logo recognition, indexing and retrieval of data, sketch and drawings, feature extraction, challenge processing, and performance evaluation. Continuing with the tradition of past GREC workshops, the program of GREC2011 included graphics recognition contests. In particular, three contests were held: an [arc segmentation contest](#) organized by Abdullah Zawawi Talib, Hasan S. M. Al-Khaffaf, and Mohd Azam Osman, a [symbol recognition contest](#) organized by Ernest Valveny, Mathieu Delalandre, Bart Lamiroy, and Romain Raveaux, and a [contest of music scores](#) (writer identification and staff removal) organized by Alicia Fornes, Anjan Dutta, Albert Gordo, and

Josep Lladós. The results of contests will be reported to the post-proceedings LNCS book.

GREC2011 was successful, with 34 participants from various academic institutions and research centers from 12 countries. Graphics Recognition is a dynamic, active, and promising scientific community.

The social program was appreciated as well. Participants had a great time socializing during the workshop and enjoying a world class performance of [Nanta](#) as well as the banquet. Finally, we wish to thank the sponsors, Suprema Inc and Triple Aims, for their generous support.

Next workshop will be held within two years in North America just before the ICDAR conference.

The workshop proceedings
are available
in electronic format at the
GREC2011 web page
(click [Program](#) on the web).

The post proceedings of the
conference will be published by
Springer in the
[LNCS \(Lecture Notes in
Computer Science\) Series](#)
during the first half of 2012.

Conference Report: [ICDAR 2011](#)

11th International Conference on Document Analysis and Recognition

September 18-21, 2011
Beijing, China

General Chairs:

[Xiaoqing Ding, IAPR Fellow \(China\)](#)
[Hiromichi Fujisawa, IAPR Fellow \(Japan\)](#)
[Jianying Hu, IAPR Fellow \(USA\)](#)

Report prepared by [Cheng-Lin Liu \(China\)](#)



The 11th International Conference on Document Analysis and Recognition (ICDAR 2011) was held at the Beijing Friendship Hotel in Beijing, China. ICDAR is the major event sponsored by the IAPR Technical Committees TC-10 (Graphics Recognition) and TC-11 (Reading Systems). ICDAR 2011 was co-hosted by the Tsinghua University and the Institute of Automation of the Chinese Academy of Sciences (CAS). It was financially sponsored by the IAPR, the CAS, the National Natural Science Foundation of China (NSFC), and 10 companies in China and around the world. The International Scientific Exchange Center of the CAS ran the secretariat and performed the local arrangements very smoothly. The conference attracted the participation of 387 registrants, including 88 delegates from industry.

Venue

The [venue](#) of ICDAR 2011 deserves a special mention because of its garden-like environment and its conduciveness to scientific conferences. The Beijing Friendship covers a total area of 335,000 square meters of land, of which 200,000 square meters are landscaped in the traditional Chinese garden style. It has conference rooms of variable sizes, hotels of different ranks, and restaurants on the campus. The plenary sessions of ICDAR 2011 were held in the Ballroom of the Friendship Palace, which is 800 square meters, and three parallel oral sessions were held in the Ballroom as well as in two meeting rooms in a nearby building.

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Technical Program

ICDAR 2011 received 422 submissions. The technical committee chairs invited 79 program committee members and 194 additional reviewers to review the submissions. Almost every submission received three reviews. Based on the reviews, 90 papers were accepted for oral presentation and 188 papers were accepted for poster presentation. The Proceedings were published by the IEEE Computer Society, and electronic proceedings (USB drives) were provided to the participants. The oral papers were presented in 18 oral sessions in six time slots. The poster papers were presented in three poster sessions. The biggest topics of accepted papers were document image processing and character recognition. Some emerging topics such as text extraction, handwritten text recognition, document retrieval, video and camera-based OCR, also received significant submissions. Other topics include document segmentation and layout analysis, online handwriting recognition and pen-based interfaces, databases and performance evaluation, information extraction, graphics and symbol recognition, writer identification, table forms and mathematics recognition, web and multimedia documents, and various applications.

In addition to the regular paper sessions, there were five plenary sessions (an award session, three invited keynote speeches, and a panel discussion) and three parallel competition sessions. Prof. Sargur Srihari, IAPR Fellow (University of Buffalo, SUNY) received the IAPR/ICDAR Outstanding Achievements Award for his outstanding and continued contributions to research and education in handwriting recognition and document analysis, and services to the community. He gave a speech titled “Probabilistic

IAPR/ICDAR Awards



Sargur Srihari, IAPR Fellow,
recipient of the IAPR/ICDAR
Outstanding Achievements Award



Masakazu Iwamura (right),
recipient of the IAPR/ICDAR
Young Investigator Award

Graphical Models in Machine Learning” at the award session following the opening ceremony. Three keynote speeches were given by Prof. Henry Baird, IAPR Fellow (Lehigh University, title “Document Recognition without Strong Models”), Prof. Wen Xing (Dartmouth College, title “Chinese

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Paleography, Calligraphy and Pattern Recognition: Styles and Scripts in Excavated Ancient Chinese Documents”), and Marc Wilhelm Küster (University of Applied Sciences Worms, title “The Four and a Half Challenges of Humanities Data”). The panel discussion invited five professors (led by Prof. Ching Suen, IAPR Fellow) to present progress and prospects of font design, evaluation, and applications in digital publishing and display. The competition sessions were held in the time slot before the closing ceremony, to present the organization and results of 16 competitions, and present certificates to the winners.

Social Program

All the registrants were invited to attend the welcome reception and the banquet, both in the Friendship Palace. There were some award ceremonies, announcements and entertainments at the banquet. The TC-10 chair, on behalf of the ICDAR advisory committee, presented the IAPR/ICDAR Young Investigator Award to Dr. Masakazu Iwamura (Osaka Prefecture University, Japan). The general chairs of ICDAR 2011 presented outstanding service awards to the program chairs (Chew Lim Tan, Daniel Lopresti, Thomas Breuel) and the executive chairs (Cheng-Lin Liu, Changsong Liu) for their excellent organization efforts. On behalf of the advisory committee, the TC-11 chair announced that Tunis of Tunisia was selected as the host of ICDAR 2015 based on voting by the ICDAR 2011 participants at the joint TC-10/TC-11 meeting on the previous day. The organizers of ICDAR 2015, ICDAR 2013 (Washington DC, USA), DAS 2012 (Queensland, Australia) and ICFHR 2012 (Bari, Italy) presented their welcome messages. The entertainments included Chinese folk music shows, acrobatics (contortion, jar balancing),

IAPR Distinguished Speakers



Henry Baird, IAPR Fellow



Wen Xing



Marc Wilhelm Küster

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Sichuan opera action “change face”, and Beijing opera selections.

The secretariat also organized a pre-conference tour to the Great Wall, a post-conference tour to the Forbidden City, and several city tours during the conference for accompanying persons. A technical tour was also organized to visit the Institute of Automation of CAS and Tsinghua University, where pattern recognition research has been intensively performed.

Awards

Prof. Sargur Srihari received the IAPR/ICDAR Outstanding Achievements Award of 2011 and was presented the certificate at the award session following the opening ceremony. Dr. Masakazu Iwamura (Osaka Prefecture University, Japan) from Japan received the IAPR/ICDAR Young Investigator Award and was presented the certificate at the banquet. Based on evaluation of review scores and presentation quality by committees led by the program chairs, four paper awards were announced and presented certificates and prizes at the closing ceremony. The paper awards and the recipients are as follows:

IAPR Best Paper Award: Marçal Rusiñol, David Aldavert, Ricardo Toledo and Josep Lladós, “Browsing Heterogeneous Document Collections by a Segmentation-free Word Spotting Method”

IAPR Best Poster Award: Da-Han Wang and Cheng-Lin Liu, “Dynamic Text Line Segmentation for Real-Time Recognition of Chinese Handwritten Sentences”

ITESOFT Best Student Paper Award: Adam Coates, Blake Carpenter, Carl Case, Sanjeev Satheesh, Bipin Suresh, Tao Wang and Andrew

Ng, “Text Detection and Character Recognition in Scene Images with Unsupervised Feature Learning”

Nuance Best Industrial Paper Award: Ray Smith, “Limits on the Application of Frequency-based Language Models to OCR”

In addition, the paper of Bart Lamiroy and Daniel Lopresti, “An Open Architecture for End-to-End Document Analysis Benchmarking”, was specially mentioned as a runner-up to the best paper.

Satellite Events

Four workshops were held jointly with ICDAR 2011: the Joint Workshop on Multilingual OCR and Analytics for Noisy Unstructured Text Data (J-MOCR-AND), the International Workshop on Historical Document Imaging and Processing (HIP), the First International Workshop on Automated Forensic Handwriting Analysis (AFHA), and the Fourth International Workshop on Camera-Based Document Analysis and Recognition (CBDAR 2011). There were also six tutorials on different topics of document analysis, including handwriting recognition, ancient document analysis, sequence recognition, administrative document analysis, Ebooks, and performance evaluation.

At ICDAR 2011, TC-10 and TC-11 organized the first-ever Doctoral Consortium in this field. 21 doctoral students presented their research in oral and poster, and 19 mentors (who are established researchers in the field) participated in discussions.

**Proceedings of the conference
have been published by IEEE**

Please go to

[IEEEExplore](#)

for the **ICDAR2011 Proceedings**

Conference Report: [IJCB 2011](#)

IAPR/IEEE International Joint Conference on Biometrics

October 11-13, 2011
Washington, D.C., USA

General Chairs:

[Kevin Bowyer](#) (USA)

[Rama Chellappa](#), IAPR Fellow (USA)

Program Chairs:

[Terry Boulton](#) (USA)

[Josef Kittler](#), IAPR Fellow (UK)

[Ajay Kumar](#) (Hong Kong)

Report prepared by Kevin Bowyer (USA)

The International Joint Conference on Biometrics (IJCB) represents the joining of two major conference series in biometrics research, the Biometrics Theory, Applications and Systems (BTAS) tradition and the International Conference on Biometrics (ICB) tradition. Measured by the number of papers submitted, IJCB 2011 is the largest of either conference held to date. IJCB 2011 was made possible through special agreement between the IEEE Biometrics Council and the IAPR TC 4. Based on the success of IJCB 2011, discussions are in progress to have another IJCB in 2014.

We want to sincerely thank our IJCB 2011 conference sponsors. **Honeywell** graciously and generously sponsored the Honeywell Best Student Paper Award, as they have in past years at BTAS. **Progeny Systems** graciously and generously sponsored the conference reception on the first night of the conference, as they have in past years at BTAS. We also greatly appreciate the support of this year's general sponsors: **L1 Identity Systems**, **Cognitec**, **SAIC**, and **IET Journals**.

The winner of the **Honeywell Best Student Paper Award** is "Mining patterns of orientations and magnitudes for face recognition", by Ngoc-Son Vu and Alice Caplier at Grenoble INP. The Honeywell Best Student Paper Award was selected from among the best-reviewed submissions to the conference by a special committee appointed by the Program Chairs.



Professors Rama Chellappa, IAPR Fellow, and Kevin Bowyer presented the Honeywell Best Student Paper Award to Ngoc-Son Vu.

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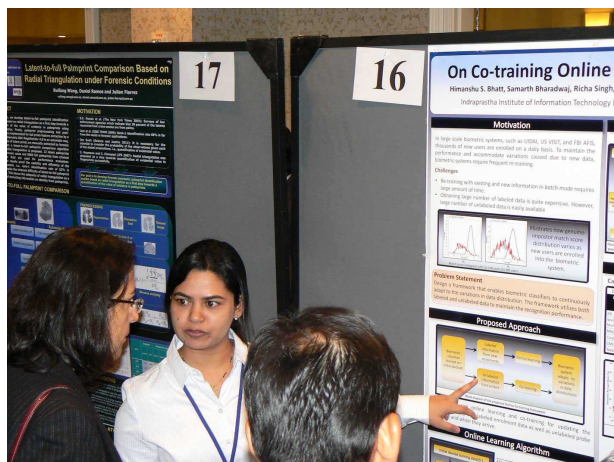
Following the ICB tradition, the **IAPR Best Biometrics Student Paper Award** was awarded to the paper “Latent Fingerprint Enhancement via Robust Orientation Field Estimation”, by Soweon Yoon at Michigan State, Jianjiang Feng at Tsinghua University, and Anil Jain, IAPR Fellow, at Michigan State. The IAPR Best Biometrics Student Paper Award was selected by a committee organized by the IAPR TC 4.

Following the BTAS tradition, IJCB also included **Best Poster Paper Awards** that were selected from among each day’s poster presentations by a vote of the attendees at the conference. There was a tie on Tuesday, and a single winner on each of the other two days. The winning papers on Tuesday were “On Co-training Online Biometric Classifiers”, by Himanshu Bhatt, Samarth Bharadwaj, Richa Singh, and Mayank Vatsa, all from IIIT Delhi, and Afzel Noore and Arun Ross, from West Virginia University, and “Latent-to-full palmprint comparison based on radial triangulation under forensic conditions” by Ruifang Wang, Daniel Ramos, Julian Fierrez, from Universidad Autonoma de Madrid. The winner on Wednesday was “Reliability-balanced Feature Level Fusion for Fuzzy Commitment Scheme”, by Christian Rathgeb, Andreas Uhl and Peter Wild, from the University of Salzburg. The winner on Thursday was “Investigating Age Invariant Face Recognition Based on Periocular Biometrics”, by Felix Juefei-Xu (Carnegie Mellon University), Khoa Luu (Concordia University), Marios Savvides (Carnegie Mellon University), Tien Bui (Concordia University), and Ching Y. Suen, IAPR Fellow (Concordia University).

The very international flavor of IJCB 2011 is exemplified in the range of countries represented in the award-winning papers. Authors of the various award-winning papers are at institutions



Massimo Tistarelli, IAPR Fellow, presented the IAPR Best Biometrics Student Paper Award to Soweon Yoon.



Richa Singh from IIIT Delhi presents a poster paper that received a Best Poster Paper Award selected by the vote of IJCB attendees.

in Austria, Canada, China, France, India, Spain and the United States.

IJCB 2011 included a number of changes and improvements relative to past BTAS and ICB conferences. For the first time, there was a Doctoral Consortium, with PhD student participation sponsored by the National Science

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Foundation and by IAPR. Reviewing this year was done in “double blind” style and allowed for an author rebuttal phase, as described below. And relative to the BTAS conference series, both a tutorials program and a competitions program were added. In addition, the presentations at this year’s conference were recorded and are available online at www.TechTalks.tv. We hope that this will provide a lasting value to attendees and others who are interesting in biometrics, complementary to the published papers being available in IEEE Xplore.

IJCB 2011 had 324 papers registered and 306 reviewed, from which 31 papers were accepted for oral and 76 for poster presentations. This represents an increase in papers submitted, accepted and overall selectivity relative to past BTAS and ICB conferences. The topics with the most submissions were 2D face, fingerprint and iris with 71, 29, and 29 submissions respectively.

The review process for IJCB 2011 was diligent and required 951 reviews to support the decision process. This involved 154 reviewers who spent significant time and effort in reviewing. IJCB 2011 introduced a rebuttal phase for the authors to comment on the reviews and a discussion phase for the reviewers to discuss among themselves. The discussion phase enabled each reviewer to adjust his/her reviews based on the opinions of the other reviewers, the rebuttal from the authors and a discussion. The whole process, conducted double blind within CMT, tended to result in a consensus opinion on most submissions. Papers associated with any Chair were handled separately with no involvement of that Chair and virtually no difference in acceptance rate. The Program Chairs carefully considered all the information available to make the final decisions on accepted. The Program Chairs coordinated

the provision of meta-reviews, especially for the submissions with inconsistent reviews. The rigorous acceptance standards and selectivity resulted in rejection of some potentially interesting papers that suffered from presentation problems.

The resulting Conference Program had wide international representation, with papers from 26 countries. It includes four tutorials, and the presentation of the results of four biometric algorithm competitions. The Conference Program was further enhanced by 3 invited talks by eminent speakers. Brian Lovell, IAPR Fellow, gave The 2011 IAPR Biometrics Lecture, speaking on “Remote Face, Iris, and Appearance Biometrics for Border and Transport Security”. Mark Nixon gave a very entertaining talk at the conference banquet on “A Brief History of Biometrics In the Media”. And Dr. Michael C. King gave an excellent overview of current advances in biometric technology spurred by the IARPA BEST program that he directs, titled “Current Successes and Future Directions of the BEST Program”.

It is time now to make plans to attend ICB 2012 and BTAS 2012!

**Proceedings of the
conference have been
published by IEEE**

Please go to
[IEEEXplore](http://www.IEEEXplore)
for the IJCB 2011 Proceedings

Non-IAPR Conference Report

PReMI 2011

4th International Conference on Pattern Recognition and Machine Intelligence

June 26-30, 2011
Moscow, Russia

General Chairs:
Sankar K. Pal, IAPR Fellow (India)

Report prepared by the General Chair

The International Conference on Pattern Recognition and Machine Intelligence (PReMI) is a very important conference in the field of pattern recognition, machine learning, computational intelligence, and related application areas. It is held every alternate year, preferably at different places. PReMI'11 was the fourth edition in the series. The first two conferences were held in December at the Indian Statistical Institute, Kolkata, India, in 2005 and 2007. The third one was at the Indian Institute of Technology, New Delhi, India, in December 2009. This is first time that PReMI was held outside India, at the Higher School of Economics, Moscow, Russia. As with previous editions, the conference was attended by a large number of researchers and leading experts from all over the world. The primary goal of the conference was to present state-of-the-art scientific results, encourage academic and industrial interaction, and promote collaborative research activities in pattern recognition, machine intelligence, and related fields, involving scientists, engineers, professionals, researchers and students across the globe.

PReMI'11 received about 140 submissions from 21 different countries. The papers were presented by researchers in parallel sessions on various theoretical and application areas, including new developments. The conference

took place in fifteen sessions, over three days followed by two-day tutorials. It was inaugurated by Prof. Sankar K. Pal (General Chair), Prof. Sergei O. Kuznetsov (Conference Chair), Prof. Malay K. Kundu (Program Co-Chair), and other dignitaries. Conference tutorials were held on June 26-27, 2011. The speakers were Prof. Salvador Garcia, Prof. Roberto Baragona, Prof. Natalia Loukachevitch, and Prof. Konstantin Vorontsov.

The conference highlights were marked by some of the leading researchers in the areas of pattern recognition and machine learning who presented the keynote and invited talks. These include the keynote talk by Dr. Rakesh Agrawal (USA) on "Enriching Education through Data Mining", and several plenary talks by Prof. Boris Mirkin (Russia) on "Thematic Clusters Represented by Higher Ranks in Taxonomy of the Field", Prof. Santanu Chaudhury (India) on "Multiple Kernel Learning: Application in Recognition and Retrieval", Prof. John Oommen, IAPR Fellow (Canada) on "Merging the Fields of Neural Networks and Adaptive Data Structures to Yield New Pattern Recognition Methodologies", Prof. Alexei Chervonenkis (Russia) on "Problems of Machine Learning", and Prof. Mikhail Roytberg (Russia) on "Quality of Algorithms for Sequence

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Comparison". There were about 65 oral presentations out of 140 submitted papers (less than 50% acceptance), in parallel sessions on various theoretical and application areas, demonstrating new developments in areas like image analysis, machine learning, and pattern recognition, watermarking, steganography & biometrics, text and data mining, natural language processing, document image processing, and image and video information retrieval.

The program included a sight-seeing tour in Moscow, cultural event and a banquet.

Different sponsors of the conference who made the event successful include: Centre for Soft Computing Research: A National Facility (ISI, Kolkata), Laboratoire Poncelet (UMI 2615 du CNRS, Moscow), ABBYY Software House, the Russian Foundation for Basic Research, Yandex, and Russian Association for Artificial Intelligence (RAAI).

In conclusion, PReMI 2011 in Russia was not only a great success in organizing outside India; it also opened the door for new opportunities and avenues for scientists and researchers to organize PReMI anywhere in the world in future.

**Proceedings of the
conference have been
published by Springer
in the series
Lecture Notes in
Computer Science
(Volume 6744)**



Please check the ICPR 2012 web site www.icpr2012.org frequently.

ICPR

The 21st International
Conference on Pattern Recognition

2012

N o v e m b e r

11-15, 2012

Tsukuba International Congress Center
Tsukuba Science City, JAPAN

The International Conference on
Pattern Recognition (ICPR)
is the
major scientific event
organized under the auspices of
the
International Association for
Pattern Recognition (IAPR).

The aim of this conference is to
bring together international ex-
perts to share their experiences
and to promote research and de-
velopment in
Pattern Recognition.

ICPR2012
Paper Submission Deadline:
March 31, 2012

General chairs

Jan-Olof Eklundh (Sweden), Yuichi Ohta (Japan), Steven Tanimoto (USA)

Program chairs

Alberto Del Bimbo (Italy), Kim L. Boyer (USA), Katsushi Ikouchi (Japan)

Track chairs

Computer & Robot Vision

Richard Bowden (UK)
Sing Bing Kang (USA)
Long Quan (China)

Virtual Reality & Medical Applications

Tobias Höllerer (USA)
Gudrun Klinker (Germany)
Naokazu Yokoya (Japan)

Pattern Recognition & Applications

Noboru Babaguchi (Japan)
Rita Cucchiara (Italy)
Qiang Ji (USA)

Signal, Speech, and Video Processing

Tsuhan Chen (USA)
Touradj Ebrahimi (Switzerland)
Kyoung Mu Lee (Korea)

Document Analysis

Bidyut B. Chaudhuri (India)
Koichi Kise (Japan)
Daniel P. Lopresti (USA)

Advisory committee

Herst Dunke (Switzerland), Masakazu Ejiri (Japan), Panga Kasturi (USA),
Josef Kittler (UK), Takashi Matuyama (Japan),
Gabriella Sanniti di Baja (Italy), Yoshiaki Shirai (Japan),
Ching Y. Suen (Canada), Johji Tajima (Japan)

Workshop Co-Chairs

Tutorial Co-Chairs

Demos, Exhibits and Contests Co-Chairs

Publication Co-Chairs

Finance Co-Chairs

Publicity and Sponsorship Co-Chairs

Award Chair

Web Chair

Local Arrangement Co-Chairs

Yoichi Sato (Japan), Rahul Sukthankar (USA)

Andreas Dengel (Germany), Eisaku Maeda (Japan)

Robert Fisher (UK), Yasuyo Kita (Japan)

Hideo Saito (Japan), Yoshimitsu Aoki (Japan)

Hiroshi Sako (Japan), Keiji Yamada (Japan)

Atsushi Imiya (Japan), Kazuhiro Fukui (Japan)

Ken-ichi Maeda (Japan)

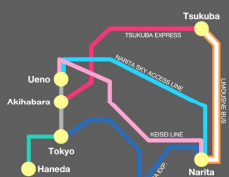
Kenji Suzuki (Japan)

Itaru Kitahara (Japan), Takeshi Kurata (Japan)

Important Dates

Deadline for paper submission
Notification of paper acceptance
Camera ready papers and author registration
Deadline for workshop proposal
Deadline for tutorial proposal
Deadline for contests proposal

March 31, 2012
June 15, 2012
July 15, 2012
January 6, 2012
April 30, 2012
July 15, 2011



Call for Nominations

King-Sun Fu Prize

Nominations deadline: 6 April 2012

Nomination and endorsement forms can be downloaded from the [KS Fu Prize](#) page of the IAPR web site.

The International Association for Pattern Recognition (IAPR) is pleased to announce a call for nominations for the King-Sun Fu Prize in honor of the memory of Professor King-Sun Fu.

Professor Fu was instrumental in the founding of IAPR, served as its first president, and is widely recognized for his extensive contributions to the field of pattern recognition.

This biennial prize is given to a living person in recognition of an outstanding technical contribution to the field of pattern recognition, and consists of a cash amount and a suitably inscribed certificate. The prize is derived from interest income from a special fund set up for this purpose.

The nomination must be made by a member of a national member society of IAPR and by endorsement of at least five members, representing at least two member societies different from that of the nominator. The prize recipient shall be selected by the Prize Committee, subject to approval by the IAPR Governing Board. Members of the IAPR Executive Committee, as well as of the Prize Committee, shall be ineligible for the prize and may not serve as nominators or endorsers.

The 2012 prize will be presented at the

21st International Conference on Pattern Recognition (ICPR)
Tsukuba Science City, Japan
November 11 - 15, 2012

The nomination must be made on special nomination and endorsement forms, and must be received by the Prize Committee Chairman no later than April 6, 2012. Completed and signed nomination and endorsement forms must be submitted in electronic form. The nominator as well as endorsers should send their completed forms by email to the chairman of the Prize Committee:

Prof. Horst Bunke
Chair, K-S. Fu Prize Committee
University of Bern, Switzerland
email: bunke@iam.unibe.ch

Past winners of the K-S Fu Prize:

Professor Horst Bunke
2010 Istanbul

Professor Anil K. Jain
2008 Tampa

Professor Josef Kittler
2006 Hong Kong

Professor J. K. Aggarwal
2004 Cambridge

Professor Thomas S. Huang
2002 Quebec City

Professor Theo Pavlidis
2000 Barcelona

Professor Jean-Claude Simon
1998 Brisbane

Professor Teuvo Kohonen
1996 Vienna

Professor Herbert Freeman
1994 Jerusalem

Professor Levin Kanal
1992 The Hague

Professor R.L. Kashyap
1990 Atlantic City

Professor Azriel Rosenfeld
1988 Rome

ICPR 2012

Call for Nominations for the J.K. Aggarwal Prize

Nomination and Endorsement Forms are available at “Fellows and Awards” page of the IAPR web site

Call for Nominations for the J. K. Aggarwal Prize

**Deadline for Submission of Nomination and
Endorsement Forms is April 11, 2012**

The International Association for Pattern Recognition (IAPR) is pleased to announce a call for nominations for the third J.K. Aggarwal Prize in honor of Professor J.K. Aggarwal. Professor Aggarwal is widely recognized for his extensive contributions to the field of pattern recognition and for his participation in IAPR's activities.

The recipient is a young scientist, under the age of 40 at the date of the deadline for nominations, who has brought a substantial contribution to a field that is relevant to the IAPR community and whose research work has had a major impact on the field.

The prize recipient shall be selected by the J. K. Aggarwal Prize Committee, subject to approval by the IAPR Governing Board, upon nomination by a member of a national member society of IAPR and by endorsement of four members, representing at least two member societies different from that of the nominators and nominee.

Members of the IAPR Executive Committee, as well as of the J.K. Aggarwal Prize Committee, shall be ineligible for the prize and may not serve as nominators or endorsers.

The 2012 prize will be presented at the
21st International Conference on Pattern Recognition (ICPR)
Tsukuba, Japan
November 11-15, 2012

The prize recipient is expected to present an invited talk at the conference.

The nomination must be made on special nomination and the endorsement forms and must be submitted in electronic form. The nominator as well as endorsers should email their completed forms directly to the Appointed Chairman of the J.K. Aggarwal Prize Committee via the specified email address:

Song-Chun Zhu Chair, J.K. Aggarwal Prize Committee
8125 Math Science Bldg. Box 951554
University of California, Los Angeles
Los Angeles, CA 90095
USA
email: sczhu@stat.ucla.edu

Of interest...

Free Books!

The *IAPR Newsletter* is looking for reviewers for the books listed below.

If you have interest and some knowledge in the topic, email us with your mailing address. We will send you a copy of the book—which you may keep—and will expect in return a review for the *Newsletter*.

[Arjan Kuijper](mailto:arjan.kuijper@iapr.org), IAPR Newsletter Associate Editor for Book Reviews

The following titles are available to be reviewed:

Fundamentals of Digital Image Processing: A Practical Approach with Examples in MATLAB

Chris Solomon and Toby Breckon

Wiley-Blackwell, 2010

www.wiley.com/WileyCDA/WileyTitle/productCd-0470844736.html

The Art and Science of HDR Imaging

John J. McCann and Alessandro Rizzi

Wiley, 2012

www.wiley.com/WileyCDA/WileyTitle/productCd-0470666226.html

Pattern Recognition and Machine Vision—In Honor and Memory of Late Prof. King-Sun Fu

Patrick S. P. Wang

River Publishers, 2010

riverpublishers.com/river_publisher/book_details.php?book_id=49

Pattern Recognition, Machine Intelligence and Biometrics

Patrick S. P. Wang

Springer, 2011

www.springer.com/computer/image+processing/book/978-3-642-22406-5

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](#) (A. Branzan Albu, ed.)

Highlighting indicates that paper submission deadline has not yet passed.
An asterisk * denotes a non-IAPR event.

2012

CTIC 2012 *	4th International Workshop on Computational Topology in Image Context *	Bertinoro, Italy	6-8 Feb 12
DAS 2012	10th IAPR International Workshop on Document Analysis Systems	Gold Coast, Queensland, Australia	27-29 Mar 12
ICB 2012	5th IAPR International Conference on Biometrics	New Delhi, India	29 Mar-1 Apr 12
ICIEV 2012	International Conference on Informatics, Electronics & Vision	Dhaka, Bangladesh	18-19 May 12
CIP2012	3rd International Workshop on Cognitive Information Processing	Parador de Baiona, Spain	28-30 May 12
Summer School *	10th IEEE EMBS International Summer School for Biomedical Imaging *	Berder, France	22-30 Jun 12
ICIAR 2012 *	9th International Conference on Image Analysis and Recognition *	Aveiro, Portugal	25-27 Jun 12
MCPR2012	4th Mexican Conference on Pattern Recognition	Huatulco, Mexico	27-30 Jun 12
ICISP2012	5th International Conference on Image & Signal Processing	Agadir, Morocco	28-30 Jun 12
ISVC'12 *	8th International Symposium on Visual Computing *	Rethymnon, Crete, Greece	16-18 Jul 12
Summer School *	Building Trust in the Information Age: Summer School in Computer Security & Privacy *	Cagliari, Italy	27-31 Aug 12
CIARP 2012	17th Iberoamerican Congress on Pattern Recognition	Buenos Aires, Argentina	3-6 Sep 12
ICFHR 2012	13th International Conference on Frontiers in Handwriting Recognition	Bari, Italy	18-20 Sep 12
BTAS 2012 *	The IEEE Fifth International Conference on Biometrics: Theory, Applications and Systems *	Washington, D.C., USA	23-27 Sep 12
S+SSPR2012	Joint IAPR International Workshops on Structural and Syntactic Pattern Recognition (SSPR) and Statistical Techniques in Pattern Recognition (SPR)	Itsukushima, Hiroshima, Japan	7-9 Nov 12
ICPR 2012	21st International Conference on Pattern Recognition	Tsukuba, Science City, Japan	11-15 Nov 12

2013

CAIP 2013 *	15th International Conference on Computer Analysis of Images and Patterns *	York, UK	27-29 Aug 13
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