

IAPR Newsletter

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January 2010

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Calls for Papers

J.K. Aggarwal Prize 2008

*To be presented at the
20th International Conference on Pattern Recognition
(ICPR 2010)
Istanbul, Turkey
Deadline: February 10, 2010
August 23-26, 2010*

ICISP 2010

*International Conference on
Image and Signal Processing 2010
Trois-Rivieres, Quebec, Canada
Deadline: February 14, 2010
June 30-July 2, 2010*

ICFHR 2010

*12th International Conference on
Frontiers in Handwriting Recognition
Kolkata, India
Deadline: February 15, 2010
November 16-18, 2010*

IWCF 2010

*4th International Workshop on
Computational Forensics
Tokyo, Japan
Deadline: June 25, 2010
November 11-12, 2010*

ICDAR2011

*11th International Conference on
Document Analysis and Recognition
Beijing, China
Deadline: March 1, 2011
September 18-21, 2011*

SCIA 2011

*17th Scandinavian Conference on Image Analysis
Ystad Saltsjöbad, Sweden
Deadline: December 15, 2010
May 23-27, 2011*

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 22, 2010

The logo for the IAPR Newsletter features the acronym 'IAPR' in a bold, purple, sans-serif font. To the right of 'IAPR' is a circular icon containing a stylized globe with latitude and longitude lines. Below 'IAPR' and the icon, the word 'Newsletter' is written in a large, elegant, black cursive script.

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Feature

Global Pattern Recognition Series:



The ImageCLEF Benchmark

www.imageclef.org

By

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and Theodora Tsirikika (The Netherlands) Theodora.Tsikrika@cw.nl

IAPR Newsletter readers were first introduced to the ImageCLEF Benchmark in April 2006 ([\[html\]](#) [\[pdf\]](#)). This article explains the changes that have taken place over the years and invites IAPR members to participate in ImageCLEF 2010 and ImageCLEF@ICPR.

~Alexandra Branzan Albu, ed.

Abstract

This text describes the ImageCLEF benchmark for multilingual, multimodal image annotation and retrieval. First, the general field of multimedia retrieval evaluation and the situation of ImageCLEF in this field are explained. Then, the ImageCLEF 2009 tasks, their objectives and the participation in these tasks are described. As of 2010, the format of CLEF (Cross Language Evaluation Forum) and ImageCLEF is changing; these changes are presented in detail to motivate readers of the *IAPR Newsletter* to participate in CLEF and ImageCLEF 2010.

Introduction

In the 1990s, evaluation was clearly not one of the strong points of the multimedia retrieval domain, but this has changed over the past ten years and benchmarking has become an important tool for advancing the field. The most well-known benchmark is clearly TREC (Text REtrieval Conference, trec.nist.gov/) for information retrieval and TRECVID

(trecvid.nist.gov/) for multimedia (video) retrieval. CLEF (Cross Language Evaluation Forum, www.clef-campaign.org/) and its image retrieval part ImageCLEF (www.imageclef.org/) have also become very popular over the past years with 190 registered users for CLEF and over 90 for ImageCLEF in 2009. Other benchmarks in multimedia retrieval include ImageEVAL for several imaging tasks, SHREC (SHape REtrieval Contest) for the retrieval of 3D objects and MIREX (Music Information Retrieval EXperiment) for music retrieval. In the IAPR, there are also two technical committees dealing with evaluation issues on several levels ([IAPR TC12 Multimedia and Visual Information Systems](#) and [IAPR TC5 Benchmarking & Software](#))

ImageCLEF started with four participants in 2003 and a single photographic retrieval task and has since grown to over 90 participants in six different retrieval tasks. ImageCLEF was already described in the *IAPR Newsletter* in early 2006 [1] where the tasks of ImageCLEF 2005 were presented and the ideas for ImageCLEF 2006 were outlined. Since then, ImageCLEF has become a much larger forum, and the tasks have become more varied, have deployed larger image collections, and have also created more realistic tasks and topics. The goals have remained

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the same in promoting multilingual and particularly multimodal (mainly image combined with text) retrieval, making modern retrieval techniques comparable, and showing the improvement in the field. A secondary goal has always been to increase collection size but still retain a low entrance level to tasks, thus allowing research groups without large supercomputing centers to participate without problems. A large number of the ImageCLEF participants are actually PhD students.

ImageCLEF 2009

With over 90 registrations, ImageCLEF set a new record in 2009 with 62 of these participants not only registering but also submitting results to at least one of the tasks. The ImageCLEF 2009 workshop hosted a large poster session for visual retrieval that fostered many lively discussions among the participants. With six tasks, there were also more tasks than ever before and this variety of tasks and collections led several participants to concentrate only on one or two of the available tasks. In the following subsections, the tasks are described in more detail.

Photographic Image Retrieval

In 2008 and 2009 the goal of the photographic retrieval task was to promote diversity in retrieval results; therefore, besides precision, the so-called cluster recall was also measured, where images regarded as relevant to a query were clustered into groups, each group representing a different aspect of the query topic, and retrieval systems had to represent a maximum number of these clusters in the first 20 results.

In 2009, a new collection of about 500,000 images was made available to the participants by the Belga news agency. This in itself is a challenge for many image retrieval systems but also meant that a realistic size has been reached. (See [2]).

Photographic Image Annotation

The photographic annotation task, new for 2009, used a small ontology for the annotation of images containing a hierarchy of 53 topics. 5,000 images of a Flickr collection were distributed as training data and 13,000 as test data (Figure 1). (See [3]).

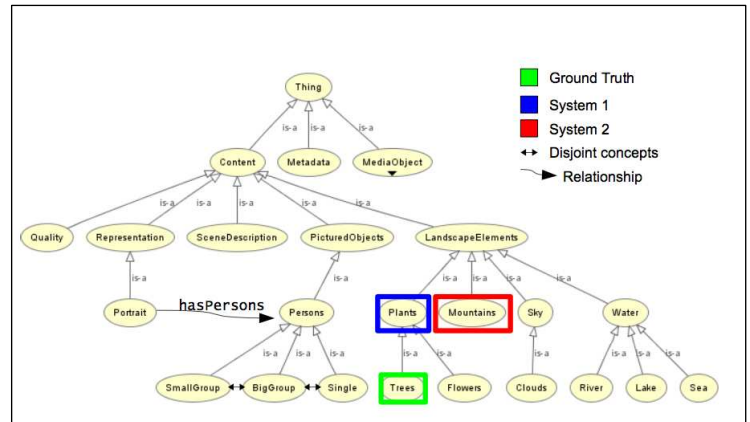


Figure 1: Part of the hierarchy of the ontology and their relations.

Wikipedia Image Retrieval

The Wikipedia image retrieval task distributed a collection of 150,000 images uploaded by Wikipedia users. The textual descriptions of the images in English were also distributed. Topics contained at least one image and a short query text. Topic generation, as well as the assessment for the creation of ground truth, were partly done collaboratively with the participants of the task. (See [4]).

Robot Vision Task

The robot vision task was also new in 2009. The goal of the task was to learn places where a robot had taken pictures and then re-identify the place later when the robot passed again. The challenges include changes in lighting and the placement of the furniture and small modifications, for example people being temporarily in the room (Figure 2). (See [5]).

(Continued on page 5)

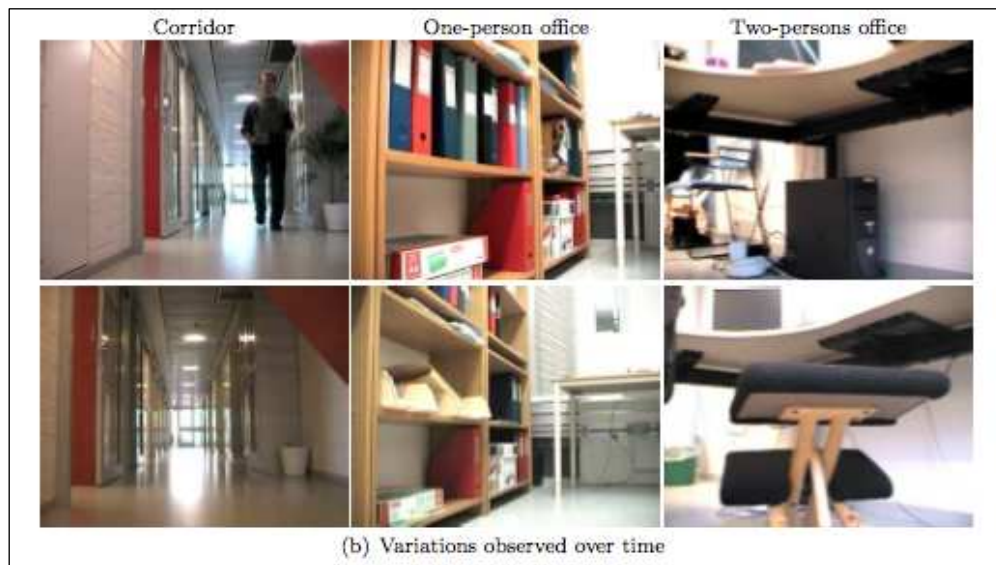


Figure 2: Example images used for the robot vision task.

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Medical Image Retrieval

In the medical image retrieval task, a larger database of images and texts of medical articles containing 85,000 images were made available to participants. Textual techniques clearly outperformed visual techniques. A new task of case-based retrieval was introduced with 5 example topics. In this task, a medical case including anamnesis, clinical data, images and a description of problems but no diagnosis were given to participants who had to find articles in the literature dealing with similar cases. The goal of this task was to bring the retrieval of medical images closer to clinical routine. (See [6]).

Medical Image Annotation

In the medical image annotation task, the classes and evaluation measures of the past four years of the task were distributed to participants along with new test data. Groups were then expected to score the data of each year, also to show improvements compared to the earlier years of the medical image annotation task. (See [7]).

A second medical image annotation task focused on the detection and classification of lung nodules from 3D data sets in the medical DICOM format (Digital Imaging and Communication in Medicine). This task is

detailed in [6].

CLEF 2010 and ImageCLEF 2010

For the past ten years, CLEF has been organized as a workshop at the European Conference on Digital Libraries (ECDL). As CLEF has grown in size (with over 250 participants), the decision was made to establish CLEF as an independent entity with a clear conference structure that would give more room for the tasks presented and that would give researchers the possibility to present scientific work. The next CLEF conference will thus be held over four days in Padova in 2010 (www.clef2010.org/). Two days will be dedicated to scientific discussions around evaluation in information retrieval with a focus on multilingual and multimedia issues. Two days will then be dedicated to labs, meaning the former CLEF evaluation tasks.

NOTE:

Registration for ImageCLEF 2010 is possible from the registration website

medgift.unige.ch:8080/CLEF2010/

It is also possible to submit scientific papers on evaluation topics to the main CLEF2010 conference

clef2010.org/

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This new structure also has an influence on ImageCLEF: fewer tasks and increased aspects of multilinguality and language-independence. The *Wikipedia retrieval task* will be made multilingual by adding descriptions in several languages. It will also become larger by crawling a new collection of Wikipedia images and have a stronger focus on imaging data and visual queries. The *image annotation task* will again be held using a FlickrR database with the 2009 data to be used as training data for the task. The *robot vision task* will require detection of objects in the robot images as well, which links this task closer to the photo annotation task. Finding the place of a picture will still remain one of the goals of the task. For the *medical retrieval task*, it is again planned to increase the size of the collection distributed to the participants, potentially including a larger number of different journals as well. Another major goal is to move the topics closer to clinical routine by having more case-based topics, i.e., topics where a medical case with several images is given without diagnosis and where articles treating similar cases need to be found from the literature using text and visual information.

Conclusions

ImageCLEF has become a popular platform for image retrieval evaluation that gives researchers the opportunity to discuss their techniques and compare performance on the same data sets and in the exact same framework. With the change of the CLEF format in 2010, we hope to create an even larger forum on visual information retrieval evaluation. We hope that this article will motivate researchers to participate in the benchmark so as to bring together as many state-of-art techniques in the field as possible and compare their performance on the same data and the same tasks in order to advance visual information retrieval.

References:

- [1] Henning Müller, Paul Clough, The ImageCLEF Benchmark on Multimodal, Multilingual Visual Images, IAPR newsletter volume 28 number 2, April 2006.
- [2] Monica Lestari Paramita, Mark Sanderson, Paul Clough, Diversity in Photo Retrieval: Overview of the Image-CLEFPhoto Task 2009, CLEF 2009 working notes, Corfu, Greece, 2009.
- [3] Stefanie Nowak, Peter Dunker, Overview of the CLEF 2009 Large Scale - Visual Concept Detection and Annotation Task, CLEF 2009 working notes, Corfu, Greece, 2009.
- [4] Theodora Tsirikia, Jana Kludas, Overview of the WikipediaMM Task at ImageCLEF 2009, CLEF 2009 working notes, Corfu, Greece, 2009.
- [5] Barbara Caputo, Andrzej Pronobis, Patric Jensfelt, Overview of the CLEF 2009 Robot Vision Track, CLEF 2009 working notes, Corfu, Greece, 2009.
- [6] Henning Müller, Jayashree Kalpathy-Cramer, Ivan Egel, Steven Bedrick, Saïd Radhouani, Brian Bakke, Charles E. Kahn Jr., William Hersh, Overview of the CLEF 2009 Medical Image Retrieval Track, CLEF 2009 working notes, Corfu, Greece, 2009.
- [7] Tatiana Tommasi, Barbara Caputo, Petra Welter, Mark Oliver Güld and Thomas M. Deserno, Overview of the CLEF 2009 Medical Image Annotation Track, CLEF 2009 working notes, Corfu, Greece, 2009.

Other articles in the Global Pattern Recognition Series:

- Fraunhofer IGD
Oct '09 [\[html\]](#) [\[pdf\]](#)
- India's Center for Soft Computing Research
Apr '08 [\[html\]](#) [\[pdf\]](#)
- German Research Center for Artificial Intelligence
Oct '07 [\[html\]](#) [\[pdf\]](#)
- China's Laboratory of Pattern Recognition
Jul '07 [\[html\]](#) [\[pdf\]](#)
- Pattern Recognition in Two National Laboratories
Jan 06 [\[html\]](#) [\[pdf\]](#)

Getting to Know...

Nalini K. Ratha, IAPR Fellow



Biometrics: The key to the gates of a secure and modern paradise

by [Nalini K. Ratha](#), IAPR Fellow (USA)

With a security-conscious society, old methods of human identification applicable in a small, closed, and static community are not easy to extend to large and mobile communities. New technologies and practices have to be adopted. The science of automatically identifying people based on their physiological and behavioral characteristics is known as biometrics. Biometrics is an emerging technology with more potential to revolutionize modern human identification needs than any other security related technology can provide. Biometrics systems are inherently pattern recognition systems that need to make decisions about whether the newly acquired signal matches a known and previously enrolled template. For centuries, several methods of human identification have been used though often for socially negative applications. For example, anthropometric measurements were used to identify prisoners using the Bertillon system; and fingerprints were used as a non-repudiable signature for business transactions [1]. Most of these applications were innovative and seem to have been invented primarily to serve forensic/law enforcement needs. Coupled with this is the perception that these methods need to be applied to criminals mostly. And the media often portrays quite unrealistic and scary uses of biometrics as well. Such negative connotations and very high expectations in the users' mind continue to plague the use of biometrics for other positive applications.

Nevertheless, biometrics continues to gain acceptance in many areas as only it can provide the ultimate non-repudiation technology. The top six

biometrics modalities are fingerprints, face, iris, hand geometry, speaker recognition, and dynamic signature recognition. Semi-automated methods of handling biometrics signals have existed for more

Nalini K. Ratha is a Research Staff Member at the IBM Thomas J. Watson Research Center, Yorktown Heights, New York where he leads the biometrics research effort in the area of enhancing security of biometrics systems and performance evaluation of biometrics systems. He has published more than 80 papers in peer-reviewed journals and conferences, been issued 12 patents, co-edited two books, co-authored a text book, and served on the editorial board of several journals. He has been associated with several leading biometrics conferences. He has received several patent awards, a "Research Division" award, and an "Outstanding Technical Innovation Award" at IBM. He has been an adjunct professor at Cooper Union and NYU-Poly for the past several years.

Dr. Ratha received his Ph. D. from the Department of Computer Science at Michigan State University (USA) and his B.Tech in Electrical Engineering and M. Tech in Computer science and Engineering from the Indian Institute of Technology, Kanpur (India). He is a **Fellow of IEEE, Fellow of IAPR, and Senior Member of ACM**. Currently, he serves on the editorial board of IEEE Transactions on Pattern Analysis and Machine Intelligence and IEEE Transactions on Systems, Man and Cybernetics- Part B. His current research interests include biometrics, computer vision, pattern recognition, and special purpose architecture for computer vision systems.

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than half a century. Fully automatic methods for non-forensic applications have come into use more recently. Examples include a border crossing application at airport access control points that uses iris recognition and computer or PDA access systems that use fingerprints. With the advent of smaller and more efficient devices resulting from advances in scanning/acquisition technology and faster and cheaper computing power, new developments in reliable algorithms for handling biometrics signals have positively contributed to wide spread use of biometrics today. The unfortunate incident of September 11, 2001, has made the jobs of most governments harder, as they need to be able to identify their citizens accurately. This has significantly raised the need for biometrics.

While biographical information such as name, date of birth, address and names of parents can be used for identification, relying purely on those pieces of information cannot lead to a trusted system. Biometrics is a handy tool to provide the badly needed trust in such systems. Many countries are now rolling out citizen ID cards, voter ID cards, e-passports and other government approved documents to associate their citizens with an identity. Identity management issues in such systems are highly challenging. For example, a key requirement in a citizen ID card system is that a citizen should be enrolled only once and no duplicates should exist in the system [2]. Using biometrics to catch duplicates during enrollment is an extremely challenging task as the number of records in such systems can be on the order of hundreds of millions. With the inherent errors associated with any biometrics in terms of false accept and false reject rates, there is a great research challenge facing the pattern recognition community. Yet another law-enforcement use of biometrics is in the area of watchlist matching. For ordinary citizens to be safe, governments need to look for bad guys who appear on watchlists. The most trusted way of identifying

someone with high confidence is through the use of biometrics. Even here, the issue of the underlying errors associated with a biometric comes into the picture.

Often it is proposed that more than one biometrics modality should be used to improve the coverage as well as the accuracy of identification. This is a great research problem as an optimal solution in this space can be an extremely valuable tool in the hands of the governments. In most of these large scale identification applications, there are many “systems” types of challenges, for instance, meeting the daily throughput rate can involve significant hardware and cost. In order to cope with the dynamic load patterns, cloud computing types of approaches can be adopted, but issues related to data security can impede the adoption of clouds.

While many novel biometrics modalities are being developed [3], there are many security challenges that biometrics subsystems raise. These can leave additional security holes if not handled properly. For example, the input acquisition system needs to be able to detect fake latex fingerprints or fake designer contact lenses in the eye. As large biometrics systems are deployed, new creative attacks on biometrics systems will be invented. We have proposed a pattern recognition based model to analyze the threats to such systems [4, 5].

In addition to security there is also a privacy issue that needs to be addressed [5]. Biometrics are kinds of “non revocable” passwords that are tightly linked to the individual. The features used by automated systems can be hacked, or guessed using brute force methods. If a large database of biometrics is compromised, a large number enrollees can be rendered helpless. The other downside of biometrics is that when a biometric is collected, it can be used for

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other applications without the knowledge of the individuals, particularly to find their “life history” from other databases. For example, a health care provider may choose to set the charges for a service based on knowledge of the financial status of the patient by simply using the biometrics it collected to validate the patient’s identity. In order to prevent this type of privacy violation, we have proposed a cancelable biometrics technology [6] that makes such applications virtually impossible by suitably protecting the users’ interests. This area of biometrics research is still in its infancy.

Many other challenges exist in building a scalable, trusted, efficient, large scale biometrics recognition system. Ageing studies are an important part of biometrics systems. An intelligent system that can use ageing models to build a face after years of enrollment can be used to improve the biometrics recognition performance [7]. Efficient separation of intra-class variation from the inter-class variations is the key challenge in a biometrics system. Biometrics systems derive benefits from advances made in core technologies such as computer vision, pattern recognition, image processing, machine learning, statistics, and sensing technologies.

The dream for biometrics technology is to replace the existing authentication technologies from mobile commerce to border crossing control as the trusted key to the modern secure paradise where there is no identity theft and no need to carry a bagful of tokens and cards to execute needed transactions. Biometrics can revolutionize the modern world with all the trust needed to build this secure paradise.

References:

- [1]. History of fingerprints; www.onin.com/fp/fphistory.html
- [2]. R. Bolle, J. Connell, S. Pankanti, N. Ratha and A. Senior, Guide to Biometrics, ISBN: 0387400893, Springer, October 2003.
- [3]. N. Ratha and V. Govindaraju (Eds), “Advances in Biometrics”, ISBN: 978-1846289200, Springer, October, 2007.
- [4]. N. K. Ratha, J. H. Connell and R. M. Bolle, “Biometrics break-ins and band aids”, Pattern Recognition Letters, Vol. 24, No. 13, pp. 2105-2113, Sept. 2003.
- [5]. N. K. Ratha, J. H. Connell and R. M. Bolle, “Enhancing security and privacy in biometrics-based authentication systems”, IBM Systems Journal, Vol. 40, No. 3, pp. 614-634, Sep. 2001.
- [6] N. K. Ratha, S. Chikkerur, J. H. Connell and R. M. Bolle, “Generating cancelable fingerprint templates”, IEEE Trans. on PAMI, Vol. 29, No. 4, pp. 561—572, April 2007.
- [7] www.biometrics.gov/Documents/biochallengedoc.pdf

Other articles in the Getting to Know...Series:

Recognition of Human Activities: A Grand Challenge by J.K. Aggarwal
October 2009 [\[html\]](#) [\[pdf\]](#)

Series

Pattern Recognition in the Media: Language



by Linda J. O'Gorman (USA)

Linda O'Gorman has served as IAPR Secretariat and Layout Editor for the IAPR Newsletter since 2004. This is the first article in her series devoted to pattern recognition topics appearing in the popular media.

~[Alexandra Branzan Albu, ed.](#)

Have you ever had this experience? You come upon a word that you had never seen before. You look up its definition. Then, you see and hear this word (that you had *never* seen before) everywhere!

For me, my “new words” are the research disciplines of interest to IAPR. Since I began working for IAPR in 2004, I have increasingly noticed news items and products related to pattern recognition and associated disciplines. In this article, I will touch on three examples of natural language pattern recognition that I came upon in news magazines and on the radio.

The Origins of Human Laughter

When my daughters were young, I remember taking them to the Bronx Zoo and seeing a baby ape wearing a diaper and walking around just like any other toddler. I can also picture many images of laughing chimpanzees, slapping their heads and doubling over in what I thought of as very human ways. More accurately, it seems, human laughter should be viewed as having evolved from our nonhuman primate

ancestry.

Through acoustic and phylogenetic analyses of tickling-induced vocalizations, [Dr. Marina Davila-Ross](#) (University of Portsmouth, U.K., and University of Veterinary Medicine Hannover, Germany), [Dr. Michael J. Owren](#) (Georgia State University, USA), and [Prof. Dr. Elke Zimmermann](#) (University of Veterinary Medicine Hannover, Germany) present strong evidence that human laughter is part of an evolutionary chain dating back more than 16 million years.

The Language of a Baby's Cry

Unlike the research on the roots of human laughter discussed above, this research on the language of a baby's cry only takes us as far back as the womb.

Birgit Mampe (University of Würzburg, Germany), [Prof. Dr. Angela D. Friederici](#) (Max-Planck-Institute for Human Cognitive and Brain Sciences, Leipzig, Germany), [Dr. Anne Christophe](#) (Laboratoire de Sciences Cognitives et Psycholinguistiques at the Ecole Normale Supérieure, Paris, France), and Prof. Dr. Kathleen Wermke (Lead Researcher, University of Würzburg, Germany) compared cries of French and German newborns. The melody contour and

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intonation of the cries mimicked that of the mother tongues, showing that show that language process is involved.

The Message in Your Dog's Bark

I can appreciate the importance of newborns communicating with their caregivers in their native tongues. And, handheld language translators have been helping tourists and students for years. Now there is similar help for pet owners: a spoken "translation" of their dog's bark.

The Bowlingual was invented in 2002 by Keita Satoh (then President of Takara Toys, Japan), Dr. Matsumi Suzuki (Japanese Acoustic Lab), and Dr. Norio Kogure (Kogure Veterinary Hospital). They analyzed dog voiceprints and categorized them into six emotions: happy, sad, frustrated, on guard, assertive, and needy. The database they created enabled them to match the voiceprint of a new bark and attribute the corresponding emotion. The Bowlingual consists of a transmitter that is worn on the dog's collar and a handheld receiver that is carried by the owner. When a bark is transmitted it is matched to the stored database of bark characteristics and the translation is displayed on the handheld receiver.

In 2009, the Bowlingual Voice (Bowlingual Version 2) was released. Instead of just displaying the dog's message, this version will speak it—in a Japanese woman's voice only, at present.

For more information:

The Origins of Human Laughter

Marina Davila Ross, Michael J Owren, Elke Zimmermann, "[Reconstructing the Evolution of Laughter in Great Apes and Humans.](#)" *Current Biology* - 14 July 2009 (Volume 19, Issue 13, pp. 1106-1111)

Article Addendum:

Marina Davila Ross, Michael J Owren, and Elke Zimmermann, "[The evolution of laughter in great apes and humans.](#)" *Communicative & Integrative Biology* – March/April (Volume 3, Issue 2)

The Language of a Baby's Cry

Birgit Mampe, Angela D. Friederici, Anne Christophe, Kathleen Wermke, "[Newborns' Cry Melody Is Shaped by Their Native Language.](#)" *Current Biology* - 15 December 2009 (Volume 19, Issue 23, pp. 1994-1997)

The Message in Your Dog's Bark

The Bowlingual was one of [Time Magazine's Best Inventions of 2002.](#)

Sources:

The Origins of Human Laughter
[The Week Magazine](#), June 26, 2009

The Language of a Baby's Cry
[The Week Magazine](#), November 27, 2009

The Message in Your Dog's Bark
National Public Radio, "[Wait, wait, don't tell me: the oddly informative news quiz](#)", July 25, 2009



News from the **IAPR EXECUTIVE COMMITTEE**

By [Denis Laurendeau](#) (Canada)

The IAPR ExCo would first like to wish an excellent Year 2010 to the IAPR Community. Speaking of 2010, it is worth bringing to your mind that it is an ICPR year...and a very important one since it will mark the 20th anniversary of IAPR's major event. For those who would like to learn more about IAPR's history and the ICPR, let me inform you that the excellent document that was prepared by Prof. Herbert Freeman on the history of the IAPR is now available on the IAPR's website (www.iapr.org/docs/IAPR-History.pdf). Our sincere thanks go to Prof. Freeman who has produced this milestone document on the IAPR.

Going back to ICPR 2010, the Organizing Committee is working very hard on preparing the conference. It is important to mention that the deadline for paper submission has been extended to January 25, 2010. Please visit the ICPR 2010 website for updates on the conference (www.icpr2010.org/).

The nomination process of IAPR officers for 2010-2012 (president, 1st vice-president, 2nd vice-president, treasurer, secretary) has been completed by the Nominating Committee and the committee Chair, Karl Tombre. The list of candidates recommended by the Nominating Committee will be circulated to Governing Board (GB) members in January. It is important to mention that, according to the Bylaws, "Following the publication of the list of nominees [recommended by the Nominating Committee], members of the Governing Board may make further nominations by sending to the President the name of the candidate, written consent from the candidate and a curriculum vitae as before, together with a seconding letter from another member of the Governing Board. These nominations must reach the President no later than three months before the date set for the Election of Officers. Details of these further nominations will be distributed to the Governing Board prior to the Election." A period will thus be open during which Brian Lovell, the IAPR President, can receive additional nominations until May 24, 2010.

INSIDE the IAPR: Membership Committee

A HISTORY OF PREMIA, THE IAPR MEMBER SOCIETY FROM SINGAPORE



By [Chew Lim Tan](#) (Singapore)

IAPR Governing Board Representative from PREMIA and Chair of the IAPR Membership Committee

Professor Tan uses his own experience to discuss the process of becoming an IAPR Member Society.

~[Alexandra Branzan Albu, ed.](#)

The Pattern Recognition and Machine Intelligence Association (PREMIA) is the IAPR member society from Singapore. The formation of PREMIA can be traced back to the year 2002. In August of that year, during ICPR 2002 in Quebec City, Canada, Prof. Rangachar Kasturi, then IAPR President approached Prof. Chew Lim Tan from the National University of Singapore, inviting him to form an IAPR society in Singapore. Prof. Kasturi felt that there should be a sufficient number of researchers in the area of pattern recognition in Singapore to form such a society. Prof. Tan agreed to explore the possibility. During the conference, Prof. Tan also asked several conference delegates from other countries about their experience in forming their national IAPR societies. In December 2002, Prof. Sergey Ablameyko, then Chairman of the IAPR Membership Committee, contacted via email a few people in Singapore, including Prof. Tan,

suggesting the formation of a national society in Singapore. Prof. Kasturi also later clarified some doubts that Prof. Tan raised in his email reply to Prof. Ablameyko.

In the ensuing months, Prof. Tan held discussions with several colleagues and contacts in the National University of Singapore and Nanyang Technological University. They were quite positive towards the formation of an IAPR society. Further meetings were held, and a draft constitution was worked out. Meanwhile, more researchers from the two universities as well as several research institutes and the industry were also contacted. The feedback was quite encouraging. After some deliberation, we decided to name the society the Pattern Recognition and Machine Intelligence Association with the acronym PREMIA.

PREMIA aims to provide a forum for scientists and engineers in Singapore who are interested in pattern recognition and machine intelligence research.

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Specifically, the topics of research interest include computer vision, image processing, speech analysis, robotics, multimedia, document analysis, character recognition, knowledge engineering, fractal analysis and intelligent control, statistical techniques, neural networks, evolutionary programming, fuzzy logic, machine learning, and hardware implementation. Furthermore, PREMIA is to be affiliated with IAPR so as to provide a link for our local researchers to the international community.

The following were the founding members of PREMIA as members of the Pro Tem Committee set up in November 2003: President Chew Lim Tan (National University of Singapore), Vice-President Charles Graham Leedham (Nanyang Technological University), Treasurer Terence Sim (National University of Singapore), Secretary Teck Khim Ng (National University of Singapore), and Committee Members Kai Kuang Ma (Nanyang Technological University), Daming Shi (Nanyang Technological University), and Ji He (National University of Singapore).

In February 2004, PREMIA was officially registered with the Registrar of Societies, Singapore. In April 2004, PREMIA was admitted as a member of IAPR. Since then, PREMIA has actively organized events such as seminars, short courses, annual members' nights, best student paper awards, student travel grants for attending ICPR, sponsorship of international conferences held in Singapore, etc. Our current and past activities can be found on our website at www.premia-sg.org.

How a National Pattern Recognition Society becomes an IAPR Member Society

The membership process begins with conversations. In some cases, researchers in national pattern recognition societies get together and approach IAPR. In other cases, as with PREMIA, IAPR Executives or committee members approach researchers to suggest that they form an IAPR member society in their country.

The national pattern recognition society submits its constitution and membership application to the IAPR Membership Committee for review.

The Membership Committee makes a recommendation to the IAPR Governing Board.

**See the
IAPR Bylaws
for a full
discussion of
Membership**

BOOKSBOOKSBOOKS

Book reviews previously published in the IAPR Newsletter

Handbook of Texture Analysis by Majid Mirmehdi, Xianghua Xie, and Jasjit Suri, editors (reviewed in this issue)

Markov Random Field Modeling in Image Analysis By Stan Z. Li (reviewed in this issue)

Pattern Recognition and Neural Networks by B.D. Ripley Apr '09

Close Range Photogrammetry: Principles, Methods, and Applications by Luhmann, Robson, Kyle, and Harley, Oct '08

Classification and Learning Using Genetic Algorithms: Applications in Bioinformatics and Web Intelligence by Bandyopadhyay and Pal, Oct '08

Learning Theory: An Approximation Theory Viewpoint by Cucker and Zhou, Oct '08

Character Recognition Systems—A Guide for Students and Practitioners by Cheriet, Kharma, Liu, and Suen, Oct '08

Geometry of Locally Finite Spaces by Kovalevsky, Oct '08

Machine Learning in Document Analysis and Recognition by Marinai and Fujisawa (Editors), Oct '08

From Gestalt Theory to Image Analysis—A Probabilistic Approach by Desolneux, Moisan, and Morel, Oct '08

Numerical Recipes: The art of scientific computing, 3rd ed. by Press, Teukolsky, Vetterling and Flannery, Jul '08

Feature Extraction and Image Processing, 2nd ed. by Nixon and Aguado, Jul '08

Digital Watermarking and Steganography: Fundamentals and Techniques by Shih, Jul '08

Springer Handbook of Speech Processing by Benesty, Sondhi, and Huang, eds., Jul '08

Digital Image Processing: An Algorithmic Introduction Using Java by Burger and Burge, Jul '08

Bézier and Splines in Image Processing and Machine Vision by Biswas and Lovell, Jul '08

Practical Algorithms for Image Analysis, 2 ed. by O'Gorman, Sammon and Seul, Apr '08

The Dissimilarity Representation for Pattern Recognition: Foundations and Applications by Pekalska and Duin, Apr '08

Handbook of Biometrics by Jain, Flynn, and Ross (Editors), Apr '08

Advances in Biometrics – Sensors, Algorithms, and Systems by Ratha and Govindaraju, (Editors), Apr '08

Dynamic Vision for Perception and Control of Motion by Dickmanns, Jan '08

Bioinformatics by Polanski and Kimmel, Jan '08

Introduction to clustering large and high-dimensional data by Kogan, Jan '08

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(Continued from page 15)

The Text Mining Handbook by Feldman and Sanger, Jan '08

Information Theory, Inference, and Learning Algorithms by Makay, Jan '08

Geometric Tomography by Gardner, Oct '07

"Foundations and Trends in Computer Graphics and Vision" Curless, Van Gool, and Szeliski., Editors, Oct '07

Applied Combinatorics on Words by M. Lothaire, Jul '07

Human Identification Based on Gait by Nixon, Tan and Chellappar, Apr '07

Mathematics of Digital Images by Stuart Hogan, Apr '07

Advances in Image and Video Segmentation Zhang, Editor, Jan '07

Graph-Theoretic Techniques for Web Content Mining by Schenker, Bunke, Last and Kandel, Jan '07

Handbook of Mathematical Models in Computer Vision by Paragios, Chen, and Faugeras (Editors), Oct '06

The Geometry of Information Retrieval by van Rijsbergen, Oct '06

Biometric Inverse Problems by Yanushkevich, Stoica, Shmerko and Popel, Oct '06

Correlation Pattern Recognition by Kumar, Mahalanobis, and Juday, Jul. '06

Pattern Recognition 3rd Edition by Theodoridis and Koutroumbas, Apr. '06

Dictionary of Computer Vision and Image Processing by R.B. Fisher, et. Al, Jan. '06

Kernel Methods for Pattern Analysis by Shawe-Taylor and Cristianini, Oct. '05

Machine Vision Books Jul. '05

CVonline: an overview, Apr. '05

The Guide to Biometrics by Bolle, et al, Jan. '05

Pattern Recognition Books, Jul. '04

3rd Workshop on Analytics for Noisy Unstructured Text Data

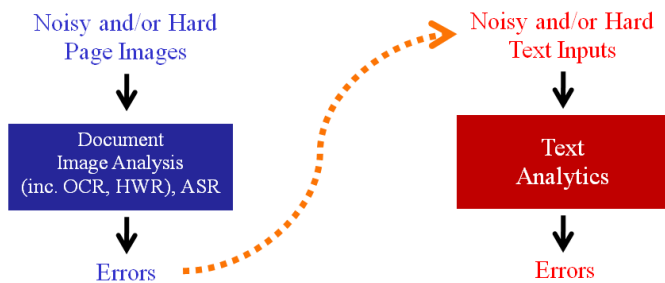
Held in conjunction with ICDAR 2009 (see report in the *IAPR Newsletter*, October 2009)

23-24 July 2009
Barcelona, Spain

Organizing Committee:

[Daniel Lopresti](#), (USA)
[Shourya Roy](#) (India)
[Klaus U. Schulz](#) (Germany)
[L. Venkata Subramaniam](#) (India)

Report prepared by [Shourya Roy](#) (India)



Noisy unstructured text data is ubiquitous in real-world communications. Text produced by processing signals intended for human use such as printed/handwritten documents, spontaneous speech, and camera-captured scene images, are prime examples. Application of Automatic Speech Recognition (ASR) systems on telephonic conversations between call center agents and customers often see 30-40% word error rates. Optical Character Recognition (OCR) error rates for hardcopy documents can range widely from 2-3% for clean inputs to 50% or higher depending on the quality of the page image, the complexity of the layout, aspects of the typography, etc.

Recognition errors are not the sole source of noise; natural language and its creative usage can create problems for computational techniques. Electronic

text from the Internet (emails, message boards, newsgroups, blogs, wikis, chat logs and web pages), contact centers (customer complaints, emails, call transcriptions, message summaries), mobile phones (text messages), etc., are often highly noisy and not ready for straight-forward electronic processing. They contain spelling errors, abbreviations, non-standard words, false starts, repetitions, missing punctuation, missing case information, and pause-filling words such as “um” and “uh” in the case of spoken conversations. To raise and address some of those issues, the AND series of workshops were initiated in January 2007. Since then, the AND community has been active in area of noisy text analytics.

AND 2009 was, for the first time, a one-and-a-half day workshop. The first two editions were one-day workshops held in conjunction with International Joint Conference on Artificial Intelligence (IJCAI) in 2007 at Hyderabad, India and ACM SIGIR Conference in 2008 at Singapore. Like the first two editions, the third was very successful and was attended by over 25 researchers from various international academic institutions and business organizations.

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The workshop began with a welcome note from Dan Lopresti. Dan talked about the uniqueness of this forum and the workshop and how it brings together two different but related communities doing “Document Image Analysis” and “Text Analytics.” This was followed by the first keynote of the workshop by Hildelies Balk, Programme Manager, IMPACT, European Union project for mass digitization of printed European culture. Hildelies has worked in the field of cultural heritage for over 20 years as a researcher and manager and presently she is serving as the coordinator for project IMPACT. She delivered an extremely interesting talk titled [“Poor Access To Digitised Historical Texts: The Solutions of the IMPACT Project.”](#) where she talked about, in detail, various technical issues pertaining to digitization of historical text owing to reasons such as historic fonts, complex layouts, ink bleed-through, and historical spelling variants. She also gave a comprehensive overview of different initiatives under which possible solutions are currently being developed by the IMPACT project.

The first paper of the workshop was aptly a survey paper titled “A Survey of Types of Text Noise and Techniques to Handle Noisy Text” discussing different types and sources of noise as well as measures traditionally used to measure noise. This paper was presented by Shourya Roy from Xerox India Innovation Hub. “Using Domain Knowledge for Ontology-Guided Entity Extraction from Noisy, Unstructured Text Data”, presented by Sergey Bratus and Anna Rumshisky, talked about the problem of information extraction from noisy text using ontologies and HMM. The third paper was presented by Lipika Dey from TCS Innovation Labs and talked about effects of noise in text mining applications such as opinion mining from web data sources. In the last paper of the session, Krishna Subramaniam from BBN Technologies presented his work titled “Robust Named Entity Detection Using an Arabic Offline Handwriting Recognition System.”

Session II started with an interesting single-author paper by Martin Reynaert towards handling of typographical variation or spelling errors in noisy text collection using a new approach based on anagram hashing. The AND series of workshops has been successful in not only bringing together researchers working in related areas but also bringing up new types of data for further research. The next paper was about a new domain and new type of data – “criminal investigation data.” Cristina Giannone presented work towards information extraction from such data using kernel-based techniques. This paper won the IAPR Best Student Paper Award. Following this was a presentation by Daniel Lopresti on an intriguing idea towards “Tools for Monitoring, Visualizing, and Refining Collections of Noisy Documents.” This was work-in-progress where he talked about their research towards developing tools to help users view and understand the results of common document analysis procedures and the errors that might arise.

The final session of the day was on focused on historical text. It began with a talk by Annette Gotscharek from the University of Munich on “Enabling Information Retrieval on Historical Document Collections – the Role of Matching Procedures and Special Lexica.” This work was a part of the IMPACT project and hence was strongly connected to one of the initiatives Hildelies had mentioned in the morning. This was followed by another paper on accessing information from historical text by Simone Marinai. Simone talked about an approach to index and retrieve text from early printed documents. They tested their technique on the well-known Gutenberg Bible. The last two papers, titled “A Comprehensive Evaluation Methodology for Noisy Historical Document Recognition Techniques” (presented by Nikolaos Stamatopoulos) and “Accessing the Content of Greek Historical Documents” (by Anastasios Kesidis) were interesting and thought-provoking for researchers who have been working in the area of historical text.

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Like the second edition of the workshop, working group sessions were organized in AND 2009. Just before the commencement of the final session Dan Lopresti explained the purpose of the working groups, the logistics as well as some potential ideas. At the end of the day, the participants met and brainstormed to discuss the topic as well as formation of the actual groups. The topics identified were “Noisy Databases” and “Linguistic Analysis of Noisy Text Data.” The “Noisy Databases” working group discussed different types of databases viz. image-oriented and text-oriented, for analysis of noisy data. The other working group looked at the issue and importance of linguistic analysis of noisy text data. The discussion outcomes are presently being written up by volunteers who participated in the working groups and are targeted to be included in a special issue of the [International Journal of Document Analysis and Recognition IJDAR](#).

The second day of the workshop started with an interesting and relevant keynote talk on “[Handwritten Document Retrieval Strategies](#),” by Venu Govindaraju, Distinguished Professor of Computer Science and Engineering, The State University of New York, Buffalo. This was extremely informative for researchers who have worked in the field as well as for people who are beginning to consider such problem areas. Venu talked in detail about the importance of retrieval from handwritten documents, challenges, and various techniques to handle the same. He shared his invaluable experiences from real life engagements with organizations such as the U.S. Postal Service.

The final session of the workshop had four interesting papers. The first one, “Edge Noise in Document Images,” presented by Elisa Barney Smith, proposed a new measure “Noise Spread” for quantifying edge noise in image degradations produced by desktop scanning. Nazih Ouwayed discussed the problem of the skew angle estimation of noisy handwritten Arabic documents using the energy distributions of Cohen’s

class. The paper titled “Digital Weight Watching: Reconstruction of Scanned Documents”, presented by Tim Gielissen, was about an efficient storage mechanism for scanned images of documents. The last paper of the workshop was a short paper by Kolyo Onkov titled “Effect of OCR-Errors on the Transformation of Semi-Structured Text Data Into Relational Database.”

Overall, AND 2009 was an interesting and valuable workshop attended by some of the leading researchers working in relevant areas.

Proceedings of the workshop are available online at:

portal.acm.org/toc.cfm?id=1568296

Selected papers from the workshop will appear in a special issue of the

[International Journal of Document Analysis and Recognition IJDAR](#)

Conference Report: [CAIP 2009](#)

13th International Conference on Computer Analysis of Images and Patterns

2-4 September
Münster, Germany

Conference Co-Chairs:

[Xiaoyi Jiang](#), IAPR Fellow (Germany)

[Nicolai Petkov](#) (The Netherlands)

Report prepared by [Klaus D. Toennies](#) (Germany)

This year's CAIP was held in beautiful Münster in Germany. It took place in the former Castle of Münster which is now part of the university. Following the tradition of the CAIP conference series, it featured three days of single-track oral and poster presentations.

The conference had a record number of more than 400 submissions of which 148 were selected for presentation in oral and poster sessions. Highlights were certainly the two [IAPR Invited Talks](#). On Tuesday, David Stork from Ricoh Innovations and Stanford University showed how Early Vision techniques are used to analyze paintings. This great talk opened technical subjects such as shape from shading to the fascinating world of understanding motivations, interests and goals of medieval and renaissance painters. Equally interesting but from a completely different perspective, Aljoscha Smolic from Disney Research, Zurich, bridged the gap between creation of computer-generated animation



and a rigorous analysis of poses and transformations. Again, this talk not only presented results from computer science research but also successfully combined

technical sciences and the arts.

The cross-disciplinary flavor was carried on in the conference itself. Presentation of novel results in fields of computer vision and image processing covered by this conference 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 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. Methodology presented at the conference covered all aspects of image-based

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pattern recognition and analysis. If a common topic of presentations as diverse as image processing and high level computer vision should be defined, then it is 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 to get together and gave participants the chance to get to know some of the long history of the city of Münster. On the first evening, we were taken on a guided tour exploring the old centre of the city. The large number of impressive churches in the city showed the influence of religion on the cultural and political life during medieval times and the renaissance. The tour ended at the more than 700-year old City Hall where in 1648 the Peace of Westphalia ended a 30-year religious war. The venue of the conference banquet on the following evening showed that Münster has a military history as well. It was held in the former "Heeresbäckerei" (army bakery) which has been turned into a site of commercial and cultural activities. After a site tour we had a delightful evening with eating, drinking and talking lasting well into the night.

This year's CAIP was a high-class event conveying a good overview on current research in Computer Vision and Pattern Recognition to all participants in a pleasant and communicative environment. The next CAIP will be held 2011 in Seville, Spain.

IAPR Invited Talks

David G. Stork presented
"Computer vision and
pattern recognition for the analysis of
paintings and drawings:
New rigorous methods complement
humanistic scholarship in the
study of fine art"

Dr. Aljoscha Smolic discussed
"3D Video and Free Viewpoint Video –
Technologies, Applications and
MPEG Standards"

Proceedings of the conference
have been published by
Springer-Verlag in
the series
Lecture Notes on
Computer Science
(Volume 5702)



15-th IAPR International Conference on Discrete Geometry for Computer Imagery

September 30-October 2, 2009
Montreal, Quebec, Canada

Co-Chairs:

Srečko Brlek (Canada)

Christophe Reutenauer (Canada)

Report prepared by Srečko Brlek (Canada) and Xavier Provençal (Canada)

The 15th edition of the International Conference on Discrete Geometry for Computer Imagery took place for the first time outside of Europe. DGCI was organized by Laboratoire de Combinatoire et d'informatique mathématique (LaCIM) of the Université du Québec à Montréal.



Discrete and Combinatorial Tools for Image Segmentation and Analysis, Discrete and Combinatorial Topology, Geometric Transforms, and Discrete Tomography.

As Discrete

Geometry is emerging as a theory from ground work in automated representation and processing of digitized objects, we invited three distinguished speakers of international renown:

- Valérie Berthé from the LIRMM (Montpellier, France) gave an account on discrete planes from the point of view of Combinatorics on words, with relation to number theory and, in particular, multidimensional continued fractions.
- Anders Kock (Emeritus, Aarhus, Denmark) whose research is mostly in category theory, contributed to the development of what is known as Synthetic

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This conference reached a large international audience as 86 registered participants attended the three day event. Among the 61 submitted papers originating from 14 different countries, the program committee selected 42 papers, scheduled for either an oral (20) or poster presentation (22). All these papers appeared in the Lecture Notes in Computer Science Series (volume number 5810), and whether a communication was orally presented or not was based on our appreciation of suitability rather than on ranking. The oral and poster session covered the topics: Models for Discrete Geometry, Discrete Shape Representation, Recognition & Analysis,

(Continued from page 22)

Differential Geometry. The ground of the theory is the fact that classical differential calculus can be lifted in algebraic geometry where the limit process does not exist: this is achieved by enriching the affine line \mathbb{R} with infinitesimals – nilpotent elements in this case – that are distinct from the infinitesimals in non-standard analysis.

– The research of Pierre Gauthier (UQAM, Montréal, Canada) is focused on mathematical modeling of climate. Modeling the atmosphere is necessary for Numerical Weather Prediction (NWP) and the theoretical background for addressing the problem is based on fluid dynamics governed by the Navier-Stokes equations, thermodynamic relationships, and numerous other processes that influence its dynamics.

Following the conference, two special issues in the journals Pattern Recognition Letters and another renowned journal (approval pending), will contain a selection of the best papers of the conference.

The social program took place at Pointe-à-Callière, the Montréal Museum of Archaeology and History. A multimedia show related the history of Montreal, from the earliest evidence of Natives' presence to the settlement of the first Europeans: French period, British period, and contemporary period. The Old Port of Montréal Corporation first began conducting digs on the Pointe-à-Callière site in 1989. The Museum officially opened on the site in 1992, to mark the city's 350th birthday. Below ground level, the participants discovered the archeological crypt showing the remains of structures erected over the centuries by masons and other trades. The way the remains are superposed in this one spot offers a sort of condensed history of Montréal:

– traces of posts from the town's wooden palisade (1684) and of the first guardhouse (1698);

– stones from the fortifications (18th century) and from the building owned by Etienne Rochbert;

– a paved street from the late 18th century, walls from the Baby-Bagg house (1767) and from the Würtele Inn (1802);

– the base of a fountain, ringed by the foundations of a low wall that enclosed Customs Square in about 1860;

– the cement base on which a monument to the first Montrealers stood in the 1940s.

The gala dinner took place in the Cabaret Lion d'Or, built in the 1930's in an intimate and warm atmosphere, serving the fine cuisine of the adjacent Petit Extra restaurant.

The next DGCI conference will be organized in Spring 2011 by the ADAGlo team of the LORIA laboratory with Isabelle Debled-Rennesson as General Chair.

**Proceedings of the
conference have been
published by
Springer-Verlag in
the series
Lecture Notes on
Computer Science
(Volume 5810)**



Conference Report: [DICTA 2009](#)

Digital Image Computing: Techniques and Applications 2009

81-3 December 2009

[Medina Grand Melbourne, Australia](#)

General Chair:

[Hao Shi](#) (Australia)

Report prepared by the General Chair



*DICTA 2009 participants
[The Hotel Windsor, Melbourne, venue for the conference dinner](#)*

DICTA is the main Australian conference on digital image processing, machine vision and related areas hosted by the [Australian Pattern Recognition Society](#). From its establishment in 1991, DICTA has been a biannual meeting. In 2008, for the first time, it became an annual conference. DICTA 2009 was its second annual conference and its eleventh meeting, and was endorsed by the [IAPR](#) and [IEEE](#) (Institute of Electrical and Electronics Engineers, Inc). It was sponsored by [DSTO](#) (Defence Science and Technology Organisation), [NICTA](#) (National ICT Australia) and [CiSRA](#) (Canon Information Systems Research Australia). In 2009, DICTA received 160 submissions. Each full paper manuscript was reviewed by at least two members of the [Review Panel](#) and more than 400 reviews were conducted. 76 papers were accepted in the DICTA2009 proceedings.

The conference attracted 120 delegates from 15 countries across 5 continents. It was officially opened

by [Prof. Ray Jarvis](#), the Director, Intelligent Robotics Research Centre (IRRC), Monash University, Australia.



Photo Source: [Robot Hall of Fame](#), School of Computer Science at Carnegie Mellon University



The DICTA2009 was addressed by four international keynote speakers. They were Professor Tat-Seng Chua (Singapore), Professor Ewert Bengtsson (Sweden), Professor Dr. Horst Bunke (IAPR Fellow, Switzerland), and Professor Michael S. Brown (Singapore). Topics included web-scale media search, biomedical image analysis, graph classification and clustering methods and computer vision.



The conference dinner was held at the Australia's Grand Victorian Hotel Windsor and Prof. Anthony Maeder from University of Western Sydney was

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invited as the Dinner Speaker and he gave a speech on "Order from Chaos".

DICTA 2009 has awarded five paper prizes. The first of these was the Best Colour paper sponsored and presented by CiSRA and awarded to Zhuhan Jiang for his paper entitled "Object Modelling in Videos via Multidimensional Features of Colours and Textures". The Best Paper Prize sponsored by the APRS and IAPR was conferred to Jamie Sherrah, Branko Ristic, and Nicholas J. Redding for their paper entitled "Evaluation of a Particle Filter to Track People for Visual Surveillance." The Best Student Paper Prize sponsored by the APRS was awarded to Andrew W. B. Smith (student) and Brian C. Lovell (IAPR President, IAPR Fellow, supervisor) for the paper "Self Occlusions and Graph Based Edge Measurement Schemes for Visual Tracking Applications." and the Best Poster Prize went to Shekhar Chandra and Imants Svalbe for their paper "A Fast Number Theoretic Finite Radon Transform". The Special Reviewer Prize sponsored by DICTA2009 was awarded to Peter Kovesi for his significant contributions to the DICTA2009 Review Process.

Proceedings of DICTA 2009
have been published with the
IEEE Computer Society
Conference Publishing Services
and are accessible online at
ieeexplore.ieee.org.

A selection of the best papers will
appear in a Special Issue of
Computer Vision Journal by the
[IET](http://www.iet.org) (Institution of Engineering
and Technology).

Prizes



*Stephen Hardy, CiSRA,
presents the CiSRA
Best Colour Paper Prize to
Zhuhan Jiang,
University of Western Sydney*



*Murk Bottema (left),
APRS President,
presents the
APRS/IAPR Best Paper Prize to
Tony Scoleri on behalf of
Jamie Sherrah, Branko Ristic,
and Nicholas J. Redding,
ISR Division, Defence Science
and Technology Organisation*



*Murk Bottema (left),
APRS President,
presents the APRS
Best Student Paper Prize to
Brian C. Lovell,
(IAPR President, IAPR Fellow)
on behalf of his student
Andrew W. B. Smith,
The University of Queensland
and
National ICT Australia (NICTA)*



*Murk Bottema (left),
APRS President,
presents the APRS
Best Poster Paper Prize to
Shekhar Chandra and
Imants Svalbe,
Monash University*



*Hao Shi,
General Chair of DICTA2009,
presents the
Special Reviewer Prize to
Peter Kovesi, The
University of Western Australia*

Register early....



ICPR 2010 is the twentieth conference of the [International Association for Pattern Recognition \(IAPR\)](#).

ICPR 2010 will be an international forum for discussions on recent advances in the fields of Computer Vision; Pattern Recognition and Machine Learning; Signal, Speech, Image and Video Processing; Biometrics and Human Computer Interaction; Multimedia and Document Analysis, Processing and Retrieval; Bioinformatics and Biomedical Applications.

ICPR 2010 will be held during August 23-26, 2010 at the [Istanbul Convention & Exhibition Centre \(ICEC\)](#), Istanbul, Turkey.



Important Upcoming Dates:

Deadline for [J.K. Aggarwal Prize Nominations](#)
February 10, 2010

Deadline for Early [Registration](#)
May 14, 2010

Call for Nominations: J.K. Aggarwal Prize

Nominations deadline:
10 February 2010

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

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 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 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 2010 prize will be presented at the

20th International Conference on Pattern Recognition (ICPR)
Istanbul, Turkey
August 23-26, 2010

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 received no later than 10 February 2010. Both completed nomination and endorsement forms 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:

Bernhard Schölkopf
Chair, J.K. Aggarwal Prize Committee
Max-Planck-Institut für biologische Kybernetik
Spemannstr. 38
D-72076 Tübingen
Germany
email: sekretariat-schoelkopf@tuebingen.mpg.de

Past recipients of the J.K. Aggarwal Prize

Professor Bernhard
Schölkopf
2006 Hong Kong

Professor Song-Chun
Zhu
2008 Tampa

Please see Professor
Aggarwal's article in
this issue of the
IAPR Newsletter.

“Recognition of
Human
Activity:
A Grand
Challenge”

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](#), IAPR Newsletter Associate Editor for Book Reviews

The following title is available to be reviewed:

Airborne and Terrestrial Laser Scanning

Vosselman and Mass

Whittles Publishing, 2010

Approx. 320 pp, liberally illustrated, full colour throughout, hardcover.

ISBN 978-1904445-87-6

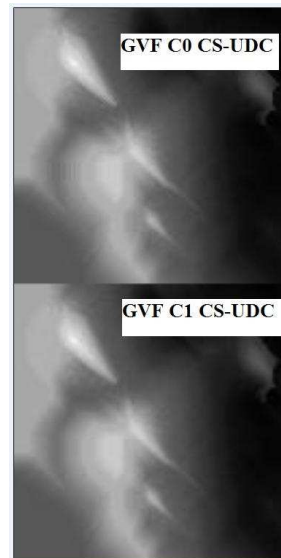
<http://moo.whittlespublishing.com/whittles/item/2472>

A Digital-Discrete Method For Smooth-Continuous Data Reconstruction

A systematic digital-discrete method for obtaining continuous functions with smoothness to a certain order (C^n) from sample data is designed by Professor Li Chen in Computer Science at the University of the District of Columbia (UDC). This method is based on gradually varied functions discovered by Li Chen in 1989 and the classical difference method. This new method has been applied to real groundwater data and the results have validated the method. This method is independent from existing popular methods such as the cubic spline method and the finite element method. The new digital-discrete method has considerable advantages for a large amount of real data applications. This digital method differs from the classical discrete method that usually uses triangulations.

This method can potentially be used to obtain smooth functions such as polynomials through its derivatives $f^{(k)}$ and the solution for partial differential equations such as harmonic and other important equations.

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Li Chen's website is at www.udc.edu/prof/chen.

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.			
2010			
MCS 2010	<i>9th International Workshop on Multiple Classifier Systems</i>	Cairo, Egypt	7-9 Apr 10
ANNPR 2010	<i>4th International Workshop on Artificial Neural Networks in Pattern Recognition</i>	Cairo, Egypt	11-13 Apr 10
DAS 2010	<i>Ninth IAPR International Workshop on Document Analysis Systems</i>	Cambridge, MA, USA	9-11 Jun 10
ICVSS 2010*	<i>International Computer Vision Summer School</i>	Sicily	12-17 Jul 10
CIP 2010	<i>2nd International Workshop on Cognitive Information Processing</i>	Elba Island (Tuscany), Italy	14-16 Jun 10
PAR2010*	<i>Workshop on Pattern Analysis and Recognition</i>	Caen, France	28 Jun-2 Jul 10
ICISP 2010	<i>International Conference on Image and Signal Processing 2010</i>	Trois-Rivieres, Quebec, Canada	30 Jun-2 Jul 10
S+SSPR 2010	<i>Joint IAPR International Workshops on Structural and Syntactic Pattern Recognition (SSPR2010) and Statistical Techniques in Pattern Recognition (SPR2010)</i>	Cesme, Izmir, Turkey	18-20 Aug 10
ICPR 2010	<i>20th International Conference on Pattern Recognition</i>	Istanbul, Turkey	23-26 Aug 10
DAGM 2010*	<i>32nd Annual Pattern Recognition Conference of the German Association for Pattern Recognition</i>	Darmstadt, Germany	22-24 Sep 10
IIH-MSP 2010*	<i>6th International Conference on Intelligent Information Hiding and Multimedia Signal Processing</i>	Darmstadt, Germany	15-17 Oct 10
ACCV2010*	<i>10th Asian Conference on Computer Vision</i>	Queensland, New Zealand	8-12 Nov 10
IWCF 2010	<i>4th International Workshop on Computational Forensics</i>	Tokyo, Japan	11-12 Nov 10
ICFHR 2010	<i>12th International Conference on Frontiers in Handwriting Recognition</i>	Kolkata, India	16-18 Nov 10
2011			
SCIA 2011	<i>17th Scandinavian Conference on Image Analysis</i>	Ystad Saltsjöbad, Sweden	May 23-27
ICDAR 2011	<i>11th International Conference on Document Analysis and Recognition</i>	Beijing, China	18-21 Sep 11