

IAPR

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Newsletter

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From the Editor's Desk

Publish or Perish



by Arjan Kuijper

arjan.kuijper@igd.fraunhofer.de

<http://www.gris.tu-darmstadt.de/~akuijper/>

That's the name of a small tool you can download from <http://www.harzing.com/pop.htm>. When you type in a name (say, your name ☺), it generates a list of papers that are written by that author, the number citations for each paper, and links to these citing papers. You can find the same information for authors that have registered themselves on Google scholar: start, for instance at http://scholar.google.de/citations?view_op=search_authors&hl=de&mauthors=label:pattern_recognition.

"So what?" you may think. Well, for each of us this "publish or perish" adagium holds. If you're pursuing your PhD degree, your supervisor would like to see publications. Good ones, preferably! If want to stay in academia, it's important that these publications are noticed by your peers. Even better, that they are cited!

Being seen and cited is a prerequisite for basically all (senior) postdocs, assistant/associate professorships, and research grants. For this purpose

the h-index was proposed: <http://en.wikipedia.org/wiki/H-index>. Having an h-index of n implies that n papers have been cited at least n times. The higher your h-index, the better your academic chances are.

This requires two things: publications and citations. You may think that you can influence only the first one: publications. This holds only partially, though. Publishing papers at good conferences is difficult, but as many have experienced: you can have every paper published at some kind of conference (and even at several journals). The problem is that papers at such conferences are very likely not seen by your peers—or, when they are seen, not taken seriously: "at such a conference, that cannot be something relevant." On the other hand, papers at good conferences are often seen and cited.

So, how can you find these good conferences—besides the ones you may already know?

continued on page 3



CALLS for PAPERS & NOMINATIONS

For the most up-to-date information on IAPR-supported conferences, workshops and summer schools, please visit the IAPR web site: www.iapr.org/conferences/

[DGCI 2014](#)

18th IAPR International Conference on Discrete Geometry for Computer Imagery
Siena, Italy
Dates: Sep. 10-12, 2014
Deadline: Feb. 3, 2014

[ICFHR 2014](#)

14th International Conference on Frontiers in Handwriting Recognition
Crete, Greece
Dates: Sep. 1-4, 2014
Deadline: Feb. 10, 2014

[PRIB 2014](#)

9th IAPR Conference on Pattern Recognition in Bioinformatics
Stockholm, Sweden
Dates: Aug. 21-23, 2014
Deadline: Mar. 2, 2014

[J. K. Aggarwal Prize](#)

to be presented at ICPR 2014
Deadline: Apr. 12, 2014

[CIARP 2014](#)

19th Iberoamerican Congress on Pattern Recognition
Puerto Vallarta, Jalisco, México
Dates: Nov. 2-5, 2014
Deadline: May. 15, 2014

[ICISP 2014](#)

6th International Conference on Image and Signal Processing
Cherbourg, Normandy, France
Dates: Jun. 30-Jul. 2, 2014
Deadline: Feb. 8, 2014

[S+SSPR 2014](#)

Joint Workshops on Statistical Techniques in Pattern Recognition (SPR 2014) and Structural and Syntactic Pattern Recognition (SSPR 2014)
Joensuu, Finland
Dates: Aug. 20-22, 2014
Deadline: Mar. 1, 2014

[IJCB 2014](#)

International Joint Conference on Biometrics
Clearwater, Florida, USA
Dates: Sep. 29-Oct. 2, 2014
Deadline: Apr. 10, 2014

[ANNPR 2014](#)

6th IAPR TC3 International Workshop on Artificial Neural Networks in Pattern Recognition
Montreal, Quebec, Canada
Dates: Oct. 6-8, 2014
Deadline: Apr. 15, 2014

CfPs for [Workshops](#) held in conjunction with the 22nd International Conference on Pattern Recognition--
[ICPR 2014](#)
Stockholm, Sweden
Date: August 24, 2014
Deadlines listed below

[IWCF 2014](#)

6th Intl Wksp on Computational Forensics
Deadline: Mar. 14, 2014

[VAAM 2014](#)

Video Analytics for Audience Measurement in Retail and Digital Signage
Deadline: Mar. 28, 2014

[IWPRHA 2014](#)

2nd Intl Wksp on PR for Healthcare Analytics
Deadline: Apr. 1, 2014

[FFER 2014](#)

1st Intl Wksp on Face and Facial Expression Rec. from Real World Videos
Deadline: Apr. 24, 2014

[PRRS 2014](#)

8th Intl Wksp on PR in Remote Sensing
Deadline: Mar. 31, 2014

[AMMDS 2014](#)

2nd Wksp on Activity Monitoring by Multiple Distributed Sensing
Deadline: Apr. 14, 2014

[continued from page 1](#)

Nowadays, I get spammed with conference announcements on a daily basis. Many organizations exist that have “organizing conferences” as their business model. Their only aim is (or seems to be) providing a location and a website from which pdfs can be downloaded, sometimes for free, sometimes not. Quite often, it is not clear if there is a decent review process. More often, these conferences are held in the vicinity of beaches, picturesque villages, scenic towns, etc.

In Darmstadt, we have created a 4-class ranking system of conferences and journals based on acceptance rates (AR, percentage of submitted papers that are accepted) / impact factors (IF, average number of citations for a journal paper in some years), and reputation of the publisher:

Class 1: $98 < AR < 90$, $IF < .1$

Class 2: $50 < AR < 90$, $.1 < IF < 1$

Class 3: $25 < AR < 50$, $2 < IF < 1$

Class 4: $AR < 25$, $IF < 2$

Clearly, one can discuss the boundaries, but the overall message is clear: there are quality criteria and the higher the class, the better the scientific impact.

Another constraint is the reputation of the publisher. Proceedings should be available in a digital library that is indexed by a major scientific institution like

- ISI Web of Science (<http://isiknowledge.com/>),
- DBLP (<http://www.informatik.uni-trier.de/~ley/db/index.html>),
- PubMed (<http://www.ncbi.nlm.nih.gov/pubmed>), and
- Scopus (<http://www.scopus.com/>).

This holds, for instance, for proceedings that are published by

IAPR Then and Now:

"From the Editor's Desk" 30 Years Ago

From the January 1984 (Vol 7 No. 1) issue of the *IAPR Newsletter*

Dear Colleagues,

At the dawn of 1984 I cannot help but wonder how closely it will resemble Orwell's 1984. Robotics are coming, if they are not already here, and we are jointly contributing towards their realization. Intelligent workstations, expert systems, talking and seeing machines are more and more creeping into our households. Is this good or bad? The ongoing debate at almost every conference on Automation is whether Robots will create more jobs than they will take away. If the latter is going to be the case, what are we to do in our free time? Play games? How can we feel useful without actually being employed?

I believe that we are living in truly revolutionary times, and I am proud (or should I not be?) that we are contributors to this revolution. However, there are severe social consequences of this revolution (as of every revolution) which I am afraid that insufficient attention is paid to. Is it our responsibility to worry about them? Please share your thoughts with us on this or any relevant subject!

In the meantime, I wish to all of you a very successful and happy 1984!

With best wishes,

Ruzena Bajcsy

institutions with a good reputation like

- IEEE (IEEE Xplore, <http://ieeexplore.ieee.org/Xplore/home.jsp>),
- Springer (Springerlink, <http://link.springer.com/>),
- ACM (ACM Digital Library, <http://dl.acm.org/>), and
- EuroGraphics (EG Digital Library, <http://diglib.eg.org/>).

Support of a conference by these institutions is a good signal, but not always a guarantee. IEEE, for instance, refuses to incorporate the proceedings into their digital library when the “procedures followed by the technical program organizers of certain conferences were insufficient to assure compliance with IEEE's high standards for quality publications.”

On http://www.ieee.org/conferences_events/conferences/publishing/author_form.html you can find a list of identified conferences. So be careful – sentences in the call for paper stating “IEEE supported” or “submitted for indexing in IEEE Xplore”, etc. don't necessarily mean that your accepted paper will end up in this digital library.... So check previous editions and the program committee, or ask colleagues.

The aforementioned digital libraries can be viewed from most academic institutions and in the proceedings of previous editions can be found. The acceptance rates should be in the foreword section (or on the website). If you cannot find acceptance

rates, you should be careful!

These rules of thumb (the simple class system plus cautions about indexing and publishers) can guide you to find the right conference for your next paper. Make sure we can find it!

The ICPR submission deadline is already passed, but there are many [many interesting workshops located there](#). Additionally, you'll find Calls for Papers for other IAPR-supported events on [Page 2](#) and a [Meeting Planner](#) at the end of this newsletter.

If you don't know a topic to write about, this issue of the IAPR Newsletter continues the series "Unsolved Problems in Pattern Recognition" with two new articles. Uwe Franke from Daimler discusses “The Quest for Robustness and Accuracy - Mission Impossible?”, see http://www.mpi-inf.mpg.de/conferences/up2013/up2013_files/up2013-abstracts/franke/MissionImpossibleGCPR2013Handout.pdf for his slides. Joachim Denzler, Erik Rodner, Paul Bodesheim, and Alexander Freytag from the University of Jena write about “Beyond the closed-world assumption: The importance of novelty detection and open set recognition”, see http://www.mpi-inf.mpg.de/conferences/up2013/up2013_files/up2013-abstracts/denzler/Denzler.pdf for their slides.

Comments are welcome via unsolved@iapr.org.

So best publication wishes for 2014!

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Deadline for the April issue: March 20, 2014

To contact us:
Editor in Chief:

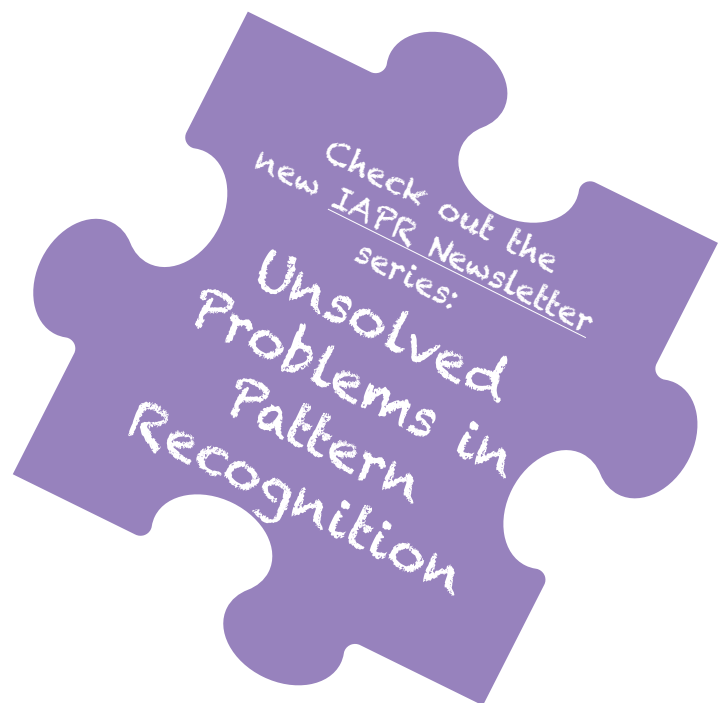
Arjan Kuijper
arjan.kuijper@igd.fraunhofer.de
<http://www.gris.tu-darmstadt.de/~akuijper/>

Associate Editor for Book Reviews:
Zeeshan Zia

[zeeshan.zia@geod.baug.ethz.ch/](mailto:zeeshan.zia@geod.baug.ethz.ch)
<http://www.igp.ethz.ch/photogrammetry/people/mzia>

Layout Editor:
Linda J. O'Gorman

logorman@alumni.duke.edu



Getting to know...
Tin Kam Ho, IAPR Fellow



Knowledge from patterns:
from the mail sorting facility to
a world of connected devices

by [Tin Kam Ho](#), IAPR Fellow



*Tin Kam Ho, IAPR Fellow
ICPR 2004, Cambridge, UK*

*For contributions to
multiple classifier systems,
statistical pattern recognition,
document image analysis and recognition,
and for service to IAPR.*

As a child, I was often said to have a gift in visual arts, and at one point I even considered pursuing a career in art and design. Yet, my love for logical thinking and discovery also developed, which drove me into advanced studies. So, by the time I started thinking about pursuing PhD level study, the area of image processing and pattern recognition sounded like an old calling. Eventually I joined Prof. Srihari's lab in SUNY at Buffalo, where leading edge research was conducted for the United States Postal Services (USPS). (See "[Pattern Recognition at the US Postal Service: A Decade of Achievement](#)", *IAPR Newsletter*, April 2006.) The USPS at that time was very enthusiastic about further automating mail sorting. One could easily understand this for cost saving reasons, which I accepted with little doubt. However, what that really meant did not occur to me until I came to the full comprehension of what this cost really was.

One day, I went with Jonathan Hull and a few fellow students to visit a regional mail sorting facility to prepare for the collection of image samples. In one area there were a couple of high speed sorting machines. Envelopes were lifted onto a fast moving belt from one end of the machine to have their images scanned. They were then carried by the belt through a maze of delay lines that kept them on the machine for a short while. By the time an envelope arrived at the other end, its image had been analyzed. A bar code for the recognized zip code was printed on the envelope to direct it to a suitable bin off the machine. The move was so swift that it was difficult to follow each piece with my eyes. I was in awe with the machine's design and was thrilled with the thought that our work would eventually be a part of it.

But the drama came as we walked into another room. I was stunned by what we saw. It was an enormous room filled with numerous desks arranged in a classroom like setting. Behind each desk sat a person, and on each side of the desk there was a bucket filled with envelopes, presumably those rejected by the machines. Every second

TIN KAM HO leads the Statistics of Communication Systems Research Activity in Bell Labs of Alcatel-Lucent at Murray Hill, NJ. She pioneered research in multiple classifier systems, random decision forests, and data complexity analysis, and pursued applications of automatic learning in reading systems and many areas of science and engineering. She also led major efforts on modeling and monitoring large-scale optical transmission systems. Recently she worked on wireless geo-location, video surveillance, smart grid data mining, user profiling, customer experience modeling, and analysis of diagnostic processes. Her contributions were recognized by a Bell Labs President's Gold Award and two Bell Labs Teamwork Awards, a Young Scientist Award from ICDAR in 1999, and the 2008 Pierre Devijver Award for Statistical Pattern Recognition. She is an elected Fellow of the IAPR and IEEE. She served as Editor-in-chief of the journal *Pattern Recognition Letters* in 2004-2010, and in earlier years as Associate Editor for *PAMI*, *Pattern Recognition*, *Editor for Int. J. on Document Analysis and Recognition*, as well as guest editors for other publications. She received a Ph.D. in Computer Science from SUNY at Buffalo in 1992.

or so, a robotic arm would pick up an envelope from one side and flip it directly in front of the person's face. The person read the envelope and punched a code using both of his hands on two keyboards, one on each side of the desk. The robot arm would then drop the envelope to the other side. The whole process repeated itself on each desk in a non-stop, mechanical, fast rhythm. Each person sat as if frozen, made no motion except with his wrists and fingers. Their sole task was to read the envelope and turn what they read into a machine readable code. Everything else was done by the machine.

It was a bizarre scene. I had been to factories and had seen large assembly lines or sewing floors. But the work demanded of a person was never that unchallenging. Say, a seamstress would need to manipulate the fabric, follow patterns, and from time to time gather her products and fetch new materials. Even an assembly line worker would be making a set of movements with a tool or an object. Yet in this room, a person was not asked of anything but his ability of understanding that bit of what he saw in front of his face. This was the part that the machine could not replace. And there were thousands of people throughout the sorting facilities in the country, spending their energy all day on this particular task, day after day and year after year. Suddenly I felt the weight of our work. (See [IAPR Then and Now: "From the Editor's Desk" 30 Years Ago](#) in this issue).

Fast forward twenty and a few years, I am in the role of leading research in Statistics of Communication Systems at Bell Labs. I have been there since graduation, thanks to the introduction by Henry Baird. Over

this time, my theme of study moved from reading machines to fiber optics to mapping radio signals, and from tracking people's trajectories to analyzing their lifestyles. At times we reached out to faraway disciplines, like helping astronomers and smart-grid operators digest their data avalanches. At the moment, we are dealing with everything about telecom networks—hardware, software, services, plus their customer care. Each theme intrigued me in a different way, and I continue to be proud of the however tiny bit of new ability that we managed to give to the machines. Still I feel that the real magic of our discipline has yet to be fully appreciated.

Networking was once an obscure field—in the late 80s we knew of its existence because the networks started to deliver our email, and later allowed for a somewhat useful service called "Archie". Research in that area sounded unbelievably chaotic; presentations were loaded with complicated block diagrams and jargon coded in an alphabet soup. Telecom meant the boring black phones sitting on our desks. But all that started to change when the hypertext browsers for the web appeared. Bigger changes came as the internet and telecom networks started to merge. Still, telecom networks' real advance onto the center stage of our society happened relatively recently. In particular, only in the last few years smart phones have risen into a dominant role in our daily lives—as the one appliance that we think of and use on an hour-to-hour, or minute-by-minute basis. They are our devices for calling, emailing, and texting each other, and for taking and exchanging pictures, browsing the web, checking news and weather, shopping, and listening to music. They are used as radios, alarm clocks,

calendars, gaming consoles, and in many places our wallets and keys. They have become partners in our lives, keeping us company on quiet nights and in the most remote corners of the world, as well as amid crowds of strangers. There are signs that they are becoming a good part of our brain, our indispensable pool of knowledge and wisdom. And they are morphing into different forms—tablets, glasses, watches, objects around us, and soon tiny machines that may be all over our bodies. Much of their magic is due to the fact that they are connected, via telecom networks.

To researchers in pattern recognition, the most amazing part is that they are also powerful devices to collect and generate data—data in all forms: text, images, video, audio, and sensor streams from the world around us. They contain all kinds of signals about where we are, what we do, what we want, and what we are feeling and thinking. They also tell how well the devices and the networks themselves perform. There is infinite knowledge to discover and distill from all such data, if only we can make the machines do it. Such rich and heterogeneous data streams open up enormous opportunities for our trade, calling for new hypotheses, new methods, and new directions. To support our explorations, there are new pathways paved by new computing machineries and software systems.

Therefore, it is as if we are just starting, and many of the open questions are still waiting for us to dive in. Say, for the notion of open-ended data mining, many algorithms have been invented to search for interesting associations. Yet how should we define what it means for something to be interesting? There is still much

to debate about. The methods for collaborative filtering draw our attention to the analysis of pairings: people and movies, callers and callees, for instance. There the data is dyadic and symmetric, very different from the asymmetric relationship between independent and dependent variables in classification and regression. What implications may this have on the algorithms? There is also the fascinating subject of forecasting—telling about the future (and who does not want that?)—modeling temporal recurrences, along with structures

connecting different elements as well as different layers of drivers and responses. To what extent of accuracy and time horizon are predictions possible, given that we have limited history and resolution of observations? What if the relationships themselves are also changing over time? We may also be engaged in forensics, trying to catch an unknown, hidden process that leaves only sporadic traces in various event logs. There is still a gigantic maze, bubbling with great mysteries and challenges. New students have no fewer topics than what we had any time in the past.

With infinite data streams available at our finger tips, cloud computing offered as a commodity, and eager collaborators and sponsors coming in from all walks of life, the possibilities are all out there, waiting for someone's courage and dedication. Pattern recognition is no longer limited to those in love with visual arts and images—it is into the humanities, sciences and engineering, and all lines of businesses.

It is truly an exciting time.

IAPR Then and Now:

20 Years Ago, the first IAPR Fellows were honored at ICPR 1994 in Jerusalem.



Professor Narendra Ahuja

Dr ir Pieter P. Jonker

Professor Theo Pavlidis

Professor Dr Eric Backer

Professor Laveen N. Kanal

Professor Shmuel Peleg

Professor Virginio Cantoni

Professor Rangasami L. Kashyap

Professor Matti K. Pietikainen

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Professor Martin D Levine

Professor Alberto Sanfeliu

Professor Michael J. B. Duff

Dr Gerd Maderlechner

Professor Jean-Claude Simon

Professor Herbert Freeman

Professor Dwijesh Kr. Dutta Majumder

Professor Jack Sklansky

Professor Edzard S. Gelsema

Professor Makoto Nagao

Professor Ching Y. Suen

Professor Robert M. Haralick

Professor Erkki Oja

Professor Mikio Takagi

Professor Thomas S. Huang

Professor Patrick S. P Wang

IAPR...The Next Generation

In this series of Feature Articles, the IAPR Newsletter asks young researchers to respond to three questions:

- *Briefly: How did you get involved in pattern recognition and what technical work have you done?*
- *In more detail: What is/are your current research interest(s)?*
- *How can the IAPR help young researchers?*

~Arjan Kuijper, Editor -in-Chief

by [Marco Moltisanti](#)

Image Processing Lab, Università degli Studi di Catania, Italy

Briefly: How did you get involved in pattern recognition and what technical work have you done?

During the years of my bachelor's degree, I got involved in image processing, but I was always wondering if it would have been possible to do more. So, when I had to choose the courses for my master's degree, I chose a path that included pattern recognition and computer vision, and that is how I “met” Pattern Recognition.

My first work was for the final exam of the class: I had to design and train a Self Organizing Map to classify medical images taken with Wireless Capsule Endoscopy. The goal was to find images containing the lumen, i.e. the final boundaries of the intestine. After that, for my Degree Thesis I analyzed and evaluated classification algorithms based on Ferns data structures; in particular, we were looking for multimodal classification induced by applying multiple Fern-based classifiers in cascade. I developed and wrote my thesis in the Joint Lab created by the Image Processing Laboratory (University of Catania) and ST Microelectronics—Advanced System Technologies—Computer Vision Research Platform (Catania). The interesting thing is that



Marco Moltisanti received his degree in Computer Science (summa cum laude) from the Department of Mathematics and Computer Science of the University of Catania in 2012. He is currently a Ph.D. Student, with a scholarship granted by STMicroelectronics, Catania site.

Since 2010, he joined the Image Processing Laboratory. In the 2013 edition of [International Computer Vision Summer School](#), he, together with his three colleagues Antonino Furnari, Mario Valerio Giuffrida and Davide Moltisanti, won the [Reading Group contest](#) organized by prof. S. Soatto. He serves as a reviewer for IEEE Transactions on Circuits and Systems for Video Technology and for the Journal of Electronic Imaging. He also served as a reviewer for VISAPP 2013/2014 editions.

both of these projects required quite hard work, but we didn't get the expected results. Despite that, doing this kind of research made me so eager that I wanted to continue this path, and luckily I had this opportunity.

In more detail: What is/are your current research interest(s)?

Trying to describe my interests in a few words, I would say "Image Representation". I think it is a crucial theme because of the huge amount of pictures and videos taken every day. Right now I am working on two topics strictly related to this theme; the first one is the analysis and evaluation of the incoming MPEG standard named "Compact Descriptors for Visual Search" (CDVS). The committee, starting from 2011, focused on the fast growth of the use of tablets and smartphones as imaging devices, both for acquisition and visualization. CDVS standard combines computer vision and pattern recognition techniques in order to find a significant representation for the considered image, keeping the size of the descriptor small. The first step has been the analysis and evaluation of the methods enclosed in the standard, with respect to other state-of-the-art techniques. At the moment, I'm

still working on the second phase, that is on the application of this description algorithm to different application fields.

The second issue on which I'm working is about image features aggregation, that is how to combine different image descriptions to obtain new and more semantically significant representations. The Computer Vision community has proposed algorithms and techniques to extract interesting features in order to obtain meaningful representations. Experimental results demonstrated that the combination of different descriptions can give better results with respect to many tasks, for instance image retrieval and classification, saliency computation, and image segmentation. The Bag-of-Visual-Words approach has become a de-facto standard in this field. At the moment, I am working on algorithms that, combining different feature descriptions given in input, create vocabularies that can be used to build compact but meaningful image signatures.

How can the IAPR help young researchers?

My research experience has been marked by attending to four editions of the International

Computer Vision Summer School (both as a student and a member of local facilities staff). A stimulating experience was the Reading Group contest, where groups of Ph.D. students from all over the world studied in depth a topic and then they discussed it during the school, giving birth to a scientific talk among peers that gives a lot to each participant. Moreover, the competition makes each group do its best to show its skills and knowledge. I think that IAPR could promote a contest among Ph.D. students to be organized along with a main conference or as a brand new event. All the attending Ph.D. students would submit works about a specific topic, so a comparison between different proposals could be done. A peer evaluation in the form of an open talk during the event would determine the winner of the contest and give feedback to the authors for their work. I think that such an event would be an exciting experience for us and for the whole community.

In addition to this, I think that economic support for participation in conferences and events (like doctoral schools) could help young researchers, extend their relationship network, and make ideas flow through the community.





Unsolved Problems in Pattern Recognition

This series of articles was introduced in the "[From the Editor's Desk](#)" column of the October 2013 issue of the *IAPR Newsletter*.

Robustness—Mission Impossible?

[Uwe Franke](#) and Stefan Gehrig, Daimler AG, Research and Development

http://www.mpi-inf.mpg.de/conferences/up2013/up2013_files/up2013-abstracts/franke/MissionImpossibleGCPR2013Handout.pdf

The recent introduction of a stereo camera system as a key sensor for autonomous emergency braking in Mercedes-Benz cars adds a new chapter to the Computer Vision success-story. It combines a modern global disparity estimation scheme with a fast descriptor-based optical flow estimation and HOG-based pedestrian classification.

In contrast to the large number of applications in industrial inspection, indoor robotics and medicine, environment conditions like illumination and weather cannot be controlled while driving. Nevertheless, the systems are supposed to work all day and night. Thus, these safety-critical applications ask for highly robust image analysis schemes and the ability to reliably detect those hopefully rare situations when the systems have to be switched off due to the lack of confidence.

No doubt, modern global optimizing schemes for disparity and optical flow estimation together with the common use of “robust” estimators led to considerable improvements w.r.t. robustness. However, in the light of the above-mentioned applications, robustness still remains an unsolved problem in Computer Vision. In particular the common dream of autonomous driving requires an unprecedented level of reliability. At the same time, precision is a concern which

in several situations poses a contradiction.

The contribution will show typical problems taken from real-world examples. It will discuss the following problems and sketch partial solutions:

Stereo Vision: Examples will show the limits of modern schemes like SGM or GraphCuts. Smallest errors of the on-line calibration (no calibration will last for 10-20 years!) lead to significant decrease of the reconstruction quality. Reflections and dirt on the wind shield add further problems. The usage of robust matching scores like Census reduces some of the calibration problems, but introduces new problems like the pixel locking effect which hinders precise motion estimation. Under adverse weather conditions, the problems are even harder. Image sequences show a considerable temporal disparity noise and the results in low contrast areas can be arbitrary wrong.

Optical Flow: two problems are well-known: firstly, small illumination changes caused by the exposure control can lead to totally wrong results. Secondly, in traffic sequences, very large displacements can occur, e.g. while turning at intersections. As long as the scene is static, this can be handled, at least if a stereo camera system is used. However,

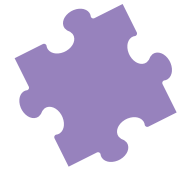
we are primarily interested in moving objects! Pretty colorful flow visualization very often misleads the observer. A careful inspection reveals that quite often the estimated flow vectors of pixels around the object boundaries are wrong. The [optical flow challenge](#) at [GCPR 2013](#) was initiated just for these reasons.

Object Recognition: Most low-level algorithms finally perform a winner-takes-all decision and forget all alternatives. Subsequent processing steps suffer from this strategy, sometimes leading to erroneous detection of objects—the “phantoms”. A careful consideration of confidence measures in the processing chain can mitigate this problem.

Evaluation: In the scientific world, several data sets exist for evaluation. Above all, the [Middlebury-Dataset](#) is widely used to compare stereo and motion estimation schemes. It is evident that this data is not sufficient to judge robustness. Although there are more realistic data sets ([KITTI](#), [enpeda..](#) etc.), realistic datasets with Ground Truth taken under adverse weather conditions are missing.

*Thoughts on
“Robustness-Mission Impossible”?
Send them to us:
unsolved@iapr.org*

Beyond the closed-world assumption: The importance of novel detection and open set recognition



[Computer Vision Group](#), Friedrich Schiller University Jena
[Joachim Denzler](#), [Erik Rodner](#), [Paul Bodesheim](#), [Alexander Freytag](#)

http://www.mpi-inf.mpg.de/conferences/up2013/up2013_files/up2013-abstracts/denzler/Denzler.pdf

Motivation: Current work on visual object recognition focuses on object classification and is implicitly based on the closed-world assumption, i.e., a test sample is assigned to the most plausible class out of a fixed set of classes known during training. Knowledge about objects and classes is usually available in terms of representative training data and is used for model training. However, in real-world applications it is often not possible to obtain training data for all categories that can occur in the test phase beforehand. An example is quality control, where it is not only impossible to define all future defects—even worse, possible defects are in most cases not even known to the human expert who supervises the training step. In addition, even if one would know possible defects a priori, the small number of training images leads to ill-posed problems. A second application is life-long learning where a system needs to identify new, unknown objects classes and has to incrementally add them to its knowledge base. Finally, complex event detection in videos is also impossible to tackle with a fixed set of classes. Although several solutions for the novelty detection problem have been proposed during the past years, they usually suffer from strong limitations (e.g., model complexity), necessary assumptions (e.g., Gaussian distribution), or heuristics (e.g., separation from artificial

negative data). On top of that, it is unknown so far whether or not such methods can successfully be applied in an open set scenario.

Problem specification: The actual problem is diverse and occurs on different levels of representation: (i) how can we determine whether or not a set of (local) features is novel with respect to the training set (e.g., we've never seen a wheel before)? (ii) how can we determine the novelty of constellations of features (e.g., a car upside down)? and (iii) how to measure the novelty of class constellations (e.g., a car in a lake)? On top of that, the level of novelty for a specific application is not clear beforehand and needs to be well defined, e.g., is a car within a lake novel, or abnormal, or still simply a car? What makes certain image regions to be considered as novel for a human inspector? And how can a system check for novelty and simultaneously classify objects which are not considered as novel?

In open set scenarios, novel objects are not only identified in comparison with the meta-class of all known objects, but known objects are additionally classified individually together with a label representing new classes or events. In terms of novelty detection, this situation has been investigated as multi-class novelty detection or under the more recently used term open set recognition. The main problems

that arise in such scenarios are:

- i) a reasonable definition of features to discriminate between known objects and to additionally separate them from unknown objects,
- ii) the question, whether discriminative or generative models or a mixture of both are preferable or necessary,
- iii) the incremental update of features and feature space as soon as new objects or events are identified,
- iv) the question, how novelty can be measured, i.e., whether or not specific distance measures or metrics need to be learned,
- v) how novelty within class hierarchies can actually be defined, and
- vi) whether context information (e.g., class labels of surrounding regions) is beneficial, irrelevant, or even misleading for the open set recognition task.

The impact of results in this area is beyond pure computer vision applications, like object recognition. In modern disciplines, like biology, chemistry, etc. more and more image sensing devices are applied producing more and more image data. This mass of information can by no means be analyzed by hand. Consequently, methods that are able to identify known as well as unknown objects in such data would have an enormous, far-reaching impact

on research in such areas. To summarize the problem in a single sentence: *how can we detect novel objects, events, or patterns and at the same time being able to distinguish known ones?*

Related work: In the literature, novelty detection is often handled as a one-class classification problem where all training samples share the same positive label indicating that they stem from a known category. The goal is then to model the empirical distribution of the training data such that it can be separated from the surrounding open space in each direction in the feature space.

Popular approaches for one-class classification are one-class SVM [1], support vector data description (SVDD) [2], and methods based on Gaussian process regression [3, 4]. One-class SVM separates the training samples from the origin of the feature space with a maximum margin, support vector data description encloses the training data with a hypersphere of minimum volume, and the Gaussian process techniques are based on measures of the posterior distribution within a probabilistic regression framework. However, treating multiple known classes as a single one in the one-class setup disregards the information we have from the multi-class labels and leads to poor performance as shown in [5]. Even if we model each class by an individual one-class classifier as proposed in [6], novelty detection performance is rather low [5].

Promising approaches combine the idea of one-class classification with maximum margin separation between known classes. For binary classification, the small sphere and large margin approach of [7] encloses the positive class with a tight hypersphere as in SVDD while simultaneously maximizing

the margin to the negative class. Recent work on open set recognition [8] uses the one-vs-rest multi-class SVM framework and estimates the separating hyperplane as well as a second hyperplane parallel to the first one in order to restrict the positive half space to a corridor between both hyperplanes. The authors propose using linear SVMs which lead to corridors that are still unbounded in some directions in the feature space. To avoid open class regions, the null space approach in [5] maps all training samples of the same class to a single point and maximizes distances between different classes. In contrast to unbounded (open) half spaces obtained from SVM models, representing classes by a single point directly encourages separation from unknown categories in every direction of the (transformed) feature space.

However, the novelty detection approaches currently available do not scale well in multi-class scenarios with an increasing number (hundreds to thousands) of categories. We believe that studying novelty detection and open set recognition in large-scale scenarios, where the feature space is occupied by more and more diverse known categories, is an important aspect for future research.

Conclusions: We want to call computer vision researchers to tackle the task of open set recognition, where novelty detection and multi-class classification needs to be fused within a single recognition system. This leads to several challenges like balancing between novelty detection and recognition or the combination of generative and discriminative methods to achieve both exploration of new and separation of known categories.

We think it is worth spending effort towards a closed problem formulation for tackling both tasks in a joint manner, which would allow for going in the direction of autonomous lifelong learning.

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Thoughts on “Beyond the closed-world assumption: The importance of novelty detection and open set recognition”?

Send them to us:
unsolved@iapr.org





Can you help?

Pattern Recognition in a “String” of Subpopulation Identifiers

by Glenn R. Koller, riskaid@cox.net

Glenn R. Koller has published five books on the subjects of risk identification, assessment, integration, monetization, and management. He holds a Master’s degree in geochemistry and a Ph.D. in geophysics, both from Syracuse University. He works primarily in the statistical realm.

Concept:

An algorithm has been developed that can determine the optimal number of subpopulations in a major “population” of data. The algorithm employs a sequence of statistical routines that are iteratively applied to the parent population. Resulting is the determination of the optimal number of subpopulations in the parent population with each case assigned to one of the subpopulations. The algorithm is termed “MISI” for Multivariate Iterative Subpopulation Identification.

A parent population can contain any number of cases and any number of parameters. This, of course, is not valid on the “low side”—0 cases or 1 case is not valid nor is 0 parameters. See Figure 1 for an example of a small 25-case portion of a hypothetical parent population comprised of 10,000 cases and 3 parameters. In this situation—considering the entire 10,000-case dataset—the optimal number of subpopulations was determined to be 7 (only portions of subpopulations 2, 3, 4, 5, and 6 shown in Figure 1).

In Figure 1, coefficients shown for the 3 parameters (VAR 1, VAR 2, and VAR 3) represent measurements through time. Therefore, the cases are not independent as would be the situation, for example, if the

cases represented individual people with the parameters being measurements on each individual. So, in this situation, sequence matters. The rightmost column in Figure 1 is the post-MISI-processing subpopulation assigned to the case based on the 3 input parameters. MISI has been successfully applied to a broad spectrum of data types including medical, geographical, geological, and other types of input information.

The algorithm worked fine—determining the optimal number of subpopulations in the parent population and assigning each case to one of the subpopulations. The subpopulations, however, repeat in a manner that makes it impractical to discern patterns in their (the subpopulations/cases) occurrence. As indicated by subpopulation 6 in Figure 1, any subpopulation coefficient can and does appear many times in the string of 10,000 cases, each time represented by 1 case up to as many as a “string” of hundreds of cases.

The Problem:

As shown in Figure 1, the instance of a subpopulation can be a single case or 2 cases in the string of 10,000 cases. Alternatively, any instance of a subpopulation can be comprised of tens to hundreds of cases. Imagine a set of, say, 7 subpopulations repeating—

seemingly randomly—in the column of 10,000 cases with an instance of a subpopulation containing anywhere from 1 to hundreds of cases.

To no avail, the author has colored the subpopulations in an attempt to visually discern patterns (see Figure 1). He also has reduced each subpopulation in the sequence to a single cell with an adjacent column indicating the number of cases in that instance of the subpopulation. Still, the identification of patterns in the data by visual means is impractical.

The Challenge:

What is sought is a software package or other routine that will aid in discerning patterns in the long sequence of subpopulations. A Web search for such software was done, but the author did not identify anything that, he believed, would pertain. Any assistance would be most appreciated.

| CASE | VAR 1 | VAR 2 | VAR 3 | SUBPOP |
|-----------|-------|-------|-------|--------|
| 36,248.00 | 9.26 | 4.29 | 23.75 | 5 |
| 36,249.00 | 9.16 | 4.40 | 22.37 | 5 |
| 36,250.00 | 9.50 | 4.37 | 22.72 | 5 |
| 36,254.00 | 10.33 | 5.06 | 23.02 | 4 |
| 36,255.00 | 9.49 | 5.17 | 23.89 | 4 |
| 36,256.00 | 10.31 | 5.43 | 23.89 | 6 |
| 36,257.00 | 10.70 | 5.39 | 23.98 | 6 |
| 36,258.00 | 10.83 | 5.05 | 23.35 | 6 |
| 36,261.00 | 10.51 | 5.81 | 23.64 | 6 |
| 36,262.00 | 10.01 | 5.50 | 23.92 | 6 |
| 36,263.00 | 10.66 | 5.28 | 23.44 | 6 |
| 36,264.00 | 10.71 | 5.77 | 23.86 | 6 |
| 36,265.00 | 10.88 | 4.04 | 23.00 | 6 |
| 36,268.00 | 10.53 | 3.61 | 22.48 | 3 |
| 36,269.00 | 10.55 | 4.64 | 23.17 | 3 |
| 36,270.00 | 10.42 | 4.08 | 23.12 | 6 |
| 36,271.00 | 10.18 | 5.61 | 23.82 | 6 |
| 36,272.00 | 10.67 | 5.69 | 23.85 | 6 |
| 36,275.00 | 10.59 | 6.05 | 23.04 | 6 |
| 36,276.00 | 10.71 | 6.41 | 23.08 | 6 |
| 36,277.00 | 10.45 | 5.37 | 23.91 | 6 |
| 36,278.00 | 10.38 | 5.44 | 23.83 | 6 |
| 36,279.00 | 10.04 | 5.86 | 23.18 | 6 |
| 36,282.00 | 11.69 | 5.58 | 23.64 | 2 |
| 36,283.00 | 10.12 | 4.11 | 23.00 | 2 |

FIGURE 1: A small subset of the parent population showing (right to left) case identifier, 3 input parameters, and the post-MISI-processing subpopulation coefficient for each case.

From the



Uppsala January 16, 2014

We have now entered 2014, the year when the 22nd International Conference on Pattern Recognition (ICPR 2014) will take place in the Swedish capital Stockholm. We are looking forward to the many things that will occur in connection with this major event for the IAPR community. In fact, we are quite busy in preparing this for you. Please, visit the conference website, <http://www.icpr2014.org/>, for details on what will happen in August. At the time of writing this column, the reviewing phase is underway. We thank the approximately 1000 reviewers who are doing a very

important job to ensure the quality of the conference. Note that the ExCo has decided to announce travel stipends of US\$1000 each to be granted to 50 authors with accepted papers.

From time to time, the ExCo receives suggestions on how to serve and promote IAPR. The latest question was about whether to create an IAPR entry in Wikipedia. The question can be extended to whether we in addition should have a LinkedIn group, etc. Be prepared and look out for such publicity in a near future.

We really appreciate receiving suggestions from our colleagues,

so please continue to feed us.

The *IAPR Newsletter*, has many regular features. As usual, this issue spotlights two members of our community an [IAPR Fellow](#) and a representative of the [Next Generation](#) of IAPR. In addition, our Editor-in-Chief Arjan Kuijper offers some advice on ["Publish or Perish"](#) and continues his series on [Unsolved Problems in Pattern Recognition](#). And, our editors are reintroducing the [Can You Help?](#) series, based on inquiries received from outside of the IAPR. As always, there are many meeting reports in the following pages.

I remind you to visit the IAPR webpage <http://www.iapr.org/> regularly for information on IAPR matters.

I hope you enjoy reading this January edition of the IAPR Newsletter, professionally put together by our editors. From the ExCo, we extend to you our best wishes for a successful 2014!

Ingela Nyström
IAPR Secretary



Suggestions for IAPR?

**Comments and suggestions can be sent to IAPR via the
Office of the Secretariat:
Linda O'Gorman
secretariat@iapr.org**

Meeting Reports

Conferences, Workshops & Summer Schools

[PSL 2013](#)

2nd International Workshop on Partially Supervised Learning

Nanjing, China
May 13-14, 2013

<http://neuro.informatik.uni-ulm.de/PSL2013/>

Co-Chairs:

[Zhi-Hua Zhou](#) (Nanjing University, China)
[Friedhelm Schwenker](#) (University of Ulm, Germany)



by Friedhelm Schwenker

The Second IAPR TC3 Workshop on Partially Supervised Learning (PSL 2013) held at the University of Nanjing, China, followed the success of PSL 2011, and provided again a major forum for researchers in all areas of partially supervised learning. The workshop was organized by the LAMDA Group of the National Key Laboratory for Novel Software Technology at Nanjing University (China) and the Institute of Neural Information Processing at Ulm University (Germany), and was sponsored by the International Association for Pattern Recognition (IAPR). The PSL 2013 workshop was in conjunction with the workshop on Multiple Classifier Systems ([MCS 2013](#), Chairs: Prof. Dr. Zhi-Hua Zhou, Prof. Dr. J. Kittler, Prof. Dr. F. Roli. See report in the [October 2013 issue](#) of the *IAPR Newsletter*).

Over twenty papers were submitted to the workshop. The review process was carried out by the PSL 2013 program committee, where each paper was reviewed by at least two members of the scientific committee. Ten high-quality papers were selected for oral presentation. These contributions covered various

aspects on partially supervised learning and ranged from semi-supervised classification to learning from reward.

Besides the regular talks an excellent invited speech was given by Prof. Dr. Dale Schuurmans (Department of Computer Science, University of Alberta, Canada). He presented recent results and ideas in this talk entitled "[Learning with Output Kernels and Latent Kernels](#)". Here he discussed various aspects and new applications of kernel methods to output and latent representations, and in particular how kernel methods can be applied and extended to partially supervised learning problems.

All accepted papers are published in the Springer LNAI series, volume 8183, edited by Prof. Dr. Zhi-Hua Zhou (Nanjing University) and Dr. Friedhelm Schwenker (Ulm University).



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ICB 2013 **6th IAPR International Conference on Biometrics**

**Madrid, Spain
June 4-7, 2013**

<http://atvs.ii.uam.es/icb2013/>

General Chair:

[Javier Ortega-Garcia](#) (Universidad Autonoma de Madrid, Spain)

General Co-Chairs:

[Arun Ross](#) (West Virginia University, USA)

[Tieniu Tan](#) (Chinese Academy of Science, China)

by [Javier Ortega-Garcia](#) (Spain),
[Julian Fierrez](#) (Spain) and [Ester
González-Sosa](#) (Spain)

The 6th IAPR International Conference on Biometrics (ICB-2013) was held in the charming city of Madrid, Spain at the historical buildings of the School of Mines. Javier Ortega-Garcia served as the General Chair of the conference, and Arun Ross and Tieniu Tan as General Co-Chairs. The conference was attended by 160 delegates from 31 different countries. It was truly an international experience!

The conference featured a rich technical program consisting of three [keynote talks](#), four [tutorials](#), one panel discussion, 24 oral presentations, 48 poster presentations, a [competitions session](#), a special session on India's UIDAI (Unique Identification Authority of India) program and a [Doctoral Consortium](#).

The Program Chairs, Julian Fierrez, Ajay Kumar, Mayank Vatsa and Raymond Veldhuis selected 72 papers out of 212 standard

submissions after a rigorous review process that involved 773 reviews from 123 reviewers and 16 Area Chairs. The accepted papers were classified into the following areas representing a wide range of biometric topics: face, fingerprint and palm; iris and ocular; gait and soft biometrics; other biometrics; systems and security; fusion and forensics.

ICB-2013 had a distinguished set of keynote speakers:

- Prof. [Anil K. Jain](#), from Michigan State University, USA, with a talk enticingly titled "50 Years of Biometric Research: The Solved, The Unsolved, and The Unexplored" [\[slides\]](#) [\[video\]](#)
- Prof. [Christophe Champod](#), from The Institute of Forensic Science, University of Lausanne, Switzerland, discussed the interplay between biometrics and forensics in his talk entitled "Forensic Science and Biometric Systems: An Impossible Mix?" [\[slides\]](#) [\[video\]](#)

- Mr. [Jean-Christophe Fondeur](#), VP, Research & Technology for the Identification division of Morpho, shared his unique insights from an industry perspective through a talk entitled "Biometric Research: From the Lab to Large Scale Deployment" [\[slides\]](#) [\[video\]](#)

ICB-2013 also featured four invited [tutorials](#) conducted by experts in the field: Dr. [Jianjiang Feng](#) (Latent Fingerprint and Palmprint Recognition); Dr. [Allen Yang](#) (Sparse Representation and Biometrics); Prof. [Joaquin Gonzalez-Rodriguez](#) and Dr. [Daniel Ramos-Castro](#) (Evidential Evaluation in Forensic Biometrics); and Dr. [Shantanu Rane](#) (Biometric Template Protection). The tutorials were well attended and resulted in useful discussions between the tutors and the participants.

The Panel Discussion [\[video\]](#) titled "Integrating Biometrics and Forensic Science for the Digital Age: A New Research Agenda", was moderated by [Massimo Tistarelli](#), and featured [Christophe Champod](#), [Brendan Klare](#), [Mark](#)

[Nixon](#) and [Tieniu Tan](#) as panelists. The lively discussion was thought provoking and engaging, as many attendees provided their perspectives on this topic.

In a special oral session, [Ashok Pal Singh](#), Deputy Director General of the Unique Identification Authority of India (UIDAI), gave an update on the status of an ultra-large-scale biometrics initiative called Aadhaar in his talk entitled "ID for a Billion".

In the [Competitions](#) session [\[video\]](#), organizers reported the results of various biometric competitions that were conducted as a part of the conference, while the [Doctoral Consortium](#) provided a forum for young PhD researchers to interact with senior researchers in the field and to present their research work in a poster session.

A number of [awards](#) [\[video\]](#) were presented at ICB-2013.

- The 1st IAPR Young Biometrics Investigator Award (YBIA) was given to Arun Ross from Michigan State University, USA, who presented a talk on "Biometrics: In Search of Identity".
- The IAPR Best Biometrics Student Paper Award (BBSPA) went to Qiang Jia, Chi Fang, Di Wen and Xiaoqing Ding from Tsinghua University, China, for their paper entitled "Generating Face Images under Multiple Illuminations Based on a Single

- Front-lighted Sample without 3D Models".
- The European FP7 project TABULA RASA Spoofing Award went to Antitza Dantcheva from Michigan State University, USA.
- The Best Young Reviewer Award, was given to Brendan Klare, Chi-Ho Chan, Hee Seung Choi, and Walter Scheirer.
- The Best Reviewer Award went to Anil Jain, Kevin Bowyer, Richa Singh and Patrizio Campisi.
- The Best Voted Poster Paper Awards went to Bram Ton and Raymond Veldhuis, from University of Twente, Netherlands, for their poster entitled "A High Quality Finger Vascular Pattern Dataset Collected Using a Custom Designed Capturing Device"; to Cunjian Chen, Antitza Dantcheva and Arun Ross, from Michigan State University, USA, for "Automatic Facial Makeup Detection with Application in Face Recognition"; and to Marta Gomez-Barrero, Javier Galbally, Rejean Plamondon, Julian Fierrez, and Javier Ortega-Garcia, from Universidad Autonoma de

- Madrid, Spain and University of Montreal, Canada, for "Variations of Handwritten Signatures with Time: A Sigma-Lognormal Analysis".
- The Best Doctoral Consortium Poster Award went to Milos Milovanovic.

The Platinum sponsors of ICB-2013 were Safran-Morpho, Telefonica (through Catedra UAM-Telefonica), and European FP7 project Tabula Rasa; the Silver sponsors were Thales and Cognitec. Several academic and research institutions, including Universidad Autonoma de Madrid, COST Action IC-1106, European Association for Biometrics, Guardia Civil, European FP7 projects Tabula Rasa and BEAT, and Biometrics Institute, were involved in the organization of ICB-2013.

Plans are already underway for the International Joint Conference on Biometrics ([IJCB-2014](#)), in which ICB will collaborate with BTAS to organize a joint meeting in Tampa, USA, in the fall of 2014.

Videos of all ICB-2013 talks and the keynote slides can be accessed at <http://atvs.ii.uam.es/icb2013/>



Proceedings of ICB 2013 are available in IEEEExplore

<http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=6596180>



**International Joint Conference on Biometrics
29 September - 2 October, 2014, Clearwater, Florida, USA**



General Co-Chairs:

[Erkki Oja](#) (Aalto University, Finland)

[Matti Pietikäinen](#) (University of Oulu, Finland)

by [Markus Koskela](#), Chair, Local Organizing Committee (Aalto University, Finland)

The 18th conference in the long tradition of Scandinavian Conferences on Image Analysis was held in Espoo, Finland. SCIA is a biennial conference series organized among the four participating Nordic countries. Begun in 1980 as one of the first regional meetings of IAPR, SCIA's have attracted high-level submissions from all over the world, reflecting the trends in image analysis, pattern recognition, and computer vision.

SCIA 2013 invited paper submissions presenting original work within relevant topics. A total of 132 papers were submitted to the conference. After being reviewed by the Program Committee and additional reviewers, 67 papers were accepted for publication in Springer-Verlag Lecture Notes in Computer Science, Vol. 7944 (<http://www.springer.com/computer/image+processing/book/978-3-642-38885-9>) (acceptance rate was 50.7%).

The conference was held in The Hanasaari Swedish-Finnish Cultural Centre, on an island located in the midst of an archipelago, close to the Helsinki

city centre. The conference was organized by the Pattern Recognition Society of Finland and was sponsored by the IAPR, the IEEE Finland Section SP/CAS Joint Chapter, the city of Espoo, and NVIDIA. The conference had 102 registered participants.

Before the main conference, two [tutorials](#) and a Workshop on Farm Animal and Food Quality Imaging (WFAFQI) (<http://www2.imm.dtu.dk/projects/WFAFQI/>) were organized. The two tutorials were given by Professor [Tülay Adalı](#) from the University of Maryland, Baltimore County, titled "ICA and IVA: Theory, Connections, and Applications to Medical Imaging", and by Professor [Matti Pietikäinen](#) and Dr. [Guoying Zhao](#) from the University of Oulu, Finland, titled "Image and video analysis with

local binary pattern variants".

The format of the conference was single-track oral presentations, keynote talks, and a poster session. The four keynote speakers were:

- [Maja Pantic](#), Professor at the Imperial College London and University of Twente, who gave a talk on "Machine Analysis of Facial Behaviour",
- [Ethem Alpaydin](#), Professor at the Bogaziçi University, Istanbul, who gave a talk on "The Design and Analysis of Machine Learning Experiments",
- [Anders Heyden](#), Professor at the Lund Institute of Technology / Lund University, Sweden, who gave a talk on "Robot Vision: Hand-Eye Calibration, Map-Making and Navigation", and
- [Jiri Matas](#), Professor Czech Technical University, Prague, who gave a talk on "The Art of Establishing Correspondence".

The first oral session consisted of talks given by the best paper award winners of the conference. The award papers have been invited to submit extended manuscripts to a special issue of Pattern Recognition Letters. The award winners were also given high-performance Tesla GPUs sponsored by NVIDIA.



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The SCIA 2013 Best Paper Award was given to the paper "[Robust Scale-adaptive Mean-Shift for Tracking](#)" by Tomas Vojir, Jana Noskova, and Jiri Matas from the Czech Technical University, Prague.

The SCIA 2013 Best Student Paper Award was given to the paper "[Genus Zero Graph Segmentation: Estimation of Intracranial Volume](#)" by Rasmus R. Jensen, Signe S. Thorup, Rasmus R. Paulsen, Tron A. Darvann, Nuno V. Hermann, Per Larsen, Sven Kreiborg, and Rasmus Larsen from the Technical University of Denmark, University of Copenhagen, and Copenhagen University Hospital.

The social program of the



Photo by Teemu Kinnunen

conference consisted of a welcome reception at a nearby island, Karhusaari, and the conference banquet, which took place at Sirpalesaari, a yet another small island just south of the centre of Helsinki and an excellent spot to enjoy the Finnish midnight sun.

The Best Nordic PhD Thesis Award in Field of Image Analysis

and Pattern Recognition 2011-2012 was also announced at the conference banquet. The award was given to [Michael Boelstoft Holte](#) from Aalborg University, Denmark, for his thesis titled "Vision-Based 2D and 3D Human Activity Recognition".

The [19th SCIA](#) will be organized in Denmark in 2015.



[GREC 2013](#)

Tenth International Workshop on Graphics Recognition

Bethlehem, Pennsylvania, USA
August 20-21, 2013

<http://grec2013.loria.fr/GREC2013/>

General Chair:

[Bart Lamiroy](#) (Université de Lorraine, France)

by [BartLamiroy](#)

GREC 2013 was organized by the [IAPR TC10](#) and took place at Lehigh University just before the 12th International Conference on Document Analysis and Recognition (ICDAR), Washington, D.C., USA.

[GREC](#) is organized every two years, in close conjunction with ICDAR and aims at providing a unique atmosphere: fostering a very high level of interaction, discussion and exchange of ideas (distinctly different from classical conference-like presentations)

while providing high quality and good impact post-proceedings. It therefore forms 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 written documents, engineering drawings, maps, architectural plans, musical scores, mathematical notation, tables, diagrams, etc.

GREC 2013 has continued the tradition of past workshops held

at Penn State University (USA, 1995), Nancy (France, 1997), Jaipur (India, 1999), Kingston (Canada, 2001), Barcelona (Spain, 2003), Hong Kong (China, 2005), Curitiba (Brazil, 2007), La Rochelle (France, 2009) and Seoul (South Korea, 2011).

With this edition, once again, the GREC workshops have proven to live up to the expectations: the level of interaction was intense and rich.

The program was, as usual, organized in a single-track two-day workshop. It comprised several sessions dedicated to specific

topics related to graphics in document analysis and graphic recognition. Each session began with an introductory talk by the session chairs, describing the state-of-the-art, putting the presented talks in a more global perspective and stating the current open challenges of session topics. This introduction was then



followed by a number of short talks presenting solutions to some of these questions or presenting results of the speaker's work. Each session was concluded by a panel discussion.

This year, the session topics were: Spotting, Graphics Recognition in Context, Perceptual Based Approaches and Grouping, Low Level Processing, Content Based Image Retrieval, Structure Based Approaches, and Performance Evaluation and Ground Truthing. Two additional sessions presented the results from the ICDAR/ GREC2013 Competition on Music Scores and the GREC 2013 Arc and Line Segmentation Contest.

29 participants registered for the workshop, 4 of which, unfortunately encountered visa delays and could not attend. Represented countries were Brazil, China, France, Germany, India, Japan, Luxemburg, Malaysia, Spain, Switzerland and the USA.

The opening talk was given by Prof. [Jean-Marc Ogier](#), from the Université de La Rochelle, France, GREC 2013 Program Chair and TC10 chair, and the closing talk and final panel discussion was chaired by Prof. [Josep Lladós](#), from the Universitat Autònoma de Barcelona, Spain.

Full access to the opening and closing talks, as well as the program and presented papers is available from the GREC 2013 website (<http://grec2013.loria.fr>). Access to the papers is restricted to attendees only. [Springer](#) will publish a selection of fully reviewed extended papers in 2014 as an LNCS volume.

Besides the traditional workshop, two extra events were organized for the attendees. The local organizing committee arranged for a guided tour of the Special Collection department of Lehigh University Linderman Library, where the attendees could admire and even touch rare items like a first print of Euclid's "Elements" or a copy of Copernicus' *De Revolutionibus*.

The day after the workshop, TC10 and the local organizers also set up a visit and brainstorming meeting related to the unique opportunity—presented by access to an array of former R&D and Engineering offices recently acquired by Lehigh University—to develop new document image analysis research collaborations across TC10 and [TC11](#). These offices, abandoned since 2005, still contained the quasi-entire collection of their documents: business correspondence,

technical whitepapers, notes, blueprints, measures and plots, ... most of them printed, others handwritten, part of them manually annotated or containing archival markings, etc. The total number of documents contained in these offices is probably several hundreds of thousands. Many of

them are ordered and arranged in filer cabinets, others are chaotically spread and abandoned; many of them are very well preserved, others have sustained significant damage (water, mold...) Their existence and availability provide a unique opportunity for the Document Image Analysis community to create a life-size experimental data collection that is large and heterogeneous, yet sharing sufficient coherency to be interesting for many DIA domains. Prof. Lopresti has retrieved and safeguarded tens of thousands of these office documents. 10,000 of them (and counting) have been scanned at a high resolution. These documents have been classified and organized in function of their physical configuration and location in the office from which they were retrieved: mainly office number – filer cabinet – drawer – folder – document number. Several hundreds of very large engineering drawings are in the process of being retrieved and stored for safeguarding. A third-party private company has already scanned some large samples. The GREC brainstorming session was dedicated to identifying and starting initiatives for the international community to use and promote this unique data collection.



[CDBAR 2013](#) Fifth International Workshop on Camera-Based Document Analysis and Recognition

a workshop of [ICDAR 2013](#) (see [report](#) in this issue)

Washington, D. C., USA

August 23, 2013

<http://imlab.jp/cbdar2013/>

General Co-Chairs:

[Masakazu Iwamura](#) (Osaka Prefecture University, Japan)

[Faisal Shafait](#) (University of Western Australia, Australia)

by the CDBAR2013 Co-Chairs

The Fifth International Workshop on Camera-Based Document Analysis and Recognition (CBDAR2013) was held just before the 12th International Conference on Document Analysis and Recognition ([ICDAR2013](#)) as a workshop of ICDAR2013. It was chaired by Masakazu

Iwamura (Osaka Prefecture University, Japan) and Faisal Shafait (The University of Western Australia, Australia). The workshop had 70 registered participants.

CBDAR covers a growing subfield of ICDAR research themes: analysis and recognition of digital still/video camera-captured text and document images. Following the pervasiveness and widespread availability of camera phones and hand-held digital still/video cameras, the first CBDAR workshop was held in Seoul, Korea in 2005. Since the first workshop was very well received by the community, succeeding workshops were held in Curitiba, Brazil in 2007, Barcelona, Spain in 2009, and Beijing, China in 2011.



In the discussion, inviting two panel members, Dr [Ray Smith](#) (Google Inc.) and Dr [Patrick Chiu](#) (FX PAL), four topics related to the future directions of CBDAR research field and comments from industry were discussed. The discussion was active and fruitful, receiving many interesting and useful comments

The series of workshops were aimed to provide an opportunity to researchers and developers from various backgrounds to exchange their ideas and explore new research directions through presentations of latest research activities and discussions.

Following the tradition of the previous workshops in the series, CBDAR2013 was organized as a single-track, one-day workshop. The [program](#) included a keynote talk titled "[Real-life Activity Recognition—Focus on Recognizing Reading Activities](#)" given by Dr [Kai Kunze](#) (Osaka Prefecture University) [[slides](#)], two oral sessions, poster and demo sessions, and a discussion session involving all participants.

not only from the panel members, but also from the participants. The oral and poster sessions consisted of seven and six papers, respectively, selected from 18 submitted papers. All of the accepted papers were included in the proceedings. In addition, revised versions of selected papers are going to be published as the post-proceedings ([Springer LNCS Volume 8357](#)). The demo session consisted of two demos and their abstracts were included in the workshop booklet.

Following the tradition, the next CBDAR would be held in Tunis, Tunisia in 2015 in conjunction with ICDAR (if accepted as a workshop of ICDAR).

HIP 2013 2nd International Workshop on
<http://www.cvc.uab.es/%7Evfrinken/HIP2013/>



Historical Document Imaging and Processing 2013
 a workshop of [ICDAR 2013](#) (see [report](#) in this issue)
 Washington, D. C., USA August 24, 2013

Co-Chairs:

- [Volkmar Frinken](#) (Japan)
- [Bill Barrett](#) (USA)
- [Volker Märgner](#) (Germany)
- [R. Manmatha](#) (USA)

by Andreas Fischer (Canada)

The 2nd International Workshop on Historical Document Imaging and Processing (HIP) was held in conjunction with the 12th International Conference on Document Analysis and Recognition ([ICDAR 2013](#)).

The workshop brought together researchers working with historical documents, complementing the work in analysis and recognition featured in the main ICDAR sessions.

Continuing the success of its first edition in 2011, the workshop attracted 65 registered participants and received 31 paper submissions from 16 countries. With the help of the reviewers, 18 papers were selected for oral presentation.

We want to cordially thank [FamilySearch International](#) for sponsoring the workshop. Their generous support included the

organization and awards for the [FamilySearch Competition](#) on Clustering of Images of Historical Marriage Licenses as well as hosting the conference dinner. The winner of the competition was A2iA (USA, France) and the runner-up was the IRISA research group (France).

The IAPR Best Paper Award was awarded to David Fernández, Simone Marinai, Josep Lladós, and Alicia Fornés for their paper "Contextual Word Spotting in Historical Manuscripts using Markov Logic Networks."

Based on the great success of HIP 2013 and the positive feedback of the participants, the next edition of the workshop is already in discussion for 2014 or 2015.



Josep Lladós and Simone Marinai accept the IAPR Best Paper Award



Proceedings will be published in the ACM Digital Library



<http://www.icdar2013.org>

Honorary Chair:

[George Nagy](#) (Rensselaer Polytechnic Institute, USA)

General Chair:

[David Doermann](#) (University of Maryland, USA)

Executive Co-Chairs

[Venu Govindaraju](#) (University at Buffalo, USA)

[Daniel Lopresti](#) (Lehigh University, USA)

[Prem Natarajan](#) (Information Sciences Institute, University of Southern California, USA)

by David Doermann

The Twelfth International Conference on Document Analysis and Recognition ([ICDAR 2013](#)) was held in Washington DC. With a total of 467 attendees over the 4 days of workshops, tutorials and the main conference, it attracted the largest attendance in its 22 year history, with delegates coming from 35 countries and 246 unique cities.

ICDAR, a biennial meeting of our international research community, began in St. Malo, France, in 1991. Since that time we have met in Tsukuba, Japan ('93), Montreal, Canada ('95), Ulm, Germany ('97), Bangalore, India ('99), Seattle, Washington ('01), Edinburgh, UK ('03), Seoul, Korea ('05), Curitiba, Brazil ('07), Barcelona, Spain ('09) and most recently in Beijing, China ('11). ICDAR 2013 continued a long tradition of providing state-of-the-art snapshots of the research advances in our field, and delegates benefited from all that the conference had to offer, both technically and socially.

This year's conference was accentuated by three keynote talks. The first keynote was given by IAPR/ICDAR Outstanding Achievements Award winner [Réjean Plamondon](#) (Polytechnique Montréal) who focused his talk on neuromotor aspects of handwriting [\[slides\]](#). In the second keynote, Roger Easton, a professor from the Rochester Institute of Technology, drew on his work in using imaging technologies to enable manuscript scholars to uncover lost or unexpected material [\[slides\]](#). Finally Michael Lesk, a professor at Rutgers University, provided his insights on the generality of graphic tools and text tools and what can be learned from relationships between them [\[slides\]](#).

Through the technical program, delegates were audience to 81 oral presentations and 184 poster presentations over the three days. In conjunction with the conference, we continued the ICDAR Doctoral Consortium which paired the next generation of researchers with top mentors



Professor Réjean Plamondon presenting the opening keynote after receiving the ICDAR Outstanding Achievements Award.

in our field. The conference also hosted a series of workshops and tutorials aimed at the focused study of cutting-edge problems in our field, and researchers had the opportunity to learn the results of numerous competitions that are driving interest in the community. (See reports on [CDBAR2013](#) and [HIP2013](#) in this issue.)

This year's IAPR/ICDAR Young Investigator award was presented to Dr. [Dimosthenis Karatzas](#) for outstanding service to the ICDAR community in a variety of roles, as well as innovative research in human perception-based document analysis.

The IAPR/ICDAR Outstanding Achievement Award was presented to Prof. [Réjean Plamondon](#) for theoretical contributions to the understanding of human movement and its applications to signature verification, handwriting recognition, instruction and health assessment, and for promoting on-line document processing in numerous multidisciplinary fields.

The ICDAR 2013 Best Paper Award was presented to Kai Kunze, Hitoshi Kawaichi, Koichi Kise and Kazuyo Yoshimura for the paper "The Wordometer—Estimating the Number of Words Read Using Document Image Retrieval and Mobile Eye Tracking". The ICDAR 2013 Best Poster Award was presented to

David Wemhoener, Ismet Zeki Yalniz and R. Manmatha for the poster "Creating an Improved Version Using Noisy OCR from Multiple Editions". And the ITESOFT 2013 Best Student Paper Award was presented to Lukas Neumann and Jiri Matas for the paper "On Combining Multiple Segmentations in Scene Text Recognition".

This year we also introduced a number of new awards including the best poster award at the Doctoral Symposium presented to Lluís-Pere de las Heras for the poster "Syntactic Model for Semantic Document Analysis" and a set of Outstanding Paper Review awards given to Veronique Eglin, Dimosthenis Karatzas, Umapada Pal, Jean-Yves Ramel, Eric Saund and Dorothea Blostein.

As anyone who has taken on the responsibility of hosting ICDAR or other large conferences knows, success depends almost exclusively on the team of volunteers who work tirelessly on

the program, infrastructure, and facilities. We would first like to thank the program co-chairs, Elisa Barney Smith, Abdel Belaid and Koichi Kise who have worked to put together a first-class technical program. We would also like to thank the chairs of the workshops, tutorials and competitions for providing us with the supplemental opportunities to interact and advance our field. We gratefully acknowledge the financial support of our sponsors which helps to offset costs and provide various awards for exemplary research. Finally, we would like to thank the team of local organizers and in particular Ranga Setlur and Ed Sobczak for managing the technical infrastructure, as well as Genie Smith from SUNY Buffalo and Laura Stevens from Raytheon BBN for helping with facilities and secretariat responsibilities.

**Proceedings are
available at
[IEEEExplore](#)**

IAPR Then and Now:

Announcement of the first ICDAR

from the *IAPR Newsletter* Volume 13, Number 4, February 1991

The First International Conference on Document Analysis and Recognition

*Saint-Malo, France
30 September - 2 October 1991*

The domain of automatic analysis, recognition, modelling, and understanding of documents has gained considerably in the last few years. Automatic intelligent processing of documents is at the intersection of many fields of research, especially of computer science, image analysis, pattern recognition, artificial intelligence, studies on language, reading, and handwriting. This first International Conference intends to provide an international forum for the development and the dissemination of new ideas, basic research, and issues concerning practical applications of both off-line and on-line processing in the domains of automatic analysis and recognition of documents. The conference will include prominent guest speakers, presentations of refereed papers, and poster presentations, as well as exhibits of experimental systems and commercial products. It is the first of a series which will be held every two years in conjunction with the International Workshop on Frontiers in Handwriting Recognition

Timetable

| | |
|--------------------|----------------------------|
| 15th February 1991 | full paper submittal |
| 15th May 1991 | notification of acceptance |
| 30th June 1991 | full paper camera ready |

Contact

Prof. Guy Lorrette (Conference Chairman)
Université de Rennes
Rennes, FRANCE



General Chair:

[Edwin Hancock](#) (University of York, UK)

by [Will Smith](#) (University of York, UK)

The fifteenth edition of the International Conference on Computer Analysis of Images and Patterns (CAIP 2013) took place in the historic UK city of York. CAIP is a biennial conference devoted to all aspects of Computer Vision, Image Analysis and Processing, Pattern Recognition and related fields and attracts an international audience.

The conference was held in the newly-built Ron Cooke Hub at the University of York and was attended by around 140 delegates. The conference reception was held at the York Castle Museum with drinks served in Kirkgate, a recreation of a Victorian street. The conference banquet was held at Yorkshire Sculpture Park with a guided tour of the sculptures provided by Art History PhD students from the university and musical entertainment from the Emley Brass Band.

The format of the conference was single-track with both oral and poster presentations. We received 243 full papers, from authors in 48 countries. Of these 142 were accepted, 39 oral presentation and 103 posters. All papers have

been published in Springer LNCS volumes 8047 and 8048. There were also video demonstrations in the 3sixty (a panoramic video projection space) and a best paper prize, sponsored by Elsevier Science, was awarded to Robert Spangenberg, Tobias Langner and Raul Rojas for their paper "Weighted Semi-Global Matching and Center-Symmetric Census Transform for Robust Driver Assistance".

Through the generous support of IAPR, we were able to bring three world-leading researchers to present [invited talks](#) at CAIP. [Rama Chellappa](#) of University of Maryland discussed the application of pattern recognition techniques to image and video recognition problems, [Xiaoyi Jiang](#) of University of Münster talked about his work applying computer vision to biomedical imaging problems



Click above to go the publisher's web site for these volumes.

and [Tim Weyrich](#) of University College London described several digital cultural heritage projects in which vision, pattern recognition and visualization are used.

The organisers would like to thank the invited speakers and delegates for making CAIP 2013 a great success and for contributing to the high scientific quality of the meeting. The next conference in the series will take place in Malta in 2015.





Workshops, tutorials and contests

All events listed on this page will be held on the 24th of August, 2014, in the same venue as the main conference.

Full-day workshops (Deadline)

- [FEAST 2014 – ICPR Workshop on Features and Structures](#) (April 30, 2014)
- [Visual observation and analysis of Vertebrate And Insect Behavior 2014](#) (May 1, 2014)
- [IWCF 2014 – 6th International Workshop on Computational Forensics](#) (March 14, 2014)
- [VAAM 2014 – Video Analytics for Audience Measurement in Retail and Digital Signage](#) (March 28, 2014)
- [2nd International Workshop on Pattern Recognition for Healthcare Analytics](#) (March 1, 2014)
- [FFER 2014 - 1st International Workshop on Face and Facial Expression Recognition from Real World Videos](#) (April 24, 2014)
- [PRRS 2014 – 8th International Workshop on Pattern Recognition in Remote Sensing](#) (March 31, 2014)
- [Computer Vision for Analysis of Underwater Imagery](#) (April 1, 2014)
- [MPRSS 2014 – 3rd International Workshop on Multimodal Pattern Recognition for Social Signal Processing in Human Computer Interaction](#) (April 1, 2014)
- [I3A – 1st Workshop on Pattern Recognition Techniques for Indirect Immunofluorescence Images Analysis](#) (March 30, 2014)

Half-day workshops, morning session (Deadline)

- [AMMDS - 2nd workshop on Activity Monitoring by Multiple Distributed Sensing](#) (April 14, 2014)
- [Pattern Recognition in Geosciences](#) (April 30, 2014)

Contests, afternoon session

- [Unsupervised Image Segmentation](#)
- [Graph Matching Algorithms for Pattern Search in Biological Databases](#)
- [Detection of Mitosis and Evaluation of Nuclear Atypia Score in Breast Cancer Histological Images](#)
- [Performance Evaluation of Indirect Immunofluorescence Image Analysis Systems](#) (Results will be presented at the I3A workshop (1st Workshop on Pattern Recognition Techniques for Indirect Immunofluorescence Images Analysis))

Tutorials, morning session

- [Recent advancements on the Bag of Visual Words model for image classification and concept detection](#) (Lecturers: Costantino Grana, Giuseppe Serra)
- [Feature Encoding for Image Representation and Recognition](#) (Lecturers: Yongzhen Huang, Liang Wang, Tieniu Tan)
- [Philosophical Aspects of Pattern Recognition](#) (Lecturer: Marcello Pelillo)
- [Advanced Morphological Filters](#) (Lecturers: Hugues Talbot, Michael H.F. Wilkinson)
- [Localization Microscopy: Finding & Localization Single Molecules](#) (Lecturers: Bernd Rieger, Keith Lidke)

Tutorials, afternoon session

- [Hands on Advanced Bag-of-Words Models for Visual Object Recognition](#) (Lecturers: Lamberto Ballan, Lorenzo Seidenari)
- [Eye movement signal - recording, processing and analyzing](#) (Lecturer: Pawel Kasprowski)
- [MAP Estimation and Structured Prediction in Document Image Analysis](#) (Lecturers: C. V. Jawahar, Kartteek Alahari)
- [Digital Topology, Geometry, and Applications](#) (Lecturers: Gunilla Borgefors, Robin Strand, Punam Kumar Saha, Gabriella Sanniti di Baja)

ICPR 2014 Calls for Nominations

Call for Nominations J. K. Aggarwal Prize

Deadline for Submission of Nomination and Endorsement Form is April 12, 2014

The International Association for Pattern Recognition (IAPR) is pleased to announce a call for nominations for the J.K. Aggarwal Prize. 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 2014 prize will be presented at the

22nd Int'l Conference on Pattern Recognition (ICPR)
Stockholm, Sweden
August 24-28, 2014

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 January 15, 2014. 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:

Antonio Torralba
Chair, J.K. Aggarwal Prize Committee
Office: 32-D530
32 Vassar Street
Cambridge, MA 02139
USA
email: torralba@csail.mit.edu

J. K. Aggarwal Prize Nomination Forms:

[Endorsement Form \(.doc\)](#)
[Nomination Form \(.doc\)](#)

Call for Nominations IAPR Fellow Award

Deadline for Submission of Nomination and Endorsement Forms is January 31, 2014

We welcome nominations for the award of FIAPR. Anyone is eligible to be nominated, except for the current members of the Executive Committee and of the Fellow Committee.

To initiate a nomination, a nominator must submit an [IAPR Fellow Nomination Form](#). Any member of an IAPR Member Society can serve as nominator, except for the nominee him/herself and the current members of the Fellow Committee.

Each nomination must be endorsed by at least one recommendation letter (submitted Endorsement Form), either from a member of an IAPR Member Society (different from the nominator) or from an IAPR Fellow.

Electronic [Nomination](#) and [Endorsement](#) forms should be submitted **no later than January 31, 2014**.

Each electronic submission will be acknowledged by an email containing the submitted form. In case of difficulty please address your data and the problem encountered through email to the chair of the Fellow Committee, Brian Lovell,

To: lovell@itee.uq.edu.au
Subject: IAPR Fellowship 2014
CC: webmaster@iapr.org

For detailed information about the nomination and the endorsement, please download these [instructions](#).

[Electronic versions](#) of the nomination forms are also available.

IAPR appreciates your efforts to support our fellowship program!

BOOKSBOOKSBOOKS

We are looking forward to reports on the following books under review:

1. [*Airborne and Terrestrial Laser Scanning*](#) by George Vosselman, Hans-Gerd Maas (Whittles Publishing, 2010). Reviewer: Giuseppe Maino. Under review since February 2010.
2. [*Euclidean Shortest Paths*](#) by Fajie Li, Reinhardt Klette (Springer, 2011). Reviewer: Bhargab B. Bhattacharya. Under review since December 2011.
3. [*Guide to Medical Image Analysis*](#) by Klaus D. Toennies (Springer, 2012). Reviewer: Alexandra Branzan-Albu. Under review since June 2012.
4. [*Handbook of Iris Recognition*](#) by Mark J. Burge, Kevin Bowyer, Eds. (Springer, 2013). Reviewer: Valery Starovoitov. Under review since April 2013.
5. [*Support Vector Machines for Pattern Classification, 2nd Ed.*](#), by Shigeo Abe (Springer, 2010). Reviewer: Huthaifa Abderahman. Under review since July 2013.



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.

~[Zeeshan Zia](#), IAPR Newsletter Associate Editor for Book Reviews

- * **Concise Computer Vision** by Reinhard Klette
(ISBN 978-1-4471-6320-6): <http://www.springer.com/computer/image+processing/book/978-1-4471-6319-0>
- * **Shape Perception in Human and Computer Vision** by Sven J. Dickinson and Zygmunt Pizlo (Eds.)
(ISBN 978-1-4471-5194-4): <http://www.springer.com/computer/image+processing/book/978-1-4471-5194-4>
- * **Unsupervised Process Monitoring and Fault Diagnosis with Machine Learning Methods**
by Chris Aldrich and Lidia Auret
(ISBN 978-1-4471-5184-5): <http://www.springer.com/computer/ai/book/978-1-4471-5184-5>
- * **Decision Forests for Computer Vision and Medical Image Analysis** by A. Criminisi and J. Sotton (Eds.)
(ISBN 978-1-4471-4928-6): <http://www.springer.com/computer/image+processing/book/978-1-4471-4928-6>
- * **Visual Texture** by Michal Haindl and Jiri Filip
(ISBN 978-1-4471-4901-9): <http://www.springer.com/computer/image+processing/book/978-1-4471-4901-9>
- * **Imaging Spectroscopy for Scene Analysis** by Antonio Robles-Kelly and Cong Phuoc Huynh
(ISBN 978-1-4471-4651-3): <http://www.springer.com/computer/image+processing/book/978-1-4471-4651-3>
- * **Motion History Images for Action Recognition and Understanding** by Md. Atiqur Rahman Ahad
(ISBN 978-1-4471-4729-9): <http://www.springer.com/computer/image+processing/book/978-1-4471-4729-9>
- * **Introduction to Image Processing Using R** by Alejandro C. Frery and Talita Perciano
(ISBN 978-1-4471-4949-1): <http://www.springer.com/computer/image+processing/book/978-1-4471-4949-1>
- * **Time-of-Flight Cameras** by Miles Hansard, Seungkyu Lee, Ouk Choi, and Radu Horaud
(ISBN 978-1-4471-4657-5): <http://link.springer.com/book/10.1007%2F978-1-4471-4658-2>
- * **Real-Time Detection of Lines and Grids** by Adam Herout, Markéta Dubská and Jiří Havel
(ISBN 978-1-4471-4413-7): <http://link.springer.com/book/10.1007%2F978-1-4471-4414-4>
- * **Omnidirectional Vision Systems** by Luis Puig and J.J. Guerrero
(ISBN 978-1-4471-4946-0): <http://link.springer.com/book/10.1007%2F978-1-4471-4947-7>
- * **Annual Dynamics of Daylight Variability and Contrast** by Siobhan Rockcastle and Marilyne Andersen
(ISBN 978-1-4471-5232-3): <http://www.springer.com/computer/theoretical+computer+science/book/978-1-4471-5232-3>
- * **Efficient Algorithms for Discrete Wavelet Transform** by K. K. Shukla and Arvind K. Tiwari
(ISBN 978-1-4471-4940-8): <http://link.springer.com/book/10.1007%2F978-1-4471-4941-5>
- * **Graph-Based Clustering and Data Visualization Algorithms** by Agnes Vathy-Fogarassy and Janos Abonyi
(ISBN 978-1-4471-5157-9): <http://www.springer.com/computer/database+management+%26+information+retrieval/book/978-1-4471-5157-9>



**This bulletin board
contains items of interest to the
IAPR Community**

Call for Participation:

[ICVSS 2014](#)

International Computer Vision Summer School
From Fundamentals to Applications

Sicily, Italy
13-19 July 2014

Application Deadline: 21 March 2014

<http://svg.dmi.unict.it/icvss2014/application.htm>



*Check Meeting
and Education
Planner*

BOOKSBOOKSBOOKS

FREE BOOKS!!!



**REGISTRATION
OPENS IN
JAN 2014**

Meeting and Education Planner

The IAPR web site has the most up-to-date information on IAPR events. Click [here](#).

NOTE: Highlighting indicates that the paper submission deadline has not yet passed.

* Asterisks denote non-IAPR events *

| | Meeting | Report | Location |
|------|---------|--|--|
| 2014 | MAR | IWBF 2014 : 2nd International Workshop on Biometrics and Forensics | Malta |
| | APR | DAS 2014 : 11th IAPR International Workshop on Document Analysis Systems | DAS 2012 France |
| | JUN | MCPR 2014 : 6th Mexican Conference on Pattern Recognition | MCPR 2013 México |
| | | ICISP 2014 : 6th International Conference on Image and Signal Processing | ICISP 2012 France |
| | JUL | * ICVSS 2014 : International Computer Vision Summer School—From Fundamentals to Applications * | ICVSS 2013 Italy |
| | AUG | S+SSPR 2014 : Joint Workshops on Statistical Techniques in Pattern Recognition (SPR 2014) and Structural and Syntactic Pattern Recognition (SSPR 2014) | S+SSPR2012 Finland |
| | | PRIB 2014 : 9th IAPR Conference on Pattern Recognition in Bioinformatics | PRIB 2012 Sweden |
| | | IWCF 2014 : 6th IAPR International Workshop Computational Forensics (in conjunction with ICPR2014) | IWCF 2010 Sweden |
| | | VAAM 2014 : Video Analytics for Audience Measurement in Retail and Digital Signage (in conjunction with ICPR2014) | Sweden |
| | | IWPRHA 2014 : 2nd International Workshop on Pattern Recognition for Healthcare Analytics (in conjunction with ICPR2014) | PR4HA@ ICPR2012 Sweden |
| | | FFER 2014 : 1st International Workshop on Face and Facial Expression Recognition from Real World Videos (in conjunction with ICPR2014) | Sweden |
| | | PRRS 2014 : Pattern Recognition in Remote Sensing 2014 (in conjunction with ICPR2014) | PRRS@ ICPR2012 Sweden |
| | | AMMDS 2014 : 2nd Workshop on Activity Monitoring by Multiple Distributed Sensing (in conjunction with ICPR2014) | Sweden |
| | | * Full list of Workshops, Tutorials and Contests held in conjunction with ICPR 2014 * | Sweden |
| | | AUG | ICPR 2014 : 22nd International Conference on Pattern Recognition |
| | SEP | ICFHR 2014 : 14th International Conference on Frontiers in Handwriting Recognition | ICFHR 2012 Greece |
| | | DGCI 2014 : 18th IAPR International Conference on Discrete Geometry for Computer Imagery | DGCI 2013 Italy |
| | | IJCB 2014 : International Joint Conference on Biometrics | ICB 2012 USA |
| | OCT | ANNPR 2014 : 6th IAPR TC3 International Workshop on Artificial Neural Networks in Pattern Recognition | ANNPR 2012 Canada |
| | NOV | CIARP 2014 : 19th Iberoamerican Congress on Pattern Recognition | CIARP 2012 México |