IN THIS Issue

From the Editor's Desk
Publish or Perish—Part 2

by Arjan Kuijper
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Last time I wrote about the importance of publishing good papers at good conferences, and, more important, about how to select them. I don't know if it was a coincidence, but in February, I got an email with the subject "Sun, Sea, Beach and a Conference." The email itself started with mentioning the five-star hotel (I guess the conference location) in a nice historical city, the options of post conference tours and, yes, you will not only have a nice holiday but also a good (?) conference. Well, the conference may be ok (check the constraints I gave in the previous newsletter!), but this kind of advertisement sounds a bit suspicious.

The second part of the email contained something I see more and more: accepted papers will be published in journals. In the graphics community this is common for major conferences (for example: Siggraph in Transactions on Graphics, Eurographics in Computer Graphics Forum, CGI in The Visual Computer). In pattern recognition, computer vision, and imaging this is less common. Some conferences have the possibility that after the conference the best papers can be extended and submitted to a journal issue containing "best selected papers". So, apparently, journal publications could be considered as better than conference publications—at least, to some extent. Be honest: look at the papers you cite. A lot of them are journal papers, simply because the material presented there is more mature.

So should we go for journal papers solely? Some research groups do. As a conference organizer, I mailed a call for papers to potential participants, and some English colleagues, replied that this year they would not submit conference papers, but only journal papers. Their institutes would be subject to an external evaluation and, therefore, they needed publications (journal papers) with an impact factor. From Wikipedia:

> "In any given year, the impact factor of a journal is the

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/*

FFER 2014
1st Int'l Workshop on
Face and Facial Expression Recognition from Real World Videos
held in conjunction with the 22nd International Conference on Pattern Recognition--ICPR 2014
Stockholm, Sweden
Date: Aug. 24, 2014
Deadline: Apr. 24, 2014

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

ICB 2015
The 8th IAPR/IEEE Int'l Conference on Biometrics
Phuket, Thailand
Dates: May 20-22, 2015
Deadline: Nov. 15, 2014

MVA 2015
14th IAPR International Conference on Machine Vision Applications
Tokyo, Japan
Dates: May 18-22, 2015
Deadline: Dec. 12, 2014

ICDAR 2015
13th International Conference on Document Analysis and Recognition
Gammarth, Tunisia
Dates: Aug. 23-26, 2015
Deadline: Jan. 15, 2015

PSIVT 2015
7th Pacific Rim Symposium on Image and Video Technology
Auckland, New Zealand
Dates: Nov. 23-27, 2015
Deadline: Jul. 24, 2015

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average number of citations received per paper published in that journal during the two preceding years. For example, if a journal has an impact factor of 3 in 2008, then its papers published in 2006 and 2007 received 3 citations each on average in 2008. The 2008 impact factor of a journal would be calculated as follows:

A = the number of times that articles published in that journal in 2006 and 2007, were cited by articles in indexed journals during 2008.

B = the total number of "citable items" published by that journal in 2006 and 2007. ("Citable items" are usually articles, reviews, proceedings, or notes; not editorials or letters to the editor.)

2008 impact factor = A/B."

The impact factor measures the visibility of a journal. Or better: the visibility of the average article published in it. One paper could generate a lot of citations, while another might not be cited at all. [Side remark: that's why editors love good, state-of-the-art reviews!] Not surprisingly, journals you probably consider as good have a (relatively) high impact factor.

Obviously, any system that measures scientific excellence in

one number can be hacked. Just like it was possible to create the fake researcher Ike Antkare and get him an h-index of 98 using a self-referencing network of Scigen papers, it is possible to increase the impact factor of journals. A relatively obvious way is for the editor to ask people who submit to Journal A to cite recent publications in this journal. Another nice trick is to publish several journals and let them cite each other. A third way is to introduce similar sounding measures. Librarians love to investigate such initiatives.

Especially Open Access journals are a potential source of danger.

Many of them are similar to these holiday conferences: you pay, they publish. Of course they present themselves as scientific publications, but often it is not clear who is on the editorial board and if proper scientific reviewing takes place. Many of them have become black listed. Just like with conferences, check the publisher and the people responsible for the reviewing process: Is it a decent publisher like the ones mentioned last time (IEEE, Elsevier, Springer, ACM, Wiley, …)? Do the review times make sense? What do other people think of this journal?

As you may know, the IAPR sponsors three journals: Pattern Recognition Letters, International Journal on Document Analysis and Recognition and Machine Vision and Applications. They are safe ☺

Suggestions on how to improve this situation? Mail us!

arjan.kuijper@igd.fraunhofer.de

IAPR Then and Now:

"From the Editor's Desk" 30 Years Ago

From the April 1984 (Vol 7 No. 2) issue of the *IAPR Newsletter*

Dear Colleagues,

   This editorial was inspired by the Colloquium recently given in the Computer and Information Science Department here at the University of Pennsylvania by Dr. Russel Kirsch from the National Bureau of Standards in Washington, D.C. In his remarks he quoted President Adams from the book of Abigail and John, *Selected Letters of the Adams Family, 1762-1784*.

> "I must study Politics and War that my sons may have liberty to study Mathematics and Philosophy. My sons ought to study Mathematics and Philosophy, Geography, Natural History, Naval Architecture, Navigation, Commerce and Agriculture in order to give their Children a right to study Painting, Poetry, Musick, Architecture, Statuary, Tapestry and Porcealaine."

I feel that we have passed the era of politics and wars. The field of Pattern Recognition is well established and well respected. Perhaps we are now in the second phase of the formalisation of the field and its practical implementation. However, I believe that it is now that the new generation should look towards the important applications of Pattern Recognition into the field of the arts, such as painting, architecture and tapestry. The methodology of pattern recognition applied to these fields will lead to understanding of creativity at large. I cannot think of a more noble goal for our future activities, and I do hope that the next generation will live up to these challenges.
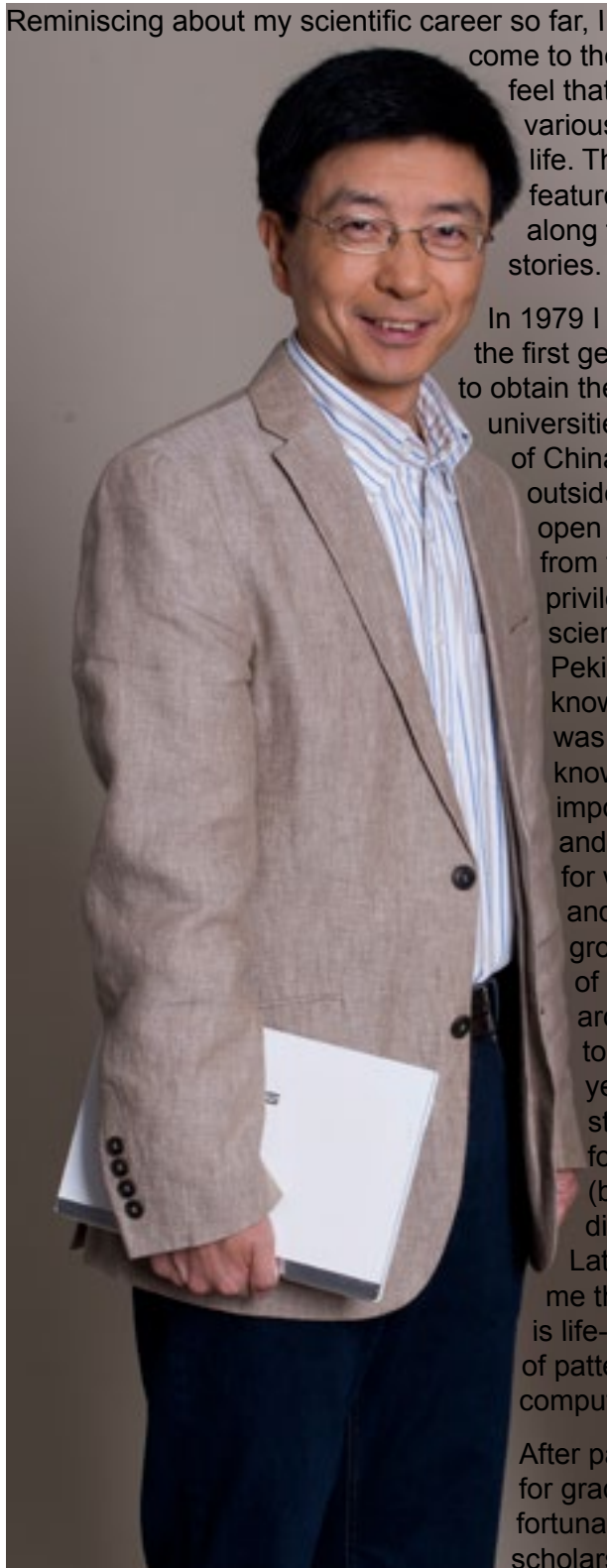
With best wishes,

Ruzena Bajcsy

Getting to know…
Xiaoyi Jiang, IAPR Fellow

Toward biomedical imaging, a fortunate journey

by **Xiaoyi Jiang**, IAPR Fellow

Xiaoyi Jiang, IAPR Fellow
ICPR 2006, Hong Kong

For contributions to range image analysis and structural pattern recognition, and for service to IAPR.

Reminiscing about my scientific career so far, I unavoidably have to come to the word "fortune". I really feel that I have been fortunate in various important phases of my life. Thus, my thoughts in this feature article will be grouped along the line of some related stories.

In 1979 I was fortunate to be part of the first generation of young people to obtain the opportunity to study at universities at the very beginning of China's opening up to the outside world and pursuing an open economy. Originating from the south, I had the privilege of studying computer science at the renowned Peking University, commonly known as Beida in China. It was a great time to get to know science, but just as importantly, to drink in the free and progressive thoughts, for which Beida is famous, and to enjoy the campus grounds and the beauty of its traditional Chinese architecture. Although not touching pattern recognition yet, we computer science students were fortunately forced to attend many (both continuous and discrete) math courses. Later, it became clear to me that having learned math is life-saving in today's world of pattern recognition and computer vision.

After passing the entrance exam for graduate study at Beida, I fortunately received a PhD scholarship from Switzerland in

XIAOYI JIANG studied Computer Science at the Peking University and received a Bachelor degree in 1983. Later, he received his PhD and Venia Docendi (Habilitation) degree in Computer Science from the University of Bern, Switzerland, in 1989 and 1997, respectively. He was an associate professor at the Technische Universität Berlin, Germany. Since 2002, he has been a full professor of Computer Science at the University of Münster, Germany. Currently, he is Editor-in-Chief of International Journal of Pattern Recognition and Artificial Intelligence and also serves on the advisory board and editorial board of several other journals, including Pattern Recognition, IEEE Transactions on Cybernetics, and Chinese Science Bulletin. In 2010, he was a Track Chair (track computer vision) of ICPR in Istanbul. Since 2012, he has served as the Chair of IAPR TC-15 "Graph-based representations in pattern recognition". His research interests include biomedical imaging, 3D image analysis, and structural pattern recognition. He is a PI of the new Cluster of Excellence "Cells in Motion" (*http://www.uni-muenster.de/CiMIC/*) funded by the German Excellence Initiative. He is Senior Member of the IEEE and Fellow of the IAPR.

1984. At the University of Bern I met Prof. [Horst Bunke](), who would later become my mentor. I started in another group working in the field of software engineering and soon realized that my larger interest was in Horst's field, i.e., pattern recognition. For my life, I will be thankful to my first professor in Bern who allowed me to "escape" and to Horst for his willingness to become my new supervisor and for the uncountable number of valuable pieces of advice he gave me later in my career.

In my PhD work, and for many years afterwards, my main research was 3D image analysis, in particular in range (depth) images. As hands-on experiences, it was fascinating and satisfying to assemble a structured light range scanner including calibrating a combination of camera and pattern projector. One of my main interests during that time was to develop robust and efficient range image segmentation algorithms and, together with other teams, to establish a framework for quantitatively comparing the performance of range image segmentation algorithms including datasets captured by different scanners with manually specified ground truth and performance metrics. It was widely used in the community and the related [IEEE-TPAMI 1996]() paper remains my most cited publication to date.

Given the substantial and influential work of Horst in structured pattern recognition, it is not surprising that I was also attracted to this interesting field. This interest has resulted in some fundamental works like the one on median graphs published in [IEEE-TPAMI 2001](). Due to my continuing interest in structured pattern recognition, since 2012, I have served as the Chair of [IAPR TC-15]()

[“Graph-based representations in pattern recognition”](), which fosters basic and application-oriented research in pattern recognition within the framework of graph theory (and other related structural representations).

Starting in 2000, I worked two years in the research lab of a hospital. For the first time of my academic life I was faced with medical (ophthalmic) images. Luckily, I had absolute freedom in my research and worked on ophthalmic image analysis (vessel network segmentation) and other fascinating topics, like real-world ophthalmic tests by means of autostereoscopic displays. This working period opened my eyes to the more practical side of pattern recognition.

After an intermezzo of one semester only at the Technische Universität Berlin as an associate professor, I got an offer of full professor at the University of Münster and started my current job late in 2002. What a coincidence (luck) that a short time later some colleagues in the medical school started to prepare a proposal for a so-called [Collaborative Research Centres]() (CRC) to be funded by the [German Research Foundation]() (DFG). In contrast to the regular funding program, this funding line supports a large research program (with about 20 subprojects) and follows a research vision for up to 12 years (four years for one funding period and extendable by two additional funding periods in the optimal case). In addition to its high scientific quality, this planned CRC for molecular cardiovascular imaging had the unique feature of strong interdisciplinarity, ranging from basic and clinic medicine, chemistry (tracer), physics (device), to computer science (image analysis) and applied mathematics (image

reconstruction). Such a broad coverage of diverging fields carries the substantial potential of bundling their power towards innovative methods for visualizing cardiovascular diseases (majority of all death worldwide), thus providing new knowledge about the cause and progress of disease and allowing for an earlier and more precise diagnosis. I joined the team and, together with a colleague from medical physics, proposed a subproject concerning motion detection and correction in Positron Emission Tomography (PET). Finally, we were fortunate enough to survive the hard reviewing process as a whole and our subproject was not "killed" by the review panel (which does happen, in general). And all at once, I was in medical imaging, and with a cutting-edge topic.

What is medical imaging or medical computer vision? Many computer vision algorithms have been successfully adapted and applied to medical imaging applications. However, medical computer vision is far beyond being only an application field. Indeed, it is a wide field with huge potential for developing novel concepts and algorithms and can be seen as an additional driving force for computer vision research. Since the start of the CRC, we have experienced and practiced often enough this view of medical computer vision.

As an example, the popular brightness constancy for motion analysis, either in the framework of optical flow (OF) or image registration, turns out to be violated in several medical (and other) imaging modalities due to the specific properties of imaging devices (ultrasound, PET, etc.). We have made new constancy proposals and developed novel OF/registration algorithms, which

enable us to estimate the motion with a much higher precision than with brightness constancy based methods. In the case of PET imaging, our newly developed Variational Algorithm for Mass-Preserving Image REgistration (VAMPIRE, IEEE-TMI 2012) and its OF counterpart (Medical Physics 2013) provably bring genuine progress to PET motion correction. A monograph on this topic will appear soon at Springer. Currently, a field test is being planned to study the clinical impact of our work. Since this work is also done in close collaboration with the European Institute for Molecular Imaging, which is partly funded by Siemens, we hope that such motion correction techniques will become an intrinsic part of the coming generation of PET scanners.

Another example is the need for developing new segmentation methods that can cope with multiplicative noise models, necessitated by a variety of (medical) devices that do not obey the popular additive Gaussian noise model. Recently, we have developed several related algorithms.

In close collaboration with biology and medicine we are lucky to have the rather rare opportunity of working on biomedical imaging techniques as well. Recently, we have adopted Frustrated Total Internal Reflection (FTIR) to improve the measurability of small animals like insects, which is suitable for a wide range of biological organisms/applications. This FTIR-based imaging method (FIM) results in an excellent foreground/background contrast and for the first time even internal organs and other structures are visible without any complicated imaging or labeling techniques. This is a step forwards for behavior

study in biology. PET is a most sensitive imaging tool to study molecular metabolism in vivo. Due to the long acquisition time (minutes) of PET, anesthesia is widely used in small animal studies to avoid motion. However, the impact of anesthesia on organ function depicted by PET studies was found to be significant. Therefore, the application of PET as a quantitative method to analyze spontaneous, "natural" metabolism becomes critical or even impossible in anesthetized animal subjects. Currently, we are developing techniques and realizing a system for freely moving mouse PET imaging without anesthesia. If successful, this imaging technique will certainly have impact on basic medical research.

In the past years, biomedical imaging has become one focus of my research (in addition to other topics like range image analysis and structural pattern recognition). In some sense, I and part of my team working in this field grew up with the successful CRC, which meanwhile has been extended for its 3rd (last) funding period. Moreover, based on the CRC, we were successful in applying for the interdisciplinary Cluster of Excellence "Cells in Motion" within the highly competitive German Excellence Initiative. The next milestone is to establish a "Multiscale Imaging Center". The
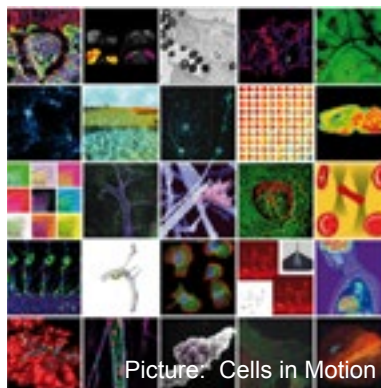
Picture: Cells in Motion

New imaging technologies permit unique possibilities to investigate cell behaviour in whole organisms

new building will physically bring more than 300 researchers from different disciplines together to investigate cells and their behavior using imaging techniques. As one of the PIs I am fortunate to be part of this success story. During the years, we have learned that the hardest problems come from the practice which give us huge room for challenging algorithmic development, which in turns solves important real-world problems better. It is this sound circle that motivated and guided our research in part and will remain our research philosophy in future.

The first CRC planning discussions marked the start of my research in biomedical imaging and substantially shaped my research profile. This was only possible because of my successful application to the professorship positions at the Technische Universität Berlin and, shortly after that, at the University of Münster. Having acted on several search committees for professor positions since then, I am fully aware how much luck I must have had to obtain the two offers. I deeply thank whomever was responsible for the luck.

And I deeply hope that I have not consumed all the luck of my life. Fortunately, there is some hint that the amount of luck is not a constant. The following words are attributed to the American president Thomas Jefferson, "I am a great believer in luck, and I find the harder I work, the more I have of it." This makes me optimistic; however, it implies the price is to continue working hard after about the past quarter of a century. This is not really harmful, since, as I come to the end of this feature article, I am simply happy, as are so many of my colleagues, in the wonderful world of Pattern Recognition.

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 Alexander Hermans, Computer Vision Group, RWTH Aachen University, Aachen, Germany

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

My first experience with pattern recognition techniques was during my bachelor thesis. My task was to design a marker detection framework for android devices. After learning about many interesting approaches, I wanted to understand them in more detail. So in the first year of my master studies I attended computer vision and machine learning classes. Since these really got me interested, I applied for a student assistant job at the computer vision group of the RWTH Aachen University, led by Professor Leibe. I started my work in the area of indoor semantic segmentation, meaning that I aim to assign a semantic label to each pixel or superpixel in an image. While there has been a lot of research on this topic for outdoor scenes, the far more challenging indoor scenes have been widely neglected. However, this recently changed with the availability of consumer grade RGB-D sensors. In indoor scenarios these sensors provide depth information (at no computational cost), which has been shown to be a very strong cue for semantic segmentation. The topic was a lot of fun to work on, so I continued it as my master thesis project. The main goal was to improve the speed of the traditional semantic segmentation pipelines without reducing the segmentation quality. For this purpose I looked into randomized decision forests which have been very popular classifiers in the past few years. Considering their

I received my Bachelor's degree (2011) and Masters's degree (2013) in Computer Science at the RWTH Aachen University. Since April 2013 I'm a PhD student in the Computer Vision Group, RWTH Aachen University, headed by Prof. Bastian Leibe. In my Master thesis I worked on efficient semantic segmentation based on RGB-D images. In my current research I continue this line of work, with a focus on 2D-3D segmentation and efficient inference.

sub-linear complexity they are well suited for efficient approaches. As each pixel is classified on its own, spatial smoothness needs to be enforced otherwise. For this purpose I use graphical models called conditional random fields. Recent advancements in this area have made efficient inference in densely connected graphs possible, yielding better results at a lower computation cost.

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

Currently I am involved in two European projects. In both, my task is to provide the semantic segmentation for 3D point clouds reconstructed from multiple sensors, such as RGB-D cameras or laser scanners. Semantic information can be very helpful to higher level tasks, such as object localization and tracking. Because of this, the ultimate goal is to provide temporally consistent semantic segmentations in real-time on a robotics platform. In order to achieve this, my current research focuses on the efficient segmentation of 2D images. The semantic segmentation can then be transferred to 3D point cloud representations of a scene. However, most of the current semantic segmentation approaches do not run at video frame rates with an acceptable quality. This is especially the case when limited to the hardware of a mobile robot. Because of this, I am working on temporal and spatial consistency assumptions, which can be used to propagate semantic information obtained from one frame until a new segmentation can be computed. This allows us to segment a 3D point cloud without segmenting every 2D frame in the input sequence.

Another research focus will be

to not only obtain a semantic labeling but to also determine other properties. Here, possible options could be the material, the orientation, whether something is wet or dry, or whether a pixel belongs to a man-made or a naturally occurring object. In one of the two projects we will map the catacombs beneath Rome. Parts of the catacombs cannot be visited by humans because the air contains poisonous gas, however a robot can explore such areas. For the reconstructions of these parts it is important to obtain information about several attributes and not to only focus on semantic information. Instead of inferring all the attributes on their own, we aim to jointly classify them. This should give us a more consistent representation, and hopefully it will give us improved results for the separate classification tasks.

How can the IAPR help young researchers?

As there are many successful researchers, I feel that it can sometimes be hard to compete with senior experts in a field. The competition is fierce and when a deadline approaches all that matters is improving the current state-of-the-art. If you look at some papers resulting from this system, sometimes you really see how it comes to writing in the correct way. Many contributions, however small or simple they might be, are described in dazzling ways. For example, I find reading about "a speed-up by a factor of a 1000"

very interesting, but then I am a bit disappointed if I find out that only a tiny fraction of a whole pipeline was accelerated by this factor. While many of these contributions are still very valuable and correct, writing about them in a plain and honest way would probably not be as successful. I see this as a general problem in today's research, as it sometimes seems that it is no longer about getting interesting results, but about selling something. I think an organization such as the IAPR can help all researchers by trying to improve this situation. A possibility might be to encourage open science. For example, conferences could use open journals and encourage the submission of source code. This way the contributions will become more transparent and accessible to the public. Even public paper reviews, as already used by certain websites, might be an option for researchers to get a more constructive feedback on their research.

Furthermore I think that a lot can be learned from discussions with fellow researchers. Especially for us young researchers, a hint from an expert in the field can be very helpful. Conferences, summer schools and workshops serve as an excellent platform for these kind of interactions. I think that by organizing such events, the IAPR can help young researchers to boost their motivation and ideas and help them to find a place in the research 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*
and continued as the series "Unsolved Problems in Pattern Recognition"
in the January 2014 issue.

The mirage of a general purpose robot and the combinatorial explosion: 40 years after the Lighthill report

Thomas Brox, University of Freiburg

http://www.gris.tu-darmstadt.de/~akuijper/IAPR/2013-8-GCPR.pdf

The previous newsletters contained contributions from the DAGM Workshop on Unsolved Problems in Pattern Recognition and Computer Vision, held September 2013. Here, one more contribution is given, as well as links to the last couple of presentations. ~A. Kuijper, EiC

In 1973, Sir James Lighthill compiled a report for the British government about the status of artificial intelligence. The report was very pessimistic regarding the achievements of the field until then and also gave a very pessimistic prognosis on the achievements to be made in the future. The most important concern raised in the report was the combinatorial explosion, which would make it impossible to scale the methods of artificial intelligence up to the real world domain.

While Lighthill was positive about computer science applied to specialized problems, such as airplane control, he criticized AI research to be restricted to toy problems and called the general purpose robot a mirage. As a result of his report, financial support for artificial intelligence in Britain was heavily cut.

40 years later, it is interesting to have a look at the state of the field and compare it to the prognosis

Other contributions:

Joachim Buhmann (ETH Zurich): Decision making under uncertainty: how Informative is your algorithm with noisy inputs and internal computation errors.

1. The generalization of information theory to algorithm validation so far yields an upper bound for the identifiability of models. The converse of a lower bound is missing.

2. How relates the generalization capacity to the algorithmic complexity, i.e., are information theoretically robust algorithms computationally efficient?

3. How can we robustify well-known algorithmic principles like dynamic programming?

4. What is our ultimately interest in pattern recognition? Are we optimizing or are we localizing solutions?

Carsten Rother (TU Dresden): An Open Challenge in Computer Vision: From Inverse Rendering to Scene Understanding.

1. How to evaluate different segmentation systems?

2. How to learn the parameters of a given segmentation system?

Jitendra Malik (U Berkeley): Computational Architectures for Visual Recognition.

1. The availability of "big data" means that high capacity learning machines have greater potential than before. We can choose a different point on the bias-variance tradeoff from machine learning theory.

2. Multilayer neural networks are not the only way. For example, random forests, with suitably rich set of questions, could do so as well.

3. The experience of handwritten digit recognition where 5 or 6 different approaches achieve below 1% error rates suggests that it is not worth having a religious battle over classifiers.

of Lighthill. Which problems that he considered unsolvable have been solved and does this render his argument about the combinatorial explosion invalid? The issue of methodologies that do not scale up but work only on toy problems sounds all too familiar to us. Is progress to be attached to the exponential increase of computational capacity that allows us to linearly increase the size of the working domain, or has the field found ways to fight the combinatorial explosion? Are the heuristic approximations we invented to avoid the combinatorial explosion valid or do they necessarily restrict us to specialized domains requiring manual definition of priors, as claimed by Lighthill? Finally, is the combinatorial explosion a problem at all, or can we just rely on the exponential increase of computational capacity because even general purpose robots, and humans alike, act in a finite, quite restricted domain?

40 years later: Did we make progress on representations?

1. We use representations that can be learned from datasets.

2. We developed learning techniques that can generalize by feature picking and/or interpolation.

3. We did not fight the combinatorial explosion but rather found ways to better live with it.

4. The match between human and computer vision is strongest at the level of function, but since typically the results of computer vision are meant to be conveyed to humans makes it useful to be consistent with human perception. Neuroscience is a source of ideas but being bio-mimetic is not a requirement.

Bastian Leibe (RWTH Aachen): Next Challenges in Dynamic Scene Understanding: Beyond Tracking.

1. Tracking for Dynamic Scene Understanding: tracking by detectionis not scalable to many categories. Making good predictions is still an elusive goal.

2. To make progress, we need a more detailed analysis of people, objects, interactions and social behaviors, and the semantics of the environment.

In the previous newsletters (October 2013 and January 2014) you can find details on:

Daniel Kondermann (University of Heidelberg): Ground Truth Generation

Jan-Michel Morel (ENS Cachan): What matters more for image matching and the comparison of descriptors: invariance and causality requirements or repeatability criteria?

Uwe Franke (Daimler): The Quest for Robustness and Accuracy - Mission Impossible?

Joachim Denzler, Erik Rodner, Paul Bodesheim, Alexander Freytag (University of Jena): Beyond the closed-world assumption: The importance of novelty detection and open set recognition.

*Thoughts on
"The mirage of a
general purpose robot and the
combinatorial explosion"?
Send them to us:
unsolved@iapr.org*

ICPR
22nd INTERNATIONAL CONFERENCE ON PATTERN RECOGNITION

IAPR
Linköpings universitet   LUNDS UNIVERSITY   UPPSALA UNIVERSITET

24-28 August 2014 Stockholm, Sweden

From the EXCO

Uppsala April 6, 2014

In front of you, you have the April edition of the *IAPR Newsletter*. I think nobody can have missed that the 22nd International Conference on Pattern Recognition (ICPR 2014) will take place in Stockholm in August. The other week, more than 800 authors received notification of acceptance of their manuscripts. The next step is to register for the conference. We encourage you to do so before the Early Bird registration deadline on May 21. Please, visit the conference website, *http://www.icpr2014.org/* , for information.

Even though the main focus for the IAPR community currently is on the ICPR 2014, the planning for ICPR 2016 in Cancun, Mexico, is also on-going for General Chair

Eduardo Bayro-Corrochano and his team. Planning further ahead, the call is now open for bids to host ICPR 2018, with a deadline of May 24. A call for bids to host ICPR2018 can be found in this issue and also at the IAPR web site. Details on how to bid can be found here *http://iapr.org/conferences/proposals.php* . The IAPR Governing Board (GB) will vote on the location at the GB meeting in Stockholm on August 26.

Another topic for the GB meeting is the creation of an IAPR Maria Petrou Prize. Maria Petrou, who passed away on October 15, 2012, was very active in the IAPR community for many years including being a member of the Executive Committee as IAPR Treasurer. The Advisory

Committee, chaired by Walter Kropatsch, has worked on a proposal for this prize to be awarded in Maria Petrou's memory, which will be presented to the GB for approval.

In this edition of the IAPR Newsletter, we are "Getting to Know" two persons from our community, an IAPR Fellow and also a "Next Generation" researcher. The IAPR Fellow is Professor Xiaoyi Jiang. I am looking forward to reading his article and insights on research in 3D biomedical image analysis and pattern recognition. The future of the IAPR is with young researchers in our field. In this issue, the Next Generation spotlight is on Alexander Hermans. I am also interested in reading the book reviews, *Handbook of Iris Recognition* and *Principles of Digital Image Analysis*, and the many meeting reports put together by our editors.

I encourage you to visit the IAPR webpage *http://www.iapr.org/* regularly for information on IAPR matters. For example, in the next few days it will be announced who will receive the prestigious King-Sun Fu Prize this year.

Ingela Nyström
IAPR Secretary

Call for Bids to Host ICPR 2018

Meeting Reports

Conferences, Workshops & Summer Schools

ICIAP 2013

17th International Conference on Image Analysis and Processing

Naples, Italy
September 9-13, 2013
http://www.iciap2013-naples.org

General Chair:
Alfredo Petrosino (University Parthenope of Naples, Italy)

by Alfredo Petrosino

The International Conference on Image Analysis and Processing (ICIAP) is a biennial meeting promoted by the Italian Group of Researchers in Pattern Recognition (GIRPR).

The 17th edition, ICIAP 2013, held in the magnificent Castel dell'Ovo was organized by the CVPR Lab of the University of Naples Parthenope (*cvprlab. uniparthenope.it*).

ICIAP 2013 was endorsed, as usual, by the IAPR. This edition also gained the endorsement of the IEEE Computer Society's Technical Committee on Pattern Analysis and Machine Intelligence (TCPAMI) and the IEEE Computational Intelligence Society (CIS) as well as the financial sponsorship of the Italian Ministry of Education, University and Research, the Italian Ministry of Economic Development, Google Inc. USA, Ansaldo STS, CIRA, Selex ES, ST-Microelectronics, GNCS, and Unlimited Software s.r.l.

The central aim of ICIAP 2013 was to highlight connections and synergies of image processing and analysis with pattern recognition and machine learning, human computer systems, biomedical imaging and applications, multimedia interaction and processing, 3D computer vision, and understanding objects and scene, providing to researchers, as well as people from industry, students and interested newcomers, a forum for discussing current developments and applications.

ICIAP 2013 received more than 350 paper submissions from 37 different countries (namely Algeria, Argentina, Austria, Belgium, Brazil, Bulgaria, Canada, China, Colombia, Czech Republic, Denmark, Egypt, Finland, France, Germany, Greece, India, Israel, Italy, Japan, Korea, Morocco, Mexico, Pakistan, Poland, Romania, Russia, Saudi Arabia, Slovak Republic, Spain, Sweden, Switzerland, Tunisia, Turkey, United Kingdom, USA and Vietnam), a substantial

increase over previous years, . Ten Area Chairs, together with the International Program Committee and a team of nearly 150 additional reviewers were involved in a rigorous peer-review selection process, based on three distinct reviewers per paper and including a rebuttal phase. Ultimately, 162 high quality manuscripts were selected, with an overall acceptance rate of 45.76% and an oral acceptance rate of 7.9%, the lowest in the ICIAP series. The proceedings were published by Springer, as LNCS volumes 8156 and 8157.

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

The program included five invited talks by experts in computer vision and pattern recognition:

- "Large-Scale Visual Recognition Powered by Big Data and Big Crowd", Fei-Fei Li, Stanford University (USA);

- "Visual Tracking: the Challenges", Jiri Matas, Czech Technical University (Czech Republic);

- "Rough sets and soft granular mining: concepts and applications", Sankar K. Pal, Indian Statistical Institute (India);

- "Evaluating Typefaces by Humans and Computers", Ching Y. Suen, Concordia University (Canada);

- "Understanding Visual Scenes", Antonio Torralba, Massachusetts Institute of Technology (USA).

From the industrial standpoint, Mei Han from Google Inc. USA was invited to give a talk on "Google StreetView Image Segmentation and Beyond" in a panel discussion together with other high-tech companies.

ICIAP 2013 included six tutorials held on September 9-10 in the historical Villa Doria d'Angri of the University of Naples Parthenope, on the Posillipo hill:

- "Bio-Inspired Attention Methods in Computer Vision: Theory, Models and Biological Realities" (John Tsotsos, Canada);

- "Discrete Optimization in Computer Vision" (Nikos Komodakis, France, and Pawan Kumar, France);

- "Digital Camera Images: Captured Scene Information vs. Engineered Errors" (Alessandro Rizzi, Italy and

John McCann, USA);

- "Hands on Advanced Bag-of-Words Models for Visual Recognition" (Lamberto Ballan and Lorenzo Seidenari, Italy);

- "Non-Rigid 3D Reconstruction from Images" (Alessio Del Bue, Italy);

- "Artificial consciousness: theoretical and empirical issues" (Riccardo Manzotti, Italy).

ICIAP 2013 also hosted five satellite workshops:

- "Assistive Computer Vision and Robotics" (ACVR), organized by Marco Leo and Danilo P. Mandic;

- "Emerging Aspects on Handwritten Signature Processing" (EAHSP), organized by Michael Fairhurst, Donato Impedovo, and Giuseppe Pirlo;

- "Multimedia for Cultural Heritage" (MM4CH), organized by Costantino Grana, Johan Oomen, and Giuseppe Serra;

- "Pattern Recognition in Proteomics, Structural Biology and Bioinformatics" (PR PS BB), organized by Virginio Cantoni, Michele Ceccarelli, and Robert Murphy;

- "Social Behaviour Analysis" (SBA), organized by Alberto del Bimbo, Pietro Pala, and Maja Pantic.

The Workshop papers were all collected in a separate volume by Springer, LNCS 8158.

Five Student Support awards were provided by Google USA to cover conference/travel expenses. From the scientific standpoint, the Award Committee, headed by Ramin Zabih and including Gunilla Borgefors, Gabriella Sanniti di Baja, and Ching Suen, attributed

four ICIAP 2013 Best Paper Awards:

- IAPR Best Paper Award, to the paper "Structured Multi-Class Feature Selection for Effective Face Recognition Tree" by Giovanni Fusco, Luca Zini, Nicoletta Noceti, and Francesca Odone,

- IAPR Best Student Paper Award, to the paper "An Efficient Indexing Scheme Based on Linked-Node m-ary Tree" by The-Anh Pham, Sabine Barrat, Mathieu Delalandre, and Jean-Yves Ramel;

- and two Caianiello Best Young Scientist Paper Awards, promoted by GIRPR and sponsored by the CVPR Lab of the University of Naples Parthenope ex aequo to the papers "Average Common Submatrix: a New Image Distance Measure" by Alessia Amelio and Clara Pizzuti and "Kernels for Visual Words Histograms" by Radu Tudor Ionescu and Marius Popescu.

The authors of the awarded papers were invited to extend their articles and submit them to a special section of the Pattern Recognition Letters journal.

For the 300 attendees, a "tour" of the most exclusive Neapolitan private clubs and historical monuments was organized, including a welcome dinner at the Circolo Canottieri Napoli on and a gala dinner at the Circolo Nazionale dell'Unione, with a guided tour of the Royal Palace.

Undoubtedly, ICIAP 2013 was a great success. This success is to be credited to the contributions of many people, among which the Organizing Committee Members: Alessio Ferone and Maria Frucci (Local Co-chairs),

Lucia Maddalena and Pietro Pala (Workshop Co-chairs), Francesco Isgrò and Giosuè Lo Bosco (Tutorial Co-chairs), Francesco Camastra and Michele Nappi (Industrial Liason Co-chairs), for their unstinting advice and support. Special thanks should be given to the Area Chair. I wish to thank the International Program Committee and the additional Reviewers for the immense amount of hard work

and professionalism that went into making ICIAP 2013. Finally, I am really indebted to the blue t-shirt staff, made of graduate and PhD

students; without them, running this conference would have been much heavier.

General Chairs:
José Luis Marroquín - Centro de Investigación en Matemáticas, México.
Tieniu Tan - Chinese Academy of Sciences, China.

by Jean-Bernard (J.B.) Hayet, CIMAT, México

The sixth edition of the Pacific-Rim Symposium on Image and Video Technology (PSIVT) was held in the picturesque city of Guanajuato, in the central highlands of México.

After Taiwan, Chile, Japan, Singapore and South Korea, the PSIVT steering committee decided to organize the biennial conference on the eastern side of the Pacific Rim, for the second time in the conference history. The UNESCO World Heritage List City was more colorful than ever, because of the Day of the Dead festival. During these days in México, families decorate altars with food, photographs, flowers, and ornaments, in honor on their relatives that passed away. The main conference was held in the Auditorium of the magnificent

main building of the University of Guanajuato, in downtown Guanajuato, with its monumental stairs decorated with such an altar.

The workshops were organized in the Escher-esque installations of the Center for Mathematical Research (CIMAT) on a hill that overlooks the city (see M. C. Escher official site for images of the "impossible constructions" of this Dutch artist).

The PSIVT 2013 conference received a total of 90 submissions,

and the four workshops received nearly 50 submissions. Submissions were collected from all over the world, with a strong participation from Japan, México, New-Zealand, China, France, and Spain, among others. The program committee selected 46 papers in the main conference, 26 of which were presented during two interactive sessions, and the remaining in the seven oral sessions. We are very thankful to the reviewers for their excellent work. All papers were reviewed by at least three reviewers, and many were reviewed by four. The reviewing process was coordinated by three program co-chairs and 30 area chairs, who made the final decisions of acceptance.

The presented works were of very high quality, and two prizes were awarded to highlight outstanding

research works.

The IAPR best paper prize was awarded to the paper:

"Wide-baseline Dense Feature Matching for Endoscopic Images" by G. Puerto-Souza and G.-L. Mariottini (University of Texas at Arlington).

The IAPR best student paper prize was awarded to:

"Joint Dictionary and Classifier learning for Categorization of Images using a Max-margin Framework" by H. Löbel (Pontificia U. Católica de Chile), A. Soto (Pontificia U. Católica de Chile), R. Vidal (Johns Hopkins University), and D. Mery (Pontificia U. Católica de Chile).

The success of PSIVT 2013 can also be attributed to the three great keynotes that we had. We are very grateful to the keynote speakers:

• Uwe Franke (Daimler R&D) gave an overview of the latest advances of the Daimler A.G. research group on embedded stereo-vision for cars.

• Kenichi Kanatani (Okayama University) gave us an overview of optimization techniques for geometric estimation, as a world-wide expert of this topic.

• Yasuyuki Matsushita (Microsoft Research Asia) gave an overview of photometric techniques for high-fidelity 3D reconstruction.

In addition of the main conference, three tutorials were given: L. Dorst (U. of Amsterdam) and E. Bayro (CINVESTAV Guadalajara) gave

us two nice tutorials about the use of geometric algebras, while F. Madrigal, R. Aranda and F. Hernández (CIMAT) shared their knowledge about the use of CUDA with the computer vision OpenCV.

Four workshops were organized in the two days preceding the conference. Left, the QACIVA attendees. Right, the GCCV attendees.

Also, four workshops were organized in the days preceding the conference:

• Photographic aesthetics and non-photorealistic rendering: measuring and enhancing visual appeal (PAESNPR13).

• Geometric properties from incomplete data (GPID).

• Quality assessment and control by image and video analysis (QACIVA).

• Geometric computation for computer vision (GCCV2013), in honor of Professor Kenichi Kanatani's retirement.

We would like to thank our sponsors for their support: the Center for Mathematical Research (CIMAT), the Universidad de Guanajuato, the Mexican National

Council for Science and Technology (CONACyT), the State of Guanajuato Council for Science and Technology (CONCyTEG), Chiba University, and the Université Paris-Est at Marne la Vallée. Finally, the symposium was endorsed by the International Association for Pattern Recognition (IAPR), which also sponsored the best paper and best student paper awards.

Many people have to be acknowledged for allowing this conference to be a success: the local organizing committee, the volunteer students, the steering committee, the area chairs, the workshop organizers have all made a great work! And of course the authors, without whom this conference would not have taken place.

We think that PSIVT 2013 was a great conference both scientifically and socially, and we would like to say good luck for our Auckland friends who will organize the next edition in New Zealand, in 2015. Please consult their webpage for more information at: *http://www. psivt.org/psivt2015*.

LNCS Vol. 8333   *LNCS Vol. 8334*
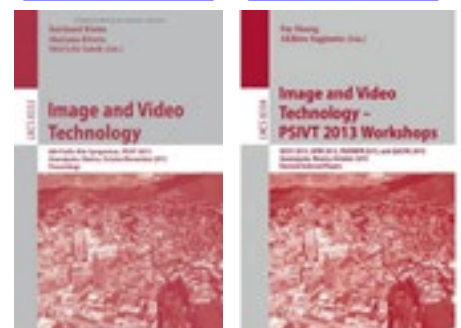
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ACPR 2013

2nd IAPR Asian Conference on Pattern Recognition

Okinawa, Japan
November 5-8, 2013
http://www.am.sanken.osaka-u.ac.jp/ACPR2013/

General Chairs:
Yasushi Yagi (Osaka University)
Seong-Whan Lee (Korea University)
Kim L. Boyer (Rensselaer Polytechnic Institute)

by Koichi Kise, (Osaka Prefecture University) and Yasushi Yagi (Osaka University)

The Second Asian Conference on Pattern Recognition (ACPR 2013) was held at Loisir Hotel & SPA Tower Naha along with four tutorials and two workshops. ACPR is a newly launched series of regional conferences in the Asian-Pacific Region, and ACPR2013 was the second time after the first ACPR held in Beijing, China in 2011. ACPR 2013 was sponsored by the International Association for Pattern Recognition (IAPR), in cooperation with Pattern Recognition and Media Understanding (PRMU), IEICE-ISS, Japan and IPSJ SIG-CVIM (Computer Vision and Image Media), Japan, technically co-sponsored by IEEE Computer Society Fukuoka Chapter, and partially funded by the following three organizations: KDDI Foundation, Support Center for Advanced Telecommunications Technology Research (SCAT), and Okinawa Convention & Visitors Bureau.

The conference was attended

by 272 participants from all over the world. ACPR2013 received 291 submissions from 32 countries, which were reviewed by 108 program committee members with the help of 117 additional reviewers. As a result, 28 papers (9.1% of the total submissions) were accepted for oral presentation and 105 papers (36.1%) for poster presentation. Topics of the accepted papers can be classified into four categories: Computer Vision and Robot Vision (31% of the accepted papers), Pattern Recognition and Machine Learning (36%), Signal Processing (16%), and Media Processing and Interaction (17%). The proceedings were electronically published and are now available at IEEE Xplore.

The final program was organized into a single track with eight oral sessions and three poster sessions, one keynote talk, one banquet talk and four invited talks. The keynote talk entitled "Coherent Occlusion Reasoning for Instance Recognition" was given by Prof. Martial Hebert. Prof. Junichi Tsujii gave the banquet talk entitled "How did Newton find the law of gravitation?". Four invited

The proceedings are now available at

IEEE Xplore

talks were as follows: "Robust Computer Vision Techniques for High-quality 3-D Modeling" by Prof. In So Kweon, "Magic Mirror: An Intelligent Fashion Recommendation System" by Prof. Yan Shuicheng, "Learning from High-Dimensional Data in Multitask/Multilabel Classification" by Prof. James Kwok, and "Towards Robust Gait Recognition" by Prof. Yasushi Makihara.

In addition to the above scientific activities, we had social programs: a reception and a banquet at the conference venue. At the banquet, we had nice shows of traditional and exciting dancing from the local region Okinawa. Some active participants took part in the dancing and all enjoyed it. There was also an announcement that Malaysia was selected as the venue of ACPR2015 from three

bids by the vote of participants.

At the closing ceremony, three paper awards were announced and presented. The awards were selected based on an evaluation of review scores and presentation quality by a committee consisting of steering committee members, general chairs and program chairs. The paper awards and the recipients are as follows:

IAPR Best Paper Award: Yusuke Uchida and Shigeyuki Sakazawa, "Image Retrieval with Fisher Vectors of Binary Features"

• IAPR Best Student Paper Award: Fanlong Zhang, Jianjun

Conference participants join in the show of traditional Okinawan dancing.

Qian and Jian Yang, "Nuclear Norm Based 2DPCA"

• IAPR Best Poster Award: Yingya Zhang, Zhenan

Sun, Ran He and Tieniu Tan, "Robust Low-Rank Representation via Correntropy"

![isprs]

International Society for Photogrammetry and Remote Sensing
Workshops

LS13 - Laser Scanning 2013
http://www2.isprs.org/laser-scanning-2013/articles/ls2013.html

and

CMRT13 - City Models, Road Databases and Traffic Monitoring
http://www.pf.bgu.tum.de/isprs/cmrt13/

**Antalya, Turkey
November 11-13, 2013**

LS13 Workshop Chairs:
Marco Scaioni (Tongji University, China)
Roderik Lindenbergh (Delft University of Technology, The Netherlands)
Sander Oude Elberink (University of Twente, The Netherlands)

CMRT13 Workshop Chairs:
Uwe Stilla (Technische Universität München, Germany)
Franz Rottensteiner (Leibniz Universität Hannover, Germany)
Stefan Hinz (Karlsruhe Institute of Technology, Germany)

by the Chairs of both Workshops

ISPRS (International Society of Photogrammetry and Remote Sensing) Workshops Laser Scanning 2013 (LS 2013) and "Object Extraction for 3D City Models, Road Databases and Traffic Monitoring" – CMRT13 were held at the Wow Kremlin Hotel in Antalya (Turkey).

Both workshops were organized during the ISPRS Conference on "Serving Society with Geoinformatics" – SSG-2013, held in Antalya from November 11-17, 2013. This event also included also a third workshops ("Image Sequence Analysis for Object and Change Detection" – ISA 2013) that was organized in parallel with LS 2013 and CMRT13 from November 11-13, 2013.

In the second part of the week (November 13-16), the SSG-2013 Joint-Technical Commission Meeting took place.

For the first time, the International Association for Pattern Recognition (IAPR) endorsed the LS2103 and CMRT13 workshops. A discount of 5% in the registration fee was offered to the IAPR members, but nobody registered.

Papers were accepted on the basis of the results of a double-blind peer review process. The final program comprised 32 papers presented orally and 29 papers presented as posters for LS 2013; 17 papers were presented in oral sessions for CMRT13.

Four invited key-note presentations were given in plenary sessions open to all workshops (LS 2013, ISA 2013 and CMRT13).

Awards for LS2013 were sponsored by IAPR. Four anonymous judges (this group excluded the Workshop Chair) recommended the following recipients:

- Best Oral Presentation: David Novak (ETH Zürich, Switzerland) for the presentation of the paper "Approximate Registration of Point Clouds with Large Scale Differences (co-authored by Konrad Schindler);

- Best Poster Presentation: A.K. Aijazi, P. Checchin, and L Trassoudaine (Institut Pascal, France) for the poster of their paper "Detecting and Updating Changes in LiDAR Point Clouds for Automatic 3D Urban Carthography."

Ninety-seven (97) participants from 22 different countries registered for the workshops.

The conference proceedings were produced in digital format and edited in the series of ISPRS

Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences. The proceedings have been available online on the ISPRS website since November 11, 2013 at URLs:

- *http://www.isprs-ann-photogramm-remote-sens-spatial-inf-sci.net/II-5-W2/index.html (LS 2013)*

- *http://www.isprs-ann-photogramm-remote-sens-spatial-inf-sci.net/II-3-W3/index.html (CMRT13)*

CIARP 2013

18th Iberoamerican Congress on Pattern Recognition, Havana CUBA

November 20-23, 2013
http://www.ciarp.org/xviii/

Co-Chairs:
Gabriella Sanniti (Instituto di Cibernetica, National Research Council of Italy, Napoli, Italy)
José Ruiz-Shulcloper (CENATAV, Havana, Cuba)

by Walter G. Kropatsch (Vienna University of Technology, Austria)

CIARP (Congreso IberoAmericano de Reconocimiento de Patrones) is a series of pioneer conferences on pattern recognition in the scientific community active in this field in Iberoamerican countries. Since 1995, CIARP aims to promote and disseminate ongoing research on mathematical methods and computing techniques for pattern recognition and to cover research and engineering in computer vision, image analysis, and signal processing. CIARP

conferences have significantly contributed to the birth and growth of national associations for pattern recognition in Iberoamerican countries that are now members of the International Association for Pattern Recognition, IAPR, (Argentina, Brazil, Chile, Cuba, Mexico, Uruguay), or will soon be applying to become IAPR members (Colombia, Peru).

Statistics

CIARP 2013 received 262 contributions from 37 countries. After a rigorous blind reviewing process, where each submission was reviewed by three highly qualified reviewers, 137 papers (22 for oral and 115 for poster presentation) by 355 authors from 31 countries were accepted. All the accepted papers have scientific quality above the overall mean rating. As has been the case for the most recent editions of the conference, CIARP 2013 was a single-track conference in which general interest papers were

selected for presentation in oral sessions, while the remaining papers were selected for poster presentation with short poster teasers.

Posters

Posters at CIARP 2013 were exposed for the whole period of the conference. Before their respective poster sessions authors had the chance to give a one minute introduction into their poster (for most presenters the count down of remaining seconds was very helpful to adapt to the schedule) Many participants interested in the subject were attracted in this way. To have the posters on display before the respective session allowed participants to find their preferred posters and to re-inspect some particular aspects that were

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mentioned during the poster's presentation. During poster sessions many of the posters were well attended.

Sessions and Proceedings

CIARP 2013 presentations were grouped into nine sessions:

- Supervised and Unsupervised Classification;
- Feature or Instance Selection for Classification;
- Image Analysis and Retrieval;
- Signals Analysis and Processing;
- Biometrics;
- Applications of Pattern Recognition;
- • Mathematical Theory of Pattern Recognition;
- • Video Analysis; and
- • Data Mining.

Proceedings of the last eleven editions of CIARP (2013-2003) have been published in Springer's Lecture Notes in Computer Science series: LNCS 8258/8259, 7441, 7042, 6419, 5856, 5197, 4756, 4225, 3773, 3287, and 2905.

Special Issues

Moreover, starting from CIARP 2008, authors of the best papers presented at the conference (orally or as posters) have been invited to submit substantially extended versions of their papers to well-known journals so as to enhance the visibility of their conference submissions and to stimulate deeper insight into the treated topics. For CIARP 2013 special issues of the International Journals of Pattern Recognition and Artificial Intelligence IJPRAI and of Intelligent Data Analysis IDA will be published. In addition, a Special Section of a regular issue of Pattern Recognition Letters will be devoted to the winners of the two prizes given at CIARP 2013, namely the IAPR-CIARP Best Paper Prize and the Aurora Pons-Porrata Medal, which is a new CIARP-Award.

Awards

The IAPR-CIARP Best Paper Prize was given to Salvador Moreno-Picot, Francesc J. Ferri, Miguel Arevalillo-Herráez, from Spain for the paper "A NSGA based approach for content based image retrieval". This award

acknowledges and encourages excellence, originality and innovativeness of new models, methods and techniques with an outstanding theoretical contribution and practical application to the field of pattern recognition and/or data mining.

The new Iberoamerican CIARP-Award Aurora Pons-Porrata Medal was given to Marta Mejail, from Argentina. The award is given in recognition of an outstanding technical contribution to the field of pattern recognition or data mining.

The selection of the winners was based on the evaluation and recommendations of members of the Program Committee, for the IAPR-CIARP Best Paper Prize, and the proposal of the national associations on Pattern Recognition, for the Aurora Pons-Porrata Medal, and the evaluation of the respective Award Committees. These committees, whose members were carefully chosen to avoid conflicts of interest, evaluated each paper nominated for the IAPR-CIARP Best Paper Prize and all recommendations for the Aurora Pons-Porrata Medal. The members of the two Award Committees were: Josef Kittler (Surrey University, UK), Jian Pei (Simon Fraser University, Canada), Fabio Roli (University of Cagliari, Italy), Tieniu Tan (National Laboratory on Pattern Recognition of China), Isneri Talavera- Bustamante (Advanced Technologies Applications Center, CENATAV, Cuba), Rita Cucchiara (University of Modena-Reggio, Italy), and Rocio González- Díaz (University of Seville, Spain).

Keynotes and Tutorials

Besides the 137 accepted submissions, the scientific program of CIARP 2013 also included the contributions of three outstanding invited speakers:

- Jian Pei (Simon Fraser University of Canada),

- Fabio Roli (University of Cagliari, Italy), and

- Tieniu Tan (National Laboratory on Pattern Recognition of China,).

Furthermore, the three invited speakers and Gabriella Sanniti di Baja gave four tutorials on the first day of the conference:

- "Mining Uncertain and Probabilistic Data for Big Data Analytics",

- "Multiple Classifier Systems",

- "Fundamentals of Iris Recognition", and

- "Discrete Methods to Analyse and Represent 3D Digital Objects."

Organization

CIARP 2013 was excellently organized under the leadership of José Ruiz-Shulcloper from Cuba and Gabriella Sanniti di Baja from Italy, both Fellows of the IAPR, by the Advanced Technologies Applications Center (CENATAV) and the Cuban Association for Pattern Recognition (ACRP) with the endorsement of the International Association for Pattern Recognition (IAPR), and the sponsorship of the Cuban Society for Mathematics and Computer Sciences (SCMC), the Argentine Society for Pattern Recognition (SARP-SADIO), the Special Interest Group of the Brazilian Computer Society (SIGPR-SBC), the Chilean Association for Pattern Recognition (AChiRP), the Mexican Association for Computer Vision, Neural Computing and Robotics (MACVNR), the Spanish Association for Pattern Recognition and Image Analysis (AERFAI), the Uruguayan Association for Pattern Recognition (UAPR) and the Portuguese Association for Pattern Recognition (APRP).

Social Program

The optional social program covered three of the four evenings of the conference and offered many extra opportunities to meet with colleagues from other countries in an informal and relaxed atmosphere. Very impressive was the concert of the Schola Cantorum Coralina under the direction of Alina Orraca presenting choral music from the medieval time to the present. Some of the pieces were accompanied by dancers. The concert was given in the Basilica Menor de San Francisco de Asis' convent in the old city of Havana. It was an excellent event to restructure the many thoughts that the participant's brains had to process during the day.

Conclusion

CIARP 2013 was a very useful forum in which the scientific community could exchange research experience, share new knowledge and foster cooperation among research groups in pattern recognition and related areas. There was a lot of constructive feedback given by the participants during the last session of CIAPR 2013. To implement this and to beat the success of CIAPR 2013 will be the challenge for the organizers of CIARP 2014 (*http://www.ciarp.org/xix/*),which will be held in Puerto Vallarta, Mexico.

[PreMI 2013](#)

5th International Conference on Pattern Recognition and Machine Intelligence

Kolkata, India
December 10-14, 2013
[*http://www.isical.ac.in/~premi13/*](http://www.isical.ac.in/~premi13/)

General Chair:
[Sankar K. Pal](#) (Indian Statistical Institute, India)

by Sankar K. Pal

The International Conference on Pattern Recognition and Machine Intelligence (PReMI) is the most important conference in the field of pattern recognition, machine learning, computational intelligence and related application areas. It is held every alternate year, preferably at different places. The 2005 and 2007 editions were held at the Indian Statistical Institute, Kolkata, India. The Indian Institute of Technology, New Delhi, India, hosted in 2009, and the Higher School of Economics (HSE), Moscow, Russia, in 2011. Just like previous editions, PReMI-13 at the Indian Statistical Institute, Kolkata was of five-days duration, the first two days for tutorials followed by the three-day conference. It was attended by large number of researchers and leading experts from all over the world. The primary goals of the conference was to present the state-of-the-art scientific results, encourage academic and industrial interaction, and promote collaborative research activities in pattern recognition, machine intelligence and related fields, involving scientists, engineers, professionals, researchers and students across the globe.

PreMI 2013 received more than 300 submissions from 22 countries spanning six continents. After critical review, 101 papers were accepted for inclusion in the proceedings, which were divided into nine categories. The papers were presented by researchers in three parallel sessions on various theoretical and application areas, including new developments in bioinformatics & computational biology, and social media mining. The conference took place in seventeen sessions, each being preceded by a keynote speech, plenary speech or an invited talk. Besides these, PReMI-13 had a unique feature, namely, a workshop on "Big Data: A Soft Computing Perspective" consisting of a balanced mixture of seven speakers from industry and academia (a brief report is appended below).

The conference was inaugurated by Prof. Bimal Ray, Director of the ISI, in the presence of Prof. Andrzej Skowron, University of Warsaw (Guest of Honour), Prof. Sushanta Dattagupta (Vice Chancellor), Visva-Bharati (Chief Guest), Prof. Sankar K. Pal (Distinguished Scientist, FIAPR and General Chair), Prof. Ashish Ghosh (Head, Machine Intelligence Unit, and Program Co-Chair, Prof. C.A. Murthy(Prof.-in-Charge, Computer and Communication Sciences Division), Dr. Shubhra S. Ray (Organizing Co-Chair) and other dignitaries. There were more than 100 externally registered participants.

The speakers at the conference tutorials were Prof. Jayaram Udupa (USA), Prof. Y. Narahari (India), Prof. Sung-Bae Cho (Korea), and Prof. Santanu Choudhuri (India).

The conference highlights were marked by some of the leading researchers in the areas of pattern recognition and machine learning who have presented the keynote, plenary and invited talks covering various aspects and the forefront application areas:

- Prof. Mark Girolami (UK) spoke on Detecting DNA Strands in Multiplexed SERRS (keynote)

- Prof. Andrzej Skowron (Poland) gave a plenary talk on Interactive Computations: Toward Risk Management in Interactive Intelligent Systems

- Prof. Jayaram Udupa (USA) gave a plenary talk on Body-wide Automatic Recognition in Medical Imagery via Fuzzy Models

- Prof. Dipankar Dasgupta (USA) discussed Genetic learning algorithms in developing cloud security insurance framework

- Prof. S.B. Cho (Korea) spoke about Recognizing gestures

with smartphone sensors using recurrent neural networks

- Sergei Kuznetsov (Russia) spoke on Scalable knowledge discovery in complex data with pattern structures

- Nilay Ganguli (India) gave a talk about Identifying topics, topical experts and users in twitter,

- Dominik Slezak (Poland) spoke on Rough sets and granular attribute selection for MRI segmentation

- Sitabhra Sinha (India) talked on Data driven modeling of market dynamics for inferring the "Laws" of finance from big data

- Punam Saha (USA) discussed Fuzzy digital topology and geometry for medical imaging, respectively.

There were 83 oral presentations out of 101 accepted papers, in parallel sessions on various theoretical and application areas, demonstrating new developments in the areas like image analysis, machine learning and pattern recognition, biometrics, text and data mining, speech, signal and video processing, natural language processing, document image processing, bioinformatics, social media mining, and big data analysis. The program included a welcome dinner, cultural event and a banquet. The conference was concluded with a valedictory ceremony.

A proceeding of the Conference is published by Springer as [Lecture Notes in Computer Science, Volume 8251](#).

Three post-conference special issues of international journals like [IET Image Processing](#) (UK), [Journal of Biosciences](#) (Springer), and [Natural Computing](#) (Springer), were planned to be published out of the extended versions of some selected papers together with others obtained through open CFPs.

Different sponsors of the conference who made the event successful include: Department of Science & Technology (DST), Govt. of India; Council of Scientific and Industrial Research (CSIR), Govt. of India; Defence Research & Development Organization (DRDO), Govt. of India; Centre for Soft Computing Research: A National Facility (ISI, Kolkata); International Association for Pattern Recognition (IAPR); International Rough Set Society (IRSS); Web Intelligence Consortium (WIC); and Indian National Academy of Engineering (INAE), Kolkata Chapter.

In conclusion, PReMI 2013 had been a great success academically and otherwise with several interesting presentations on state of the art subjects, thereby generating new ideas and avenues of research, and possible collaborations within India and outside.

◇◇◇◇ IUPRAI Workshop on Big Data: A Soft Computing Perspective ◇◇◇◇

The IUPRAI (Indian Unit for Pattern Recognition and Artificial Intelligence) Workshop on Big Data: A Soft Computing Perspective was held in conjunction with PreMI 2013. This workshop was organised by Prof. Santanu Chaudhury (India), Prof. Dominik Slezak (Poland) and Dr. Lipika Dey (India), with Prof. Sankar Pal, FIAPR (India) as the advisor.

This workshop brought together researchers and practitioners who are working on applications of soft computing principles to handle big data challenges, both from academics and industry. The participants discussed challenges and opportunities in the application of soft computing techniques to the emerging field of big data. There were three sessions.

Deliberations of the workshop began with introductory remarks by Prof. Sankar Pal. He highlighted the background and context of the emergence of the field of big data. He also indicated the research challenges involved, particularly in the soft computing framework. Prof. Jayaram K. Udupa (USA), in response to Prof. Pal's presentation, pointed out that the big data scenario is becoming relevant and important also in the field of medical informatics.

Prof. Pawan Lingeras (Canada) presented a novel iterative approach to clustering in a granular environment.

Prof. Dominik Slezak (Poland) presented an approach to interactive analytics over machine generated data. He focussed on specific problems of carrying out investigative and predictive query workloads over rapidly changing datasets generated by systems, devices and sensors. Over the last decade and a half, support vector machines have become the paradigm of choice for most learning applications. However, new sources of data have emerged, ranging from high dimensional micro-array and bio-informatics data, to very large databases emanating from social networks and telecom service providers. Prof. Jayadeva (India) touched upon these issues and

presented an outline of the approach proposed by him for adapting SVM for newer problems in an efficient fashion.

Mr. Saugoto Mukherjee (Marketoppers, India) made a presentation on Soft Computing challenges in algorithmic trading. The big data platform is critical for developing market intelligence about mobile network users. Mr. Prateek Kapadia described systems implemented by Flytxt.

Dr. Girish Keshav Palsikar (TCS, India) talked about text analytics and the use of soft computing for this application in the context of big data technology. Dr. Raghavendra Singh (IBM Research, India) described a cognitive computing initiative of IBM. He provided an insight of a project called SyNAPSE (Systems of Neuromorphic Adaptive Plastic Scalable Electronics), funded by the U.S. Defense Advanced Research Projects Agency

(DARPA), which aims to develop electronic neuromorphic machine technology that scales to a biological level and is inspired by the structure and architecture of the organic brain.

The workshop came to an end with concluding remarks from Prof. Andrzej Skowron (Poland) who emphasized the need for fundamental research in soft computing for meeting challenges of big data.

ICPR

22nd INTERNATIONAL CONFERENCE ON PATTERN RECOGNITION

IAPR · Linköpings universitet · LUNDS UNIVERSITET · UPPSALA UNIVERSITET

24-28 August 2014 Stockholm, Sweden

Registration >>

OPEN

Register by May 21, 2014, for lowest registration fees.

Call for bids to host ICPR 2018

Deadline: May 24, 2014

The International Conference on Pattern Recognition (ICPR) is the major scientific event organized under the auspices of the International Association for Pattern Recognition (IAPR). The aim of this conference is to bring together international experts to share their experiences and to promote research and development in Pattern Recognition.

The conference is hosted by an institution under the auspices of an endorsing IAPR member organisation (national association). Any such organisation interested in making a proposal to host an ICPR must proceed according to the rules outlined in the latest version of the guidelines document (*http://iapr.org/docs/ICPR_guidelines_2014.pdf*).

It is expected that Proposers familiarise themselves with the guidelines for organising ICPR first, to fully plan their bid. The submission of a bid implies full agreement with the guidelines and procedures for organising the conference as well as with the IAPR constitution.

Note: the current version of the guidelines includes some changes with respect to previous versions including a new template that must be adopted when submitting bids to hose ICPR.

Bids to host ICPR 2018 must be submitted to the IAPR Conferences and Meetings Committee by **May 24, 2014**. The selection of the conference venue will be made by the IAPR Governing Board (GB) during its meeting at ICPR 2014 in Stockholm, Sweden.

Organizations interested in organizing ICPR 2018 should submit the bid to Simone Marinai Conferences and Meetings Committee Chair (simone.marinai@unifi.it) by May 24, 2014.

Simone Marinai
IAPR C&M Chair

IAPR Then and Now: "Guidelines for the Selection of Location for the Future International Conference on Pattern Recognition" from the *IAPR Newsletter*, Vol. 7, No. 2, April 1984

[1]The Conference should be assigned to a sponsoring society or institution, rather than a group of individuals. However, the names of general chairman, program chairman, and local arrangement chairman should be submitted with the proposal together with two alternate names of people who may replace one of the above, if for some reason, they cannot carry out their duties.

A proposal should contain documented estimates of attendance, both local and international, in order to substantiate the budget and the proposed registration fees. The proposal should also contain cost estimates for international travel from various countries.

Proposals should contain descriptions of conference and hotel facilities.

Proposals should be submitted at least three months before the ICPR where the decision will be made. A copy of the proposal should be sent to each of the conference committee members and,optionally, to the IAPR executive committee and governing board. (If the conference committee recommends consideration by the governing board, then the additional copies should be brought at the ICPR meeting.)

These guidelines were prepared by the Conference Committee of IAPR and discussed at the Executive Committee meeting in Dallas, August 1981.

The members of the 1983-1984 Conference Committee are: Prof H. Marco (Chairman), Prof. T. Chang, Prof. J-P Haton, Prof. J. Nagumo, Dr. T. Pavlidis. Members of IAPR arc invited to send their proposals to the above committee for the location of the ninth ICPR (1988) not later than May 7, 1984. These proposals will be considered at the 7-ICPR in Montreal in July-August 1984.

[1]Note added by the Secretary: I believe it is worthwhile to call your attention to the following motion that was accepted at the first meeting of the IAPR Governing Board in Kyoto: "Resolved that the organizers of an International Conference on Pattern Recognition shall prepare their budget and set their fee structure so as to provide for compensation to IAPR for its efforts and expenses in promoting the conference. Such compensation is to be ten per cent of the gross registration receipt and is to be paid to the IAPR treasury no later than 45 days after the conclusion of the conference".

BOOKSBOOKSBOOKS

Handbook of Iris Recognition
by Mark Burge and Kevin Bowyer (Eds.)

Springer, 2013

Reviewed by Valery Starovoitov (Belarus)

The target audience for this book is anyone who wants to get knowledge of the current state of the art in iris recognition technology. The book is a collection of 18 papers about all sides of the iris biometrics. Iris recognition became a practical area of applications with John Daugman's pioneering work printed in 1993. This technology was actively studied for 20 years, and now a very detailed iris recognition encyclopedia is collected in one volume. The foreground is written by pioneer and theoretician of iris recognition Professor John Daugman. Introduction to the handbook is prepared by the book editors Mark J. Burge who is a Senior Principal Scientist at the MITRE Corporation, McLean, VA, USA, and Prof. Kevin W. Bowyer from the Department of Computer Science and Engineering at the University of Notre Dame, IN, USA. The book consists of 18 chapters with very detailed analysis of state of the art in particular areas of Iris Recognition technology.

The papers are discussed below:

"A Survey of Iris Biometrics Research: 2008–2010" by Bowyer et al. The authors continue their analysis of the area made before the year 2007. They cover iris image acquisition, iris segmentation, texture coding, recognition, fusion, sample quality, applications and theoretical analysis presented in 221 papers published in this period.
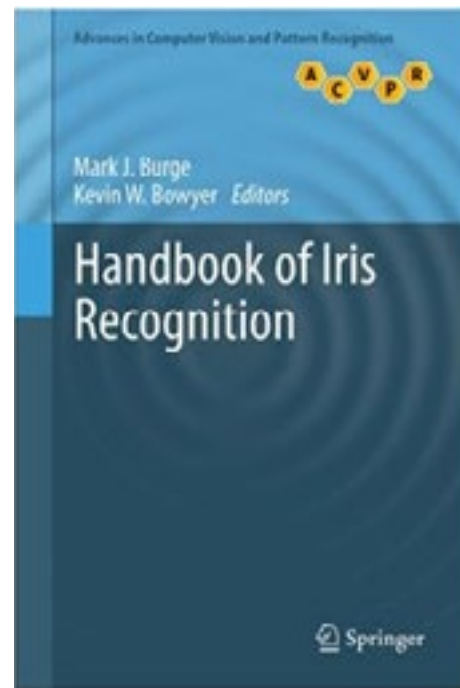
"Standard Iris Storage Formats" by G. Quinn, P. Grother and E. Tabassi describes the evolution of iris image standards and iris storage formats. Any iris image may be compressed to as little as 2 kB, making them suitable for recognition.

"Iris Quality Metrics for Adaptive Authentication" by Natalia A. Schmid et al. is very important for iris recognition results. The authors introduce a number of new absolute and relative quality factors for iris images and test them using the ICE 2005 dataset.

P. Jonathon Phillips and Patrick J. Flynn in "Quality and Demographic Investigation of ICE 2006" continue their long-term work in the field of biometric evaluation and discuss properties of the quality measures submitted as a part of the ICE 2006 competition conducted by the National Institute of Standards and Technology (NIST).

A. Bastys et al. in "Iris Recognition with Taylor Expansion Features" discuss their alternative way for iris recognition based on the Teylor's coefficients and test it using the NIST iris database and their own iris image collection.

"A Theoretical Model for Describing Iris Dynamics" by A. Clark with co-authors presents a strong theoretical approach to describing nonlinear orthotropic tissue deformation. It is a new approach, because most current iris recognition algorithms assume just simple geometric transformations of the iris tissue. The results of this research can potentially be leveraged into existing iris recognition systems.

Hugo Proença discusses "Iris Recognition in the Visible Wavelength" .This chapter addresses the feasibility of performing reliable biometric recognition using visible wavelength data acquired under dynamic lighting conditions and unconstrained acquisition protocols: 1) with subjects at distances from 4 to 8 meters and 2) on moving subjects.

"Multispectral Iris Fusion and Cross-Spectrum Matching" is studied by M. J. Burge and M. Monaco in a way that is unlike traditional approaches where a narrow band of Red and NIR spectrum (700-900nm) is utilized. The authors demonstrate that iris texture increases with the

frequency of the illumination for lighter colored sections of the iris and decreases for darker sections. They introduce a novel iris code, Multispectral Enhanced Iris Code, which uses pixel-level fusion algorithms to exploit texture variations elicited by illuminating the iris at different frequencies, and present a model for approximating an NIR iris image using features derived from the color and structure of a visible light iris image.

In "Robust and Secure Iris Recognition", J. K. Pillai et al. discuss a unified framework based on sparse representations and random projections that can address these issues simultaneously. Furthermore, recognition from iris videos as well as generation of cancelable iris templates for enhancing the privacy and security are also discussed.

In "Template Aging in Iris Biometrics", S. E. Baker et al. compare three different matching algorithms for short-time-lapse image pairs, acquired with no more than 120 days of time lapse between them, to the distributions for long-time-lapse image pairs, with at least 1,200 days of time lapse. They find no substantial difference in the non-match distribution between the short-time-lapse and the long-time-lapse data. For the image data set and iris biometric systems used in their study, the false reject rate increases by about 50% or greater for the long-time-lapse data relative to the short-time-lapse data. The magnitude of the increase in the false reject rate varies with changes in the decision threshold and with different matching algorithms. The presented results demonstrate that iris biometrics is subject to a template aging effect.

"Fusion of Face and Iris Biometrics" by R. Connaughton et al. presents an interesting system which simultaneously acquires face and iris samples using a single sensor with the goal of minimizing sensor cost and acquisition time. The resulting fusion of face and iris biometrics improves recognition rates beyond the observed recognition rates for the best isolated biometrics on at least 5.4% for rank-one recognition mode.

"Methods for Iris Segmentation" are discussed by R. Jillela and A.A. Ross. Recognition results depend on the quality of iris segmentation. Various segmentation techniques proposed in the literature are presented in the chapter. Methods to refine and evaluate the output of the iris segmentation routine are given, too. The goal of this chapter is to provide a brief overview of the progress made in iris segmentation.

R. Jillela et al. in "Iris Segmentation for Challenging Periocular Images" continue study of this problem. They discuss some difficulties in localizing the iris structure in images of the eye characterized by variations in illumination, eyelid and eyelash occlusion, defocus blur, motion blur, and low resolution. Five iris segmentation approaches (a) classical Dougman's integrodifferential operator, (b) Hough transform, (c) geodesic active contours, (d) active contours without edges, and (e) directional ray detection method were compared. The provided experiments on the FOCS image database have demonstrated higher segmentation accuracy of techniques based on active contours.

A. Wai Kin Kong et al. give "An Introduction to the IrisCode Theory" based on classical Dougman's papers .

In "Application of Correlation Filters for Iris Recognition", B. V. K. Kumar, et al. discuss correlation filters as an alternative way to the classical approach to iris recognition based on the Gabor wavelet inner product suggested by J. Daugman.

A very important problem is discussed by S. Venugopalan and M. Savvides in "Iris Spoofing: Reverse Engineering the Daugman Feature Encoding Scheme". They explore methods to generate synthetic, but "natural"-looking iris textures corresponding to a given person for the purpose of bypassing an iris-based security system using these iris templates. The spoof pattern is looking at a real iris and is able to decrease the hamming distance to the real iris.

"Optics of Iris Imaging Systems" is described by D.A. Ackerman. The goal of this chapter is an explanation of principles of optics and designed iris imaging systems. A review of photographic concepts, design of iris camera that work in different distance scenarios are given.

The handbook will be very useful to anyone interested in or currently working in iris recognition; the presented collection will be a real table-book.

Principles of Digital Image Processing - Advanced Methods
Series: Undergraduate Topics in Computer Science
By Wilhelm Burger and Mark J. Burge

Springer, 2013

Reviewed by [Elisa H. Barney Smith](#) (Boise State University, ID, USA)

This book is the third in a series of image processing books. The first is ["Fundamental Techniques."](#) The second is ["Core Algorithms."](#) This is ["Advanced Methods."](#)

The first chapter of Volume 3 is thresholding, both global and local adaptive. The second chapter is on color filtering. This includes an introduction to color vector methods. Edge detection and edge preserving filters are the topics of the next two chapters. The use of color vector method is included in these chapters. Fourier shape descriptors and SIFT round out the book.

The book is well written. The English is clear. The background for the algorithms are clearly explained. Algorithms are portrayed in offset blocks and many also include Java implementations, either typeset in the book or available through the book website <*imagingbook.com*>. Intermediate results show how the algorithm functions.

This book does a good job of describing the advanced topics. The narrative discusses the implementation of the algorithms. The topics are deliberately described with the goal of explaining the material to an advanced level reader, but not at the level of a journal article which can be cryptic or skip critical elements, often necessary for understanding. The book includes a lot of references to previous chapters, including chapters in previous volumes. There are some end of chapter exercises.

Choices for how to divide topics between an introductory course and an advanced course are many, and the choice which the authors made will likely not match that which any other professors would make unless they deliberately built their course around this book. If the chapters could be selected to form a personalized book, it would be an excellent choice for many courses. As it is, it has many good elements and is worth considering for reference or for a course.
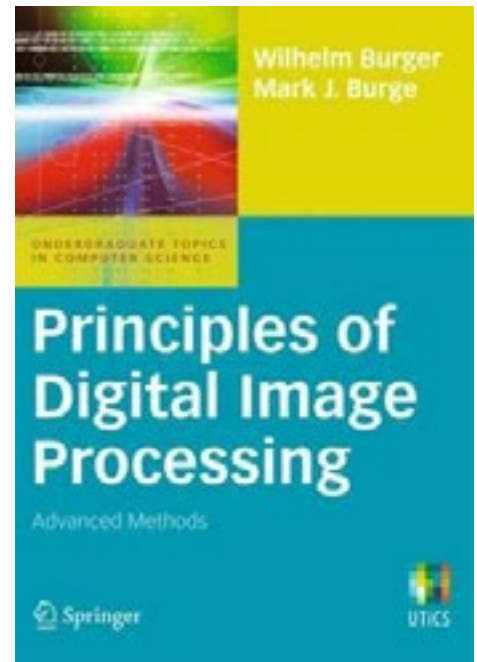
We are looking forward to reports on the following books under review:

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. [*Support Vector Machines for Pattern Classification, 2nd Ed.*](#), by Shigeo Abe (Springer, 2010). Reviewer: Huthaifa Abderahman. Under review since July 2013.

5. [*Shape Perception in Human and Computer Vision*](#) by Sven J. Dickinson and Zygmunt Pizlo (Springer 2013). Reviewer: Dima Damen. Under review since February 2014.

6. [*Concise Computer Vision*](#) by Reinhard Klette (Springer 2014). Reviewer: Tayyab Naseer. Under review since February 2014.

7. [*Decision Forests for Computer Vision and Medical Image Analysis*](#) edited by Antonio Criminisi and Jamie Shotton (Springer 2013). Reviewer: Zeeshan Zia. Under review since April 2014.

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

* ***Optimization for Computer Vision*** by Marco Alexander Treiber (ISBN 978-1-4471-5282-8): *http://www.springer.com/computer/image+processing/book/978-1-4471-5282-8*

* ***Advanced Topics in Computer Vision*** by Giovanni Maria Farinella et al. (ISBN 978-1-4471-5519-5): *http://www.springer.com/computer/image+processing/book/978-1-4471-5519-5*

* ***Compression Schemes for Mining Large Datasets*** by T. Ravindra Babu (ISBN 978-1-4471-5606-2): *http://www.springer.com/computer/image+processing/book/978-1-4471-5606-2*

* ***Similarity-Based Pattern Analysis and Recognition*** by Marcello Pelillo (ISBN 978-1-4471-5627-7): *http://www.springer.com/computer/image+processing/book/978-1-4471-5627-7*

* ***Person Re-Identification*** by Shaogang Gong et al. (ISBN 978-1-4471-6295-7): *http://www.springer.com/computer/image+processing/book/978-1-4471-6295-7*

* ***Markov Models for Pattern Recognition, 2nd ed.*** by Gernot A. Fink (ISBN 978-1-4471-6307-7): *http://www.springer.com/computer/image+processing/book/978-1-4471-6307-7*

* ***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*

* ***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 Abonyl (ISBN 978-1-4471-5157-9): *http://www.springer.com/computer/database+management+%26+information+retrieval/book/978-1-4471-5157-9*

Additionally, we are also interested in reviews for an important classic, for which we can provide an e-copy:
* ***Digital geometry: geometric methods for digital picture analysis*** by R. Klette and A. Rosenfeld (ISBN 978-1-55860-861-0): *https://www.elsevier.com/books/digital-geometry/klette/978-1-55860-861-0*

Meeting and Education Planner

		Meeting	Report	Location
2014	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**
		MISS 2014: Medical Imaging Summer School 2014		**Italy**
		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**
		I3A: First Workshop on Pattern Recognition Techniques for Indirect Immunofluorescence Images (in conjunction with ICPR2014)		**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 with ICPR 2014 *		**Sweden**
	AUG	ICPR 2014: 22nd International Conference on Pattern Recognition	ICPR 2012	**Sweden**
		IMVIP 2014: Irish Machine Vision and Image Processing Conference		**Ireland**
		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**
	SEP	*ACVR 2014: 2nd Wkshp on Assistive Computer Vision and Robotics*		**Switzerland**
		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 2013	**México**

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 *

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<tr><td>ICB 2015: 8th IAPR/IEEE International Conference on Biometrics</td><td>ICB 2013</td><td>France</td></tr>
<tr><td>AUG</td><td>ICDAR 2015: 13th International Conference on Document Analysis and Recognition</td><td>ICDAR 2013</td><td>Tunisia</td></tr>
<tr><td>NOV</td><td>PSIVT15: 7th Pacific Rim Symposium on Image and Video Technology</td><td>PSIVT13</td><td>New Zealand</td></tr>
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Suggestions for IAPR?

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

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