

IAPR
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Newsletter

Volume 37, Number 4
October 2015



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From the Editor's Desk: Getting research done

by Arjan Kuijper

arjan.kuijper@igd.fraunhofer.de

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

In the last couple of newsletters I wrote about how reviewers look at your paper. Obviously, the assumption was that you had written something down for the reviewers to look at.

What I hear quite often from PhD students is that it is difficult to find an interesting topic to do research on. And when you find one, to make time for it, to do it, and to transform it into a paper. The first aspect—finding an interesting topic—is something you'll have to work on yourself, alone or with a buddy. For the rest, it can be helpful to find a student who wants to write a Bachelor's or a Master's thesis. If you guide them well, you can get far in getting good results.

For thesis projects that I have to approve, I have some guidelines for the daily supervisors—i.e., PhD students in most cases.

I first want to know if the potential Ba/Ma student can do the job. It's nice when someone tells you he'd like to write a thesis on some topic of interest to you, but when he cannot show that he knows what he's talking about, you'll only get a tough time in supervising and a bad thesis at the end.

If we already know the potential Ba/Ma student, e.g. when she's done some courses or student work with the group, I want a description of what the student should do. This is usually a short, 3-part statement paper written by the daily supervisor and the student.

The Statement Paper

1: *Motivation* Some words on why this topic is important and what the scientific problem is. Some important (and recent) references should be given. About half a page should be ok.

2: *Approach* Roughly, what approach will be taken? There should be

CALLS for PAPERS

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/

[IWBF 2016](#)

4th International Workshop on
Biometrics and Forensics
Limassol, Cyprus
Dates: Mar. 3-4, 2016
Deadline: Oct. 23, 2016

[DGCI 2016](#)

19th International Conference on
Discrete Geometry for Computer Imagery
Nantes, France
Dates: Apr. 18-20, 2016
Deadline: Oct. 23, 2016

[CVIP 2016](#)

International Conference on
Computer Vision and Image Processing
Roorkee, India
Dates: Feb. 26-28, 2016
Deadline: Oct. 25, 2016

[ICB 2016](#)

9th International Conference on Biometrics
Halmstad, Sweden
Dates: Jun. 14-17, 2016
Deadline: Jan. 11, 2016

[ICISP 2016](#)

7th International Conference on
Image and Signal Processing
Trois-Rivières, Québec, Canada
Dates: May 30-Jun. 1, 2016
Deadline: Jan. 17, 2016

[ICPR 2016](#)

23rd International Conference on
Pattern Recognition
Cancun, Mexico
Dates: Dec. 4-8, 2016
Contest, tutorial and
workshop proposal deadline: Jan. 13, 2016
Paper submission deadline: Apr. 3, 2016

[ICFHR 2016](#)

15th International Conference on
Frontiers in Handwriting Recognition
Shenzhen, China
Dates: Oct. 23-26, 2016
Deadline: Apr. 30, 2016

[S+SSPR 2016](#)

IAPR Joint International Workshops on
Statistical Techniques in Pattern Recognition
(SPR 2016) and Structural and Syntactic Pattern
Recognition (SSPR 2016)
Merida, Mexico
Dates: Nov. 30 - Dec. 2, 2016
Deadline: TBA

Calls for Nominations for Awards to be presented at ICPR 2016

[King-Sun Fu Prize](#)

to be presented at ICPR 2016

Deadline: TBA

[J. K. Aggarwal Prize](#)

to be presented at ICPR 2016
Deadline: TBA

[Maria Petrou Prize](#)

to be presented at ICPR 2016
Deadline: TBA

[IAPR Fellow Awards](#)

to be presented at ICPR 2016

Deadline: January 31, 2016

some idea in which direction the thesis will develop. It should be clear that this is only a starting point; if something more interesting pops up, there is the freedom to (slightly) adapt the direction.

In this part, references to key publications are expected together with a discussion on where they 'fail' and where the student will improve the state of the art. This description of "Where do we go beyond state of the art" is an import part. Just an implementation of existing work is not enough for a thesis! If the student succeeds, this is a potential joint paper! Typically, this part is half a page long.

3: Contents This is basically an itemized list of topics to be filled in by the student. I require the following topics to be covered (e.g. in thesis chapters ☺):

- Introduction with scope and aims
- State of the art review
- Approach: the novel part
- System description: If something is built, or a program is written, this is the place to describe the context and how the new parts fit in.
- Implementation issues: some special hacks or (non-)trivial parameter choices can be explained here.
- Experiments
- Results
- Conclusions

I explicitly give these sections, as I expect such a structure in a thesis. The main thing is that I want to see a motivation and a critical review of the approach taken: 'looking at the project from above'. I always say that I love numbers, figures, and tables! Something has been implemented and the numerical data provide evidence that it worked well/better than related work. Sometimes this is not the case. This need not

be a problem, but then I expect a critical discussion. Showing only qualitative results with statements like "It looks nice", "it works", and "it has been implemented" are not sufficient. This part is usually about a page long.

Follow-up

The statement paper is only the start. I request regular updates and a short presentation half-way through the thesis period. My special offer is to browse the thesis two weeks before the official date that it should be handed in. I give comments on structure and content (e.g. using the issues I discussed in the previous From the Editor's Desk columns, "Getting your paper rejected", [Part 1](#), [Part 2](#) and [Part 3](#)), and then, miraculously, I forget everything I saw and commented on.

The reason for doing this is that it forces the student to write down his/her results continuously and not only at the end. This gives the student time to reflect on what has been done, resulting (in the ideal case) in a matured thesis. The two week offer often yields a thesis that 'only' needs to be polished in these last two weeks, something that is regularly needed. It avoids theses

that are written down in a rush. Just like papers written some hours before a deadline, such papers are most likely far-from-optimal.

And, we have only winners!

Keeping tight to this strategy results in a thesis with all the chapters properly filled. Not surprisingly, this structure can, almost one-to-one, be copied into a paper. I always tell students that they can get the highest grades if they can do this. It doesn't always work, but looking back, in a lot of cases it has motivated students to submit theses with very high quality, which we subsequently could present at conferences with the student as first author. Even when this has not been the case, it was often still possible to use parts the work with the student as co-author.

And, we have only winners. The Ba/Ma student gets an excellent grade, a publication and the gist of doing research. The PhD student was daily supervisor and involved in the work, and thus is a co-author of a publication that could be used for the PhD thesis. And I, well, I like publications, but more important, I am always happy when other people are happy!





Getting to know... Fionn Murtagh, IAPR Fellow

From the Cosmos to the Human Mind, and Everything In Between!

*Fionn Murtagh, IAPR Fellow
ICPR 2008, Tampa*

*For contributions to clustering and analysis of
massive and high dimensional data, with applications to astronomy.*

by [Fionn Murtagh](#), Professor of Data Science, University of Derby and Goldsmiths University of London, UK

I view my interest in pattern recognition as coming directly from how, from time $t = 0$, mathematics has motivated and influenced me. The heterogeneity of mathematical reason is a fact, and I do recall, as a young school student, my dislike of the weekly mental arithmetic tests. But later, the mastering of proving theorems in geometry was of great satisfaction. For my PhD, when I arrived in Jean-Paul Benzécri's lab, on the corridor between towers 45 and 55 in Université Pierre et Marie Curie, Paris 6, I was greatly impressed by the comprehensive nature of the geometry and the algebra, developed and applied to data analytics. That work came out of the Bourbaki tradition when all of mathematics was viewed in new ways, back in the early to mid 20th century. Furthermore, the mathematics and all computational aspects of the analytics were, and are, linked integrally with the

Fionn Murtagh's degrees were BA (Mathematics), BAI (Engineering Science) from Trinity College Dublin in 1976, MSc (Computer Science), also TCD in 1979, PhD (Doctorat de 3ème cycle, Mathematical Statistics), Université P&M Curie Paris 6, in 1981, and an HDR ("Pattern Recognition in Astronomy"), Université de Strasbourg, in 1993.

He is a Fellow of IAPR, a Fellow of the British Computer Society, an elected member of the Royal Irish Academy, an elected member of Academia Europaea. He is a member of Council of the International Association for Statistical Computing. He has been an elected member of the Board of the Classification Society (formerly the Classification Society of North America) for more than 30 years. He was President of the Classification Society, and has also been President of the British Classification Society.

For more than 10 years, Fionn has been Editor-in-Chief of The Computer Journal, the British Computer Society's flagship journal (Oxford University Press). He is a member of the editorial boards of many other journals also, including Neurocomputing (having helped David Sanchez found this journal in the 1980s), Journal of Classification, Journal of Imaging, PeerJ Computer Science (these latter two are new journals), and many others.

Fionn has published more than 300 papers, most of them in leading journals, authored 6 books, and edited 18 other books. Some more are on the way.

Before his current affiliations, Fionn was Professor of Computer Science in 4 other universities in England and Northern Ireland, and served as Head of Department and Head of School. He also served for 5 years as Director for ICT, and Energy, at Science Foundation Ireland, where he directed the allocation of over €1 billion in research funding.

applications. When working on my doctorate, I did a little work for a major aerospace and defence

company. My doctoral work itself was also with a national geology and Earth sciences institute.

Later, when I did an HDR (this is the further doctorate-level degree, required for PhD thesis supervision), the title was "Pattern Recognition Methods in Astronomy". I was working for a good number of years on the [Hubble Space Telescope](#) project. That was as an employee of the [European Space Agency](#), based at the [European Southern Observatory](#). ESO's role is with observatories in Chile. Work on Hubble was great. The launch of Hubble had been delayed by the [Challenger Shuttle disaster](#). Initial work in my Senior Scientist role involved preparing for the imaging and signal processing needs, the storage of, and access to, the petabyte scale data holdings that were to come, and also developing networking protocols what would later become the web as we know it, and search engine technology that now is core to the worlds of business and research. Just after the delayed NASA Shuttle launch of Hubble, it was found how the 2.4m primary mirror was suffering from spherical aberration. Immediately we were called upon to develop deconvolution approaches to do our best to rectify images and signals. Later, then, corrective optics were installed on Hubble, by the Shuttle.

In those years, among the many conferences organised, articles and books written, and many initiatives, there was the founding of the [IAPR Technical Committee 13 on Pattern Recognition in Astronomy](#). (TC 13 was active until 2012. "The website is being maintained in order to direct interested readers to the IAPR, and also to provide background material for possibly re-starting the work of IAPR TC on Astronomy and Astrophysics"). That was with my long-term friend, Vito Di Gesù, in Palermo, who so regrettably passed away some years ago. We

set up very successful scientific networks in those times. Thanks to Vito and to many other colleagues, an aspiration on my side remains research in the area of cosmology.

Other areas are of considerable focus for me also. Just after my graduation with undergraduate

degrees in Mathematics and Engineering Science, I took a job as a statistician-programmer in the Educational Research Centre in Dublin. My role was running, and supporting, the processing of national, primary and secondary, ability and attainment testing. Those were in the days of

IAPR Then and Now...20 Years Ago

IAPR Newsletter Vol. 17 No. 4, October 1995

TECHNICAL COMMITTEE 13 The European Astronomy Network Success

The European Science Foundation (ESF) scientific network on *Converging Computing Methodologies in Astronomy* has recently made its debut! Following discussions among members of IAPR Technical Committee 13, a proposal was made for ESF support.

Funding subject to availability, will be used to support: (a) scientific visits of up to a week or two in duration for subsequent workshops and (b) participation at the workshops. Funding requests (in the case of a scientific visit, to include concrete details of the visit, and confirmation by the host partner), should be sent to the network Secretary: Fionn Murtagh. A sub-committee of the network's coordinating committee will be deciding upon such requests.

Towards the end of last year, this proposal was accepted. An ESF scientific network provides funding for work visits and workshops over a 3-year period. The scientific network started at the beginning of this year. Among central topics of the scientific network are:

From vision models to image information retrieval:

Methods such as wavelets and multiresolution approaches, mathematical morphology and fuzzy methods have proven their worth in the framework of accessing appropriate information from large image databases. Such methods must be moulded together to allow semantically-driven access to data.

The data life-cycle - methodological aspects:

The astronomical data life-cycle is highly digital: data capture is increasingly done by CCD electronic detectors, data are subject to image processing and statistical treatment, and the final major stage in this process involves data archiving, and publication. Not surprisingly, the issues of electronic publishing and of digital libraries are increasingly central.

From data integration to information integration:

Particular data integration (data fusion) problems, such as integration of data associated with different wavelength ranges, are of great relevance in the context of large space- and ground-based observing projects. E.g. co-addition in image restoration; image restoration and filtering approaches which incorporate semantic information on the cosmic objects of interest; close, complementary use of multi-million object astronomical catalogs; classification of terabyte data collections. Long-term access to stored data- what should be the "future of [society's] memory?". Beyond data, astronomy is all about information. Compression is central - in a broad sense, compression is summarization, and therefore is part of the overall process of scientific analysis. The first workshop (on the first of the above themes) is currently taking place in Nice, France, organised by Albert Bijaoui; a participation of around 30 is expected.

punched cards and paper-tape! Such a lineage certainly makes me a happy camper when it comes to data analytics on a massive scale. In that context, I was bowled over by the varied methods of multidimensional scaling, in the Bell Labs suite of programs. I straightaway took to writing up the properties of many such methods, and summarizing their deployment practices. Following a few years as junior faculty in Computer Science, I was for a short while a visiting scientist at the European Union's Joint Research Centre. I was there to work on nuclear reactor safety from databases of abnormal occurrences, incidents and events (in that order of gravity). It was there that I wrote my first book, on multidimensional clustering.

Across many application areas, my preference, due to the inspiring challenges, has always been towards analytical methods that are unsupervised, hence related to data mining, and knowledge discovery. That is, for me, what pattern recognition is

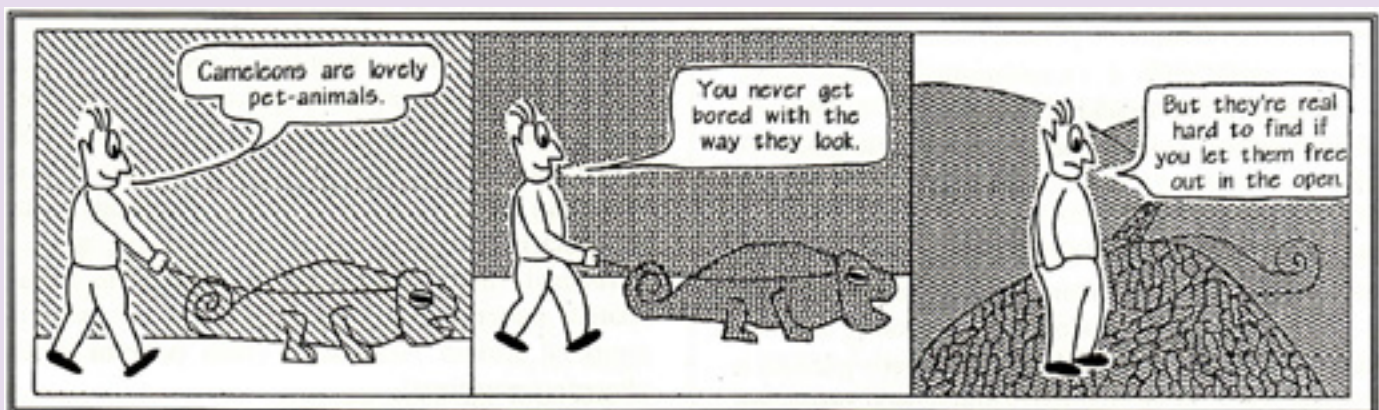
fundamentally all about. Beyond the *sine qua non* of statistical modelling, favoured approaches are the geometric analytics of metric embedding, especially for semantic analysis, and such topological modelling as comes naturally from taking our analytics further towards ultrametric and tree topology. It is nice that ultrametric topology can be considered as an expression of p-adic measurement. That allows us to move from just a real number understanding to all normed spaces that allow for completion of the rational numbers, i.e. for us to generalize measurement. It can be imagined then how relevant and inspirational it was to read the Chilean psychoanalyst, [Ignacio Matte Blanco](#)'s, magnum opus on "The Unconscious as Infinite Sets". Is is no small wonder that I am not alone, as a mathematician, in looking into the challenges raised by psychoanalysis. Matte Blanco is easily read as a narrative of metric and ultrametric in human reason. Given the incomparable power

of unconscious brain processes over conscious reasoning, I am happy to note that with a group of colleagues, we have established a domain of special interest, named Computational Psychoanalysis. On this theme, we have had a [special session](#) at a major cognitive science conference (in August 2014), and now a [special issue](#) of a cognitive science journal. A great deal of work is in the pipeline now.

That is my story of how I came to pattern recognition (from schoolchild days!) and how this scientific domain served me so well, in observational study of the Cosmos, educational assessment, world literature and media arts, geology and Earth observation, medical signal processing, and beyond. Other burgeoning fields now include deployment in the Internet of Things, digital forensics, and not, for one moment, forgetting continuing great interest in the Cosmos and in the human, especially unconscious, psyche.

IAPR Then and Now...20 Years Ago

IAPR Newsletter Vol. 17 No. 2, April 1995



Texture Analysis Challenges
Stefan Livens, Antwerp, Belgium

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

Çağlar Aytekin



Çağlar Aytekin is a Ph.D. Candidate in the Tampere University of Technology, Signal Processing Department. He works under the supervision of Prof. Moncef Gabbouj and Prof. Serkan Kiranyaz.

Çağlar's research interests include:

- Quantum Mechanics Inspired CVPR algorithms
- Salient Object Detection
- Semantic Image Segmentation
- Deep Learning

He holds an Electrical and Electronics Engineering B.Sc. and Signal Processing M.Sc. both from the Middle East Technical University. His M.Sc. supervisor was Prof. A. Aydin Alatan.

Çağlar serves as a reviewer for:

- IEEE Transactions on Neural Networks and Learning Systems (TNNLS)
- Journal of Mathematical Imaging and Vision (JMIV)

by [Çağlar Aytekin](#), Signal Processing Department, Tampere University of Technology, Finland

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

My interest in signal processing started in my later undergraduate years in the Electrical and

Electronics Department at Middle East Technical University in Turkey. Starting from the summer of my third year in the university, I worked on several projects in companies and at the university to develop myself in the field. During my Master of Science studies, my interest focused on computer vision and pattern recognition, and I was involved in projects on the

Editor's note:

Çağlar Aytekin was the recipient of the IBM Best Student Paper Award at ICPR 2014 in Track 3: Speech, Signal and Video Processing, for the paper "Automatic Object Segmentation by Quantum Cuts", authors: Çağlar Aytekin, Serkan Kiranyaz and Gabbouj Moncef.

~ Arjan Kuijper, Editor-in-Chief

following topics: shadow detection and restoration, geospatial object recognition and localization, and scene classification. More specifically, I investigated the effects of Rayleigh scattering on shadows, the importance of features in the Bag-of-Words framework, and spectral graph clustering methods.

Although my interest in computer vision and pattern recognition was only a few years old, I had a much more passionate interest in physics from my early childhood. With this interest in both fields, I began an endeavor to find a common ground between quantum mechanics and computer vision with the beginning of my Ph.D. The support of my supervisors Prof. Serkan Kiranyaz and Prof. Moncef Gabbouj have played a very important role during my work. Earlier fruits of our work have resulted in an object segmentation algorithm that can be implemented in quantum scale. This work was nominated for best paper award in International Conference on Image Processing in Melbourne in 2013. Later on, we reached the state-of-the-art in salient object segmentation by finding a link between two major fields: quantum mechanics and spectral graph theory, which we have called: [Quantum Cuts](#). Our work won one of the most prestigious awards in the community: an IBM best student paper award at the International Conference on Pattern Recognition in Stockholm in 2014.

During my Ph.D., I have also worked on side projects, such as automatic railway quality inspection, unsupervised initialization for target tracking, visual quality control for food products, etc.

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

Currently, I am pursuing my goal to find further and deeper relations between quantum mechanics and computer vision. My current interests include incorporating learning to Quantum Cuts via convolutional neural networks, applying Quantum Cuts for image segmentation and data clustering. Furthermore, I am also working in a novel field of shape recognition in quantum scale without the need of any computers. Within the next few years, my goal is to come up with a state-of-the-art system that performs simultaneous recognition and segmentation of objects from images and videos. Obviously, this is not a straightforward task. However, with the promising performance of Quantum Cuts and some initial results from a few unpublished works, I can say that there is light at the end of the tunnel.

Recently, I became more interested in a relatively less studied topic: Intelligence Augmentation (IA). There is a massive number of studies in Artificial Intelligence (AI) which is the pursuit of creating systems that are human-like. However, IA concentrates more on increasing human capabilities. For me, this is an extremely interesting topic. For technological advancement, we still pretty much rely on human capabilities, and in order to speed up this advancement, I believe increasing human capabilities, especially those related to intelligence, is at least as important as building up human-like systems. Hence, I have a desire to shift my research interests to this direction after my Ph.D. and maybe a few years of post-doc.

How can the IAPR help young researchers?

There are several problems that young researchers encounter, such

as getting yourself accepted to scientific community by publishing your work in high quality journals or presenting your work at the best conferences in your area. However, these journals and conferences are often dominated by a closed group of researchers. If you are a young researcher who is really new to the field, even if you come up with something great, it might be quite difficult to get your work published if you're not sending the article from a top university or if you're not including a co-author who is known worldwide. This is a huge problem, and this prejudice is an obstacle in technological advancement. I used to believe that conferences are great opportunities to explain your work to an audience and to introduce yourself to the scientific community and break this prejudice a little. However, even at conferences, some great work can be rejected for these reasons.

Although I don't believe that there is an ideal solution to these problems, there are some things that can be done by huge organizations such as IAPR. For example, besides conferences, large summer schools and doctoral consortiums with higher acceptance rates are great ways to not only introduce young researchers to the scientific community but also present an opportunity to leading researchers to observe and evaluate novel ideas beforehand. If arXiv can be thought of as a pre-evaluation opportunity of scientific work in written format, doctoral consortiums or summer schools can be thought of a pre-evaluation in oral format. In this way, I believe some of the problems that young researchers encounter can be solved, or at least reduced.

From the



News from the Executive Committee of the IAPR

by [Alexandra Branzan-Albu](#)
IAPR Secretary



Victoria, October 5, 2015

Fall is officially here and spoils us with crisp, sunny days. Leaves change their colour day by day and filter daylight in warm hues. Fall is back-to-school time, and our campus is filled again with students rushing to their classes, studying in coffee shops, or simply savouring the sunlight before rain (and midterm anxiety) will take over.

Fall is usually a very busy time for academics, and the ExCo members are no exception. But our interim meeting in Albany, NY led to a clearly defined action plan for the months to come, which will make our workload easier. The meeting was graciously hosted by Prof. Kim Boyer at the University of Albany on August 18 and 19, 2015. Several issues of high importance to the IAPR community were discussed in depth at this meeting. The most important ones are summarized below.

- The web presence of IAPR sponsored workshops and conferences, most notably of ICPR, needs to be improved in both structure and content. Our immediate focus is to move towards standardized URLs for conference web sites. After discussing several alternatives, it was decided that, beginning with ICPR 2018, the new URL structure will be www.iapr.org/icprxxx. The ExCo also discussed the necessity of archiving and backing up the web sites of past ICPRs as well as the web sites of other IAPR sponsored workshops and conferences.
- The IAPR annual membership dues structure has been in place for more than ten years. In order to cover operational expenses and continue to fund important IAPR initiatives, the dues structure must be reviewed now and on a more regular basis going forward. IAPR Treasurer Apostolos Antonacopoulos will bring up the discussion of the adjustment of membership dues at the GB meeting in Cancun in 2016. Prof. Antonacopoulos will present an analysis of the IAPR's operating costs and provide a rationale about why the membership dues should be increased. Meanwhile, the 2016 annual dues will remain unchanged.
- To better recognize volunteer service to the IAPR, the ExCo discussed reintroducing the series of Certificates of Appreciation http://www.iapr.org/fellowsandawards/awards_certappreciation.php. The IAPR will award up to five Certificates of Appreciation for Volunteer Service every two years at ICPR. Nominations of deserving IAPR members are solicited from the entire IAPR community. Please send your nominations to the IAPR President, Prof. Ingela Nyström, ahead of time for the ICPR 2016.

The October 2015 Newsletter is an exciting and very informative read. Please enjoy!



Rangachar Kasturi Named Recipient of 2015 IEEE Computer Society Merwin Award

(reprinted with permission of the IEEE Computer Society Press Room)

LOS ALAMITOS, Calif., 20 January 2015 – President-Emeritus of the IEEE Computer Society and longtime volunteer Rangachar Kasturi has been named 2015 recipient of the IEEE-CS Richard E. Merwin Award for Distinguished Service.

During the past three decades, Kasturi has served in many significant roles at the IEEE Computer Society, including as editor-in-chief of IEEE Transactions on Pattern Analysis and Machine Intelligence and Vice President of the Publications, Conferences, and Member and Geographic Activities boards. He served as President in 2008.

Kasturi was cited for “exemplifying true volunteer spirit and commitment to excellence, and for significant and continuing contributions that support the vision and mission of the IEEE and the Computer Society.”

Over the years, he also served as Treasurer, Board of Governors member, and Board of Governors chair. He has represented the IEEE-CS on the Computing Research Association and the International Association for Pattern Recognition boards, and as general co-chair of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR) and the International Conference on Pattern Recognition (ICPR). He led IEEE’s efforts to expand into India. He is a Fellow of IEEE and IAPR, and a Fulbright Scholar.

Kasturi has been the Douglas W. Hood Professor of Computer Science and Engineering at the University of South Florida since 2003. His research interests are in computer vision and pattern recognition. He is an author of the textbook, “Machine Vision.”

Kasturi has directed projects on aircraft collision avoidance sponsored by NASA, performance evaluation of video content analysis algorithms sponsored by the Advanced Research and Development Activities (ARDA) and Defense Advanced Research Projects Agency (DARPA), and document analysis for graphics recognition, sponsored by the National Science Foundation (NSF) and industrial sponsors.

Born in Bangalore in 1949 to a family of teachers, he received the B.E. (Electrical) degree from Bangalore University in 1968 and worked as an engineer in India for 10 years before moving to the US in 1978 to attend Texas Tech University, where he received his MSEE and PhD degrees in 1980 and 1982 respectively.

After graduation, Kasturi joined the Pennsylvania State University. He credits former president Tse Yun Feng, who was heading Penn State’s computer engineering program, for introducing him to the IEEE Computer Society and its volunteer service opportunities.

The [Merwin Award](#) is given to individuals for outstanding volunteer service to the profession, including significant service to the Computer Society. The Society's highest award for volunteer service, the award consists of a bronze medal and a \$5,000 honorarium.

The IAPR Newsletter is grateful to the IEEE Computer Society Press Room for permission to reprint this [announcement](#).

Please see a video interview with Prof. Kasturi here: <http://www.computer.org/web/awards/service-awards>

On behalf of the IAPR community, we extend our heartfelt congratulations to Prof. Kasturi for this well-deserved honor. In addition to his exemplary service to the IEEE, Prof. Kasturi has been a prominent member of the IAPR, active in all aspects, including serving as its president during 2002-04.

~ Arjun Kuijper, Editor-in -Chief



Meeting Reports

Conferences, Workshops & Summer Schools



General Co-Chairs:

[Yasuyo Kita](#) (National Institute of Advanced Industrial Science and Technology AIST, Japan)

[Hiroshi Ishikawa](#) (Waseda University, Japan)

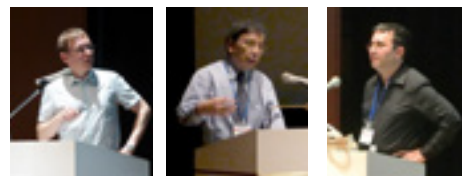
by the General Co-Chairs

The 14th IAPR International Conference on Machine Vision Applications (MVA 2015) was co-sponsored by the MVA Organization, IAPR TC-8 and AIST. This biennial MVA conference series, established in 1988, has aimed at bringing together researchers and practitioners from both academia and industry, covering the topics of sensing, algorithms, and applications in Machine Vision research. The venue of MVA 2015 was the National Museum of Emerging Science and Innovation (MIRAikan) in Tokyo, Japan, where 257 participants gathered from 32 countries.

We received 213 full-paper submissions from 35 countries. From those, 28 papers were

selected for single-track oral presentation, together with 117 papers for poster presentation, through rigorous double-blind peer-review process carried out by an international program committee composed of active researchers/engineers.

During the conference, three [IAPR Invited Talks](#) on wide-ranging topics were given by distinguished researchers:



- “3D Reconstruction from Photographs - Principles and Applications” by Prof. Tomas Pajdla (Czech Technical University in Prague)

- “Color Image Processing from the Physical, Psychological and Biological Viewpoints” by Prof. Johji Tajima (Nagoya City University), and
- “Research Opportunities in Creating Medical Images” by Prof. Ramin Zabih (Cornell University).

MVA 2015 Proceedings are available through [IEEE Xplore](#)

and at the MVA Organization web site <http://www.mva-org.jp/proceedings.php>

which also offers the proceedings of all of the past MVA conferences



We greatly appreciated the financial support from the IAPR that enabled us to organize these valuable talks and from the Telecommunications Advancement Foundation and the KDDI Foundation that helped fund other activities of MVA2015.

MVA 2015 also offered several technical events. At the opening, two [Tutorial Sessions](#) were given by up-and-coming vision researchers: “Domain Adaptation for Visual Recognition” by Dr. Vishal M. Patel (University of Maryland) and “Effective Dataset Construction in Computer Vision” by Dr. Kota Yamaguchi (Tohoku University). Technical [demonstration sessions](#) were intensified by the invitation of a number of internationally-renowned companies.

Two events for promoting networking and friendship among young researchers in the Machine Vision research were also arranged. A [Young Researchers Meeting](#) was held where almost 30 junior researchers from 18 countries enjoyed discussing their work in a relaxed atmosphere. We also arranged a Doctoral Thesis Session in collaboration with the IPSJ SIG-CVIM, a leading

Japanese computer vision special interest group.

Following the MVA tradition, the following four awards were presented at the conference.

Most Influential Papers over the Decade Award (selected from the papers presented at MVA 2005)

- “Extraction of Finger-Vein Patterns Using Maximum Curvature Points in Image Profiles” by Naoto Miura, Akio Nagasaka, and Takafumi Miyatake
- “Unsupervised Abnormality Detection in Video Surveillance” by Takuya Nanri and Nobuyuki Otsu
- “Human Activity Recognition Using Sequences of Postures” by Vili Kellokumpu, Matti Pietikäinen, and Janne Heikkilä

Best Paper Award

- “Lie Algebra-Based Kinematic Prior for 3D Human Pose Tracking” by Edgar Simo-Serra, Carme Torras, and Francesc Moreno-Noguer

Best Practical Paper Award

- “Automated Visual Inspection of Pharmaceutical Tablets in Heavily Cluttered Dynamic Environments” by Gregor Podrekar, Blaž Bratanič,

Boštjan Likar, Franjo Pernuš, and Dejan Tomažević

Best Poster Award

- “Transfer Learning Method Using Multi-Prediction Deep Boltzmann Machines for a Small Scale Dataset” by Yoshihide Sawada and Kazuki Kozuka
- “Multi-Genomic Curve Extraction” by Raphaël Labayrade and Mathias Ngo
- “Efficient Three Dimensional Rotation Estimation for Camera-Based OCR” by Kanta Kuramoto, Wataru Ohyama, Tetsushi Wakabayashi, and Fumitaka Kimura

The Most Influential Paper over the Decade Awardees were admirably commended at the Banquet Cruise, where all participants enjoyed the beautiful night view of Tokyo bay. The MVA 2015 presentation prize winners were given their awards at the closing session and were warmly celebrated by the many attendees.

The next MVA will be organized by a team lead by Hiroshi Ishikawa (Waseda University, Japan) as General Chair, and it will be held in Nagoya around the same time of the year in 2017.



ChaLearn Looking at People (LAP) Events @ CVPR 2015

Boston, Massachusetts, USA

June 12, 2015

<http://gesture.chalearn.org/2015-looking-at-people-cvpr-challenge>

Workshop Chairs:

[Sergio Escalera](#), Computer Vision Center (UAB) and University of Barcelona, Catalonia, Spain

[Jordi González](#), Universitat Autònoma de Barcelona and Computer Vision Center (UAB), Spain

[Xavier Baró](#), Universitat Oberta de Catalunya and Computer Vision Center (UAB), Spain

[Hugo Jair Escalante](#), National Institute of Astrophysics, Optics and Electronics (INAOE), Mexico

[Isabelle Guyon](#), Clopinet, Berkeley, California

by the Workshop Chairs

ChaLearn, the Challenges in Machine Learning Organization (<http://www.chalearn.org/>), organizes international challenges every year in the fields of Machine Learning and Computer Vision attracting the participation of hundreds of researchers. In particular, the IAPR ChaLearn Looking at People (LAP) CVPR 2015 is the latest of a series of LaP events (details about workshops, challenges, data, code, and special issues can be found at <http://gesture.chalearn.org/>).

With many industrial sponsors lined up, including Microsoft, Facebook, Amazon, Google, NVIDIA, and Disney, the hope is that the new algorithms emerging from those contests will not only push the academic state-of-the-art, but also open doors to a whole new array of applications. The activities have been ramping up:

- In 2011 and 2012, we organized a challenge on [One-shot Gesture Recognition](#) with data recorded with Microsoft Kinect™ in which 85 teams competed with workshops at CVPR 2011, CVPR 2012, and ICPR 2012 and at demonstration competitions. We edited a special issue (SI) on gesture recognition in the Journal of Machine Learning Research to disseminate the research results of the mini revolution in computer vision that low cost 3D depth-sensing cameras such as Microsoft Kinect™ had started, bringing gesture recognition into homes, hospitals, and the work place.
- In 2013, we went one step further and organized a challenge and workshop on [Multimodal Gesture Recognition](#) at ICMI 2013. For this challenge, we developed the largest dataset on multimodal (RGB-D, skeleton and audio) gesture recognition available at the time. In 2014, another challenge with three tracks (human pose recovery, action-interaction recognition and gesture spotting) was organized and results were presented in the [ChaLearn LAP Workshop](#) at ECCV 2014. Associated with the 2013 and 2014 challenges, we had a SI on Multimodal Human Pose Recovery and Behavior Analysis in IEEE TPAMI. The main focus of this SI was on pose recovery and human analysis with emphasis on methods exploiting multimodal data.
- The latest challenge and workshop organized at CVPR 2015 focused on [Action Recognition and Cultural Event Recognition](#). Samples from previously released ChaLearn LAP datasets are shown in Figure 1.

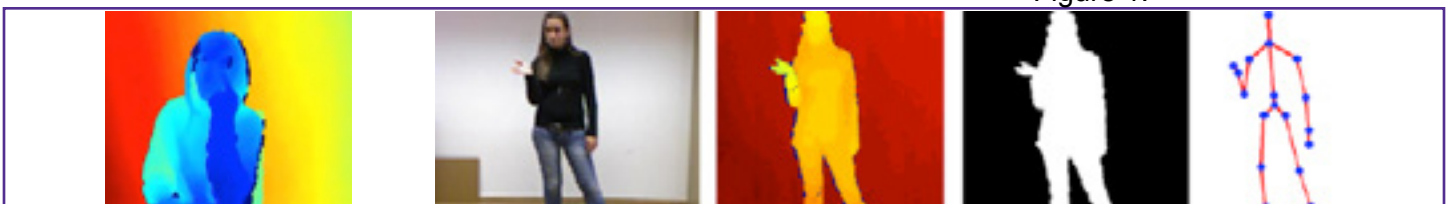


Figure 1. (a) 2011-2012 ChaLearn LAP sign-language dataset. (b) 2013-2014 Multimodal spotting Italian sign language dataset.

- Currently we are organizing a [LAP challenge and workshop for ICCV 2015](#) with an associated [Special Issue of the International Journal in Computer Vision \(<http://gesture.chalearn.org/>\)](#), which is open until February 2016 for receiving submissions of any new research related to the topic of Looking at People.

In our ChaLearn LAP events, workshops are open to any aspect related to the automatic analysis of humans. Looking at people in still images and image sequences keeps making rapid progress with the regular improvement of existing methods and the proposal of new paradigms that constantly push the state-of-the-art. Applications are countless, including human computer interaction, affective computing, human robot interaction, communication, entertainment, security, commerce and sports, while having an important social impact in assistive technologies for the handicapped and the elderly. Examples of Looking at People techniques/tasks involve:

- Gesture (hands & body), posture and sign recognition, analysis and synthesis
- Face recognition, analysis and synthesis
- Body motion analysis and synthesis, action/interaction recognition and spotting
- Context analysis for human behavior recognition in still

- images and image sequences
- Psychological, affective, and behavioral analysis
- Tracking systems on Looking at People
- 3D human analysis and multi-modal Looking at People
- Biometry analysis, identification and verification
- Looking at People for Virtual and Augmented Reality
- Datasets and evaluation protocols on Looking at People
- Computer Vision applications of Looking at People

The IAPR 2015 ChaLearn LAP workshop and competition @ CVPR 2015:

Two tracks were considered for the IAPR CVPR 2015 ChaLearn LAP challenge and workshop: Action and Cultural Event Recognition challenges, and new datasets were released. Sample images from each track are shown in Fig. 2. On one hand, we presented a novel fully limb labeled dataset, the Human Pose Recovery and Behavior Analysis HuPBA 8k+ dataset. It is formed by more than 8000 frames where 14 limbs are labeled at pixel precision, thus providing 124,761 annotated human limbs. In addition to human-limb labeling, in the HuPBA 8K+ dataset we also annotated the beginning and ending frames of actions and interactions.

On the other hand, the Cultural Event Recognition dataset consists of images collected from two image search engines (Google

Images and Bing Images). To build the dataset, we chose 50 important cultural events in the world and we created several queries with the names of these events. In order to increase the number of retrieved images, we combine the names of the events with some additional keywords (festival, parade, event, etc.). Then, we removed duplicated URLs and downloaded the raw images. To ensure that the downloaded images belonged to each cultural event, a process was applied to manually filter each of the images.

The CVPR 2015 challenges were run using Microsoft's Codalab platform (<http://www.codalab.org/>). Participants of the action and interaction recognition used Improved Dense Trajectories as features with PCA for dimensionality reduction. From the point of view of the classifiers, both generative and discriminative techniques were used by participants, although SVM obtained better results. On the development phase of the competition only the two finalists obtained better results than the baseline, being the winning score for the evaluation phase 0.5385. This result indicates that there is still room for improvement, and that action/interaction recognition is still an open problem.

In the case of cultural event recognition, and following current trends in the computer vision literature, deep learning was

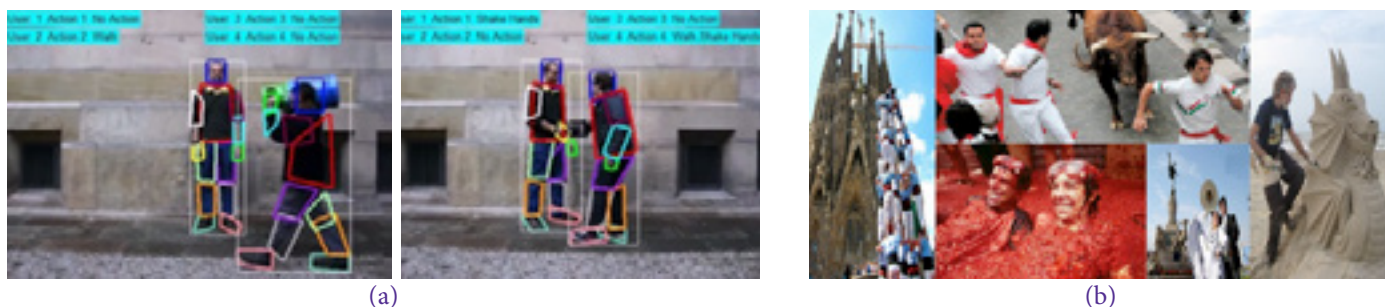


Figure 2. IAPR CVPR 2015 ChaLearn Looking at People competitions. (a) Examples of Action Recognition dataset. (b) Examples of images from the Cultural Event Recognition Dataset.

present in most of the solutions. Since a huge number of images is required for training Convolutional Neural Networks, teams used pre-trained networks as input to their systems for feature extraction, followed by different types of classification strategies.

The complexity and computational requirements of some of the state of the art methods made them unfeasible for these kinds of competitions where time is a hard restriction. However, the irruption of GPU computation in research, used by many teams in both tracks, has enabled those methods with a great impact on the final results.

Within the workshop, a set of papers related to Looking at People were also presented, including methods for human pose recovery, face analysis, and applications, among others. We also had the participation of four invited speakers: Tinne Tuytelaars (KU Leuven), Olga Russakovsky and Alexandre Alahi (Stanford University), Stan Sclaroff (Boston University), and Cordelia Schmid (INRIA).



Winners of the competition at IAPR ChaLearn LAP CVPR 2015

Ongoing and upcoming ChaLearn Looking at People Events

Currently, we are running a new challenge on Apparent Age Estimation and extended Cultural Event Recognition, whose results will be presented at the IAPR ChaLearn LAP ICCV 2015 workshop. The apparent age challenge uses the first-state-of-

the-art dataset containing apparent age samples, age estimated by a crowdsourcing Facebook application for voting, rather than real age analysis.



Example of apparent age data. Left: training sample. Right: top distribution of age votes; down: based on mean vote, deviation, and prediction x , E error is computed.

For next year we preparing a Speed Interview Challenge (<http://gesture.chalearn.org/speed-interviews>), a multi-disciplinary project combining Computer Vision, Machine Learning, and Natural Language fields, among others. A virtual avatar will conduct an interview with the final goal of making automatic hiring decisions.

Acknowledgements

We are very grateful to all our collaborators in the organization of ChaLearn LAP challenges, and in particular, Evelyne Viegas, Jamie Shotton, Vassilis Athitsos,

Pablo Pardo, Marc Oliu, M. Angel Bautista, Victor Ponce, Miguel Reyes, Meysam Madadi, Junior Fabian, Iván Huerta, Carlos Andujar, Erick Watson, Ulrich Steiner, and Dusan Misevic.

We would also like to thank all participants of our competitions and ChaLearn LAP related events as well as to our invited speakers.

Special thanks to [IAPR TC-12: Multimedia and Visual systems](#) and Henning Müller and Martha Larson for their collaboration.

Finally, we would like to thank our sponsors, Microsoft Research, University of Barcelona, Computer Vision Center, Universitat Oberta de Catalunya, Universitat Autònoma de Barcelona, Human Pose Recovery and Behavior Analysis group, INAOE, CONACYT, European COST Action on integrating Vision and Language, Google, Facebook, Disney Research, Amazon Computer Vision, NVIDIA, and the International Association for Pattern Recognition.

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by Massimo Tistarelli

Summary Report

The 2015 IAPR summer school on biometrics was the 12th edition of a strongly established training course started in 2003 to promote knowledge dissemination and research in Biometrics and related fields. The school was technically co-sponsored by the IAPR and the IEEE and co-organized by the EU COST Action IC1106. The continuous sponsorship from Morpho has been also gratefully acknowledged throughout this school, as well as in the past editions.

The school's main theme was related to the application of multimodal biometric systems in forensic and security applications, but with a specific attention to mobile applications. The school particularly addressed the impact of biometric technologies in criminal investigations and the algorithmic solutions to facilitate the integration of biometrics in several mobile scenarios.

Several subjects were taught at the summer school forming a total of 22.5 hours of theoretical lectures from 17 different lecturers and 4.5 hours of guided practical sessions on face recognition using MatLab¹ tools. The subjects ranged from fundamentals such as machine learning and pattern recognition techniques, applied to biometrics, as well as more advanced topics such as neuroscience and applied subjects such as mobile and wearable devices, large-scale evaluation and the deployment of biometrics technologies in forensic science. This 12th edition of the summer school, featured a line-up of exceptional lecturers, selected from the editorial boards of top-level scientific journals and conferences. Prof. James Haxby, an outstanding neuroscientist, presented a lecture on the representation of visual data in the brain and the topographic mapping to design such representations from fMRI recordings. Dr. Deepak Chandra, from Google, presented a novel and challenging scenario in the recognition of individuals from massive data coming on-line from mobile devices. All lecturers, among the most highly reputed experts in their fields, presented the most up-to-date view in Biometric technologies and Forensic applications.

¹ The school committee is grateful to MathWorks for providing a special trial version of MatLab software, specifically for the school students to develop the practical sessions.

Directors:

[Massimo Tistarelli](#) (University of Sassari, Italy)

[Josef Bigun](#) (Halmstad University, Sweden)

Enrico Grosso (University of Sassari, Italy)

[Anil K. Jain](#) (Michigan State University, USA)

Complete list of lecturers and the presented lectures

Monday, June 22

- Prof. Arun Ross (Michigan State University, USA) An introduction to biometrics and multibiometrics.
- Prof. Alessandro Verri (University of Genova, Italy) Machine learning techniques in biometrics.
- Prof. Massimo Tistarelli (University of Sassari, Italy) Face recognition technologies.
- Prof. Zhenan Sun (Chinese Academy of Science, China) Iris recognition

Tuesday June 23

- Prof. Davide Maltoni (University of Bologna, Italy) Fingerprint recognition.
- Prof Mark Nixon (University of Southampton, UK) Gait recognition and soft biometrics.
- Dr. Thirimachos Bourlai (West Virginia University, USA) Practical biometric recognition systems and project - PART 1 and 2.

Wednesday June 24

- Prof. John Mason (University of Swansea, UK) Speaker recognition.
- Dr. Deepak Chandra (Google Inc., USA) Mobile authentication in biometrics.
- Dr. Jonathon Phillips (NIST, USA) Grand challenges and progress in face recognition and visual biometrics.
- Prof. Alice O'Toole (University of Texas at Dallas, USA) and Prof. Ida

Gobbini (University of Bologna, Italy) Biological recognition of human faces & bodies.

Thursday June 25

- Dr. Bo Pi (Goodix Inc., China) Biometric sensor embedding in mobile devices.
- Prof. James Haxby (University of Trento, Italy) A high-dimensional model of the neural representational space for face and object recognition.
- Dr. Emine Krichen (Safran Morpho, France) Exploiting biometrics: an industrial perspective.

Friday June 26

- Prof. Andrzej Drygajlo (Ecole Polytechnique Federal de Lausanne, Switzerland) Biometrics for cybersecurity.
- Prof. Didier Meuwly (Netherlands Forensic Institute, Netherlands) Biometrics in forensic practice.
- Dr. Thirimachos Bourlai (West Virginia University, USA) Practical biometric recognition systems and project - PART 3.
- Prof. Emilio Mordini MD (CSSC Roma, Italy) Ethics and governance of global ID.
- Prof. Massimo Tistarelli (University of Sassari, Italy) Concluding remarks and discussion.

Student participation and activities:

33 participants attended the school lectures. The class was formed by students coming from different universities, industries and research centres in the following 15 different countries (in brackets are the number of participants from this country, if greater than one): Australia, Belgium, Czech Republic, Finland, France, Germany (2), Hong Kong, India (2), Italy (13), Netherlands, Portugal, Russia, Spain, Sweden (2), United Kingdom (4).

This year's students demonstrated a quite deep knowledge of both application and theory of biometrics. Most of them are either working directly in the design of biometric systems, or pursuing high level scientific research in the field. This not only facilitated a very good interaction between students and lecturers, even within the theoretical lectures, but also stimulated and challenged even the most experienced lecturers with questions and requests for explanations in the course of almost all presentations. As a result, both the students and lecturers have been much involved in technical discussions and plans for collaborations.

All students actively took part in the practical sessions. A project was assigned to group splits of the class and an award was assigned to the best three projects.

Remarkably, also representatives of government agencies and forensic laboratories attended the school courses. This not only denotes the high reputation gained by the school, but also a deep interest of different government offices in the adoption and newer biometric technologies for the service of the citizens.

A total of five students from different countries were partially supported by a grant from the IAPR. The awarded students were selected on the basis of three criteria:

- Public recognition of their research record (number of publications, patents, talks at workshops and conferences, participation to previous meetings);
- Year of enrolment in the Phd program, more advanced students were privileged over younger ones;
- Active participation in the IAPR

activities.

The grant provided from Morpho covered some of the school expenses and also partially supported four students and two post-docs.

The school participants were offered the possibility to display a poster on their research activity and to submit a research paper to be orally presented at two special sessions organized during the week. The participants presented 15 posters, which were available during the entire week. Seven Ph.D. students made an oral presentation of their on-going research work:

- **Research in the area of simulations of fingerprint damages**, Ondřej Kanich – Czech Republic
- **Image Forensics: Authentication of Digital Images**, Massimo Iuliani – Italy
- **Enhancing Sensor Pattern Noise via Filtering Distortion Removal**, Xufeng Lin – UK
- **Soft Biometric Recognition from Comparative Crowdsourced Annotations**, Daniel Martinho-Corbishley – UK
- **Impact of Signature Sub-trajectories in Online Signature Verification**, Sudhir Rohilla – India
- **A New Extension to Kernel Entropy Component Analysis for Finger-vein Recognition**, Sepehr Damavandinejadmonfared – Australia
- **Provoking Security: Spoofing attacks against Crypto-biometrics**, Christina-Angeliki Toli – Belgium

Next Summer School

Applications are being accepted for the 2016 school, which will take place June 6-10, 2016.



ICVSS 2015

Sicily ~ 12-18 July

International Computer Vision Summer School

"LEARNING TO SEE"

<http://svg.dmi.unict.it/icvss2015/>

Directors:

[Roberto Cipolla](#) (University of Cambridge, UK)

[Sebastiano Battiato](#) (University of Catania, Italy)

[Giovanni Maria Farinella](#) (University of Catania, Italy)

by The Summer School Directors

The historic island of Sicily and its beautiful sunshine played host to over 160 young researchers, selected from 423 applicants, for ICVSS 2015. The school directors, Prof. Sebastiano Battiato and Prof. Giovanni Maria Farinella of the University of Catania, and Prof. Roberto Cipolla of the University of Cambridge, chose the title "Learning to See" for the ninth edition of this highly popular series of lectures and tutorials. The school courses covered fundamental topics and applications in Computer Vision and Machine Learning. The school was endorsed and sponsored by the IAPR and the GIRPR.

The courses were delivered by world renowned experts in the field, from both academia and industry:

- Yoshua Bengio, Université de Montréal, Canada
- Thomas Brox, University of Freiburg, Germany
- Daniel Buchmuller, Amazon, Cambridge, UK
- Daniel Cremers, Technische

- Universität München, Germany
- Fei-Fei Li, Stanford University, USA
- Marc Pollefeys, ETH Zurich, Switzerland
- Cees Snoek, University of Amsterdam, Qualcomm Research, The Netherlands
- Stefano Soatto, UCLA, USA
- Doris Tsao, California Institute of Technology, USA
- Andrea Vedaldi, University of Oxford, United Kingdom
- Rene Vidal, The Johns Hopkins University, USA
- Takeo Kanade, Carnegie Mellon University, USA
- Stéphane Mallat, École Normale Supérieure, France
- Matthew Zeiler, Clarifai, USA

In addition to the academic programme, the 2015 edition on ICVSS had a special session to allow students to meet and learn about the opportunities and activities at world leading research laboratories and companies that are exploiting computer vision.

The members of the industrial panel were:

- Michael Donoser, Amazon,

- Berlin, Germany
- Fabio Galasso, OSRAM Corporate Technology, Germany
- Gerard Medioni, Amazon, USA
- Jason Meltzer, iRobot, USA
- David Moloney, Movidius, USA
- Naila Murray, Xerox Research Centre Europe, France
- Patrick Sauer, Toyota Research Europe, Belgium
- Cees Snoek, Qualcomm Austria Research Center GmbH, The Netherlands
- Bjorn Stenger, Toshiba Research Europe, United Kingdom
- Daniel Wagner, Qualcomm Austria Research Center GmbH, Austria

Intended to provide a review of the existing state-of-the-art research, one of the greatest attractions of the school has been the opportunity for students at the start of their research careers to challenge and question both the professors and each other in an informal and relaxed setting, providing an inspirational atmosphere and a chance to improve research skills—though

activities such as the reading group, poster session, essay competition—and fostering a sense of community.

Five prizes were assigned by the school committee.

The best presentation prizes (sponsored by Amazon, Qualcomm and Toshiba) were given to Ziad Al-Halah (Karlsruhe Institute of Technology, Germany), Aravindh Mahendran (University of Oxford, United Kingdom) and Cristina Segalin (University of Verona, Italy).

The winners of the essay competition (sponsored by Microsoft and GIRPR) were Grace Lindsay (Columbia University, USA) and Joachim Dehais (University of Bern, Switzerland).

In amongst a packed program of over 30 hours of presentations, the organizers found time for a tour of the ancient and picturesque town of Ragusa Ibla (RG) including the opportunity to experience the local traditions in the form of folk dancing and a delicious feast featuring many of the local delicacies. The school buses for

the social tours, as well as for the transportation from the Catania Airport to the School Location (and vice versa) were sponsored by the IAPR for all the participants.


As students prepared for the closing ceremony and an evening party at the beach, many students expressed their desire to get back to the lab to test out new ideas and to attend next year's school, which will be announced early in December 2015.

Information about ICVSS is available at <http://www.dmi.unict.it/icvss>.



Photo by Davide Moltisanti

The full set of pictures is available here: <https://flic.kr/s/aHskgoYhGo>



ICVSS 2016
Sicily ~ 17 - 23 July
International Computer Vision Summer School
Computer Vision: What Happens Next?

6th International Conference on Pattern Recognition and Machine Intelligence

Warsaw, Poland

June 30-July 1, 2015

<http://premi2015.ii.pw.edu.pl/index.php>

Honorary Chair:

[Sankar Pal](#), IAPR Fellow (Indian Statistical Institute, Kolkata, India)

Steering Committee:

[Malay Kumar Kundu](#) (Indian Statistical Institute, Kolkata, India)

[Andrzej Skowron](#) (University of Warsaw, Poland)

General Chair:

Henryk Rybiński (Warsaw University of Technology, Poland)

by Sankar Pal, Honorary Chair

The International Conference on Pattern Recognition and Machine Intelligence (PReMI) is one of the most important conferences in the field of pattern recognition, machine learning, computational intelligence and related application areas. It is held in alternate years, preferably at different places. The 2005, 2007 and 2013 editions were held at the Indian Statistical Institute (ISI), Kolkata, India. The Indian Institute of Technology, New Delhi, India, hosted in 2009, and the Higher School of Economics (HSE), Moscow, Russia, in 2011. The edition in this series was held at the Warsaw University of Technology, Warsaw, Poland.

PReMI provides an international forum for exchanging scientific, research, and technological achievements in pattern recognition, machine intelligence, and related fields. PReMI 2015 was attended by large number of researchers and leading experts from all over the world. The primary goal 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. In particular, major areas selected for PReMI 2015 include pattern recognition; machine intelligence; image processing, retrieval and tracking; mining techniques for large scale data; fuzzy computing; rough computing; bioinformatics; and applications of artificial intelligence.

Two [special sessions](#) were organized on Data Mining Techniques for Large-Scale Data and Scalability of Rough Set Methods. [Four plenary keynote talks](#) and [two tutorials](#) were delivered. The conference was also accompanied by an [Industrial Session](#) on Machine Intelligence and Big Data in the Industry.

PReMI 2015 received 90 submissions that were carefully reviewed by three or more Program Committee members or external reviewers. Papers

submitted to special sessions were subject to the same reviewing procedure as those submitted to regular sessions. After a rigorous reviewing, 54 papers were accepted for presentation at the conference. These papers are also published in the [PReMI 2015 proceedings](#), published by Springer, Heidelberg, as Lecture Notes in Computer Science, Volume 9124 (<http://link.springer.com/openurl.asp?genre=issue&issn=0302-9743&volume=9124>) This volume also contains one invited paper and three extended abstracts by the plenary keynote speakers. The contributing papers were presented by researchers in parallel sessions on various theoretical and application areas, including new developments.

The conference took place in fourteen sessions, over four days. It was inaugurated by Professors Henryk Rybiński (General Chair), Andrzej Skowron, Marzena Kryszkiewicz (Program Co-Chair), and other dignitaries.

The conference highlights were marked by some of the leading

researchers in the areas of pattern recognition and machine learning who presented the plenary keynote talks covering various aspects and the forefront application areas: Prof. George Karypis (University of Minnesota, United States) spoke on Recent Advances in Recommender Systems and Future Directions; Prof. Sankar K. Pal (Indian Statistical Institute, Kolkata) gave a plenary keynote talk on Granular Mining and Rough-Fuzzy Computing: Data to Knowledge and Big Data Issues; Prof. Roman Słowiński (Poznan University of Technology, Poland) gave a plenary talk on Constructive Learning of Preferences with

Robust Ordinal Regression; and Prof. Xin Yao (University of Birmingham, UK) gave a plenary talk on Ensemble Approaches in Learning. The speakers at the conference tutorials were Prof. Gerald Schaefer (UK) and Prof. Santanu Chaudhury (India).

Different sponsors of the conference who made the event successful include: mBank, Warsaw, Poland; allegro, Warsaw, Poland; Samsung-Poland; Centre for Soft Computing Research: A National Facility (ISI, Kolkata, India); International Rough Set Society (IRSS); and Web Intelligence Consortium (WIC).

The program included a sight-seeing tour in Warsaw, a Welcome reception and a Gala dinner.

In conclusion, PReMI 2015 was 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.



Click on the image to go the publisher's web site for this volume.

IAPR Then and Now...10 Years Ago ***IAPR Newsletter* Volume 28 Number 2 April 2006**

From the Conference Report of PReMI 2005 **The 1st International Conference on Pattern Recognition and Machine Intelligence**



Mr. Buddhadeb Bhattacharjee, the Honorable Chief Minister, Government of West Bengal, India, addressing the delegates at the Inauguration of the PReMI'05



23RD INTERNATIONAL CONFERENCE ON
PATTERN RECOGNITION

CALL FOR PAPERS

<http://www.icpr2016.org>



23rd International Conference on Pattern Recognition, Cancún, México, December 6-10, 2016

GENERAL CHAIR

Eduardo Bayro-Corrochano - (CINVESTAV, México)

CO-CHAIRS

Gerard Medioni (USC, USA)

Gabriella Sanniti di Baja (CNR, Italy)

TRACKS and TRACK CHAIRS

Track 1: Pattern Recognition and Machine Learning

- Edwin Hancock (University of York, UK)
- Enrique Sucar (INAOE, Puebla, México)
- Lian Wang (Nat Lab of Pattern Recognition, China)

Track 2: Computer Vision and Robot Vision

- Richard Hartley (Australian National University, Australia)
 - Anders Heyden (University, Lund, Sweden)
 - Ales Leonardis (University of Birmingham, UK)
 - Sudeep Sarkar (University of South Florida, USA)

Track 3: Image, Speech, Signal and Video Processing

- Prof. Michael Felsberg (University of Linköping, Sweden)
- Prof. Vaclav Hlavac (Czech Tech University, Czech Rep)
- Prof. Dong Xu (Nanyang Tech University, Singapore)

Track 4: Document Analysis, Biometrics and Pattern Recognition Applications

- Prof. Anil Jain (Michigan State University, USA)
- Prof. Mark Nixon (University of Southampton, UK)
- Prof. Tieniu Tan (Chinese Academy of Sciences, China)
 - Dr. Luc Vincent (Google, USA)

Track 5: Biomedical Image Analysis and Applications

Prof. Xiaoyi Jiang (University of Münster, Germany)

Prof. Ioannis Kakadiaris (University of Houston, USA)

Prof. Reinhard Klette (Auckland University of Technology, NZ)

IMPORTANT DATES

Mar. 07, 2016 – Submission paper opens

Apr. 03, 2016 – Deadline for paper submission

Mar. 01, 2016 – Deadline for workshop & contest

Jul. 01, 2016 – Deadline for tutorial

Jul. 10, 2016 – Early bird registration opens

Dec. 04 – 08, 2016 – Conference Dates

CALLS FOR NOMINATIONS FOR AWARDS TO BE PRESENTED @ ICPR 2016

In the coming months, an official Call for Nominations for the prestigious King-Sun Fu Prize, the highest honor given by the IAPR, will be posted at the IAPR web site

http://www.iapr.org/fellowsandawards/awards_kingsunfu.php.

The IAPR established this prize in honor of the memory of Professor King-Sun Fu, who was instrumental in the founding of the IAPR, served as its first President, and is widely recognized for his extensive contributions to the field of pattern recognition.

This biennial prize is given to a living person in recognition of an outstanding technical contribution to the field of pattern recognition.

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

J.K. Aggarwal Prize

A Call for Nominations will be posted at the IAPR web site soon:

http://www.iapr.org/fellowsandawards/awards_aggarwal.php

Professor Aggarwal is widely recognized for his extensive contributions to the field of pattern recognition and for his participation in the IAPR's activities.

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

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

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

Maria Petrou Prize

A Call for Nominations will be posted at the IAPR web site soon:

http://www.iapr.org/fellowsandawards/awards_petrou.php

The Maria Petrou Prize is to be awarded biennially at ICPRs to a living female scientist/engineer who has made substantial contributions to the field of Pattern Recognition, and whose past contributions, current research activity and future potential may be regarded as a model to both aspiring and established researchers. This Prize honors the memory of Professor Maria Petrou as a scientist and engineer of the first rank, and particularly in her role as a pioneer for women researchers and highly successful role model. She is widely recognized for her extensive contributions to the field of image processing and pattern recognition. She also made significant contributions to the growth of IAPR, covering significant leadership roles. The Prize consists of a suitably inscribed plaque and a cash amount partially covering a visiting period of the winner at some research institution or university.

The prize will be awarded for the first time at ICPR 2016 in Cancun.

IAPR Fellow Award

Deadline for Submission of Nomination and Endorsement Forms is
January 31, 2016

Click on "Call for Nominations"
<http://www.iapr.org/fellowsandawards/index.php>

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

Guidelines for IAPR Fellowship Nomination:
<http://www.iapr.org/fellowsandawards/IAPRInstructions-2016.pdf>

Please address any questions to the chair of the Fellow Committee, Sudeep Sarkar,

To: sarkar@usf.edu
Subject: IAPR Fellowship 2016
CC: webmaster@iapr.org

The IAPR appreciates your efforts to support the Fellowship program!

BOOKSBOOKSBOOKS

Imaging Spectroscopy for Scene Analysis

by Antonio Robles-Kelly and Cong Phuoc Huynh

Springer, Advances in Computer Vision and Pattern Recognition, 2013

Reviewed by [Dr. Tanish Zaveri](#) and [Bhupendra Fataniya](#) (Nirma University, India)

This book is a significant and timely contribution in the area of computer vision for imaging spectroscopy for scene analysis. The book

- Presents a detailed analysis of spectral imaging for material identification, object recognition and scene understanding.
- Explores in depth various opportunities, application areas and challenges concerning the use of imaging spectroscopy for scene understanding, challenges of combining spatial and spectral information
- Reviews a wide range of applications, from surveillance and computational photography to biosecurity and resource exploration.

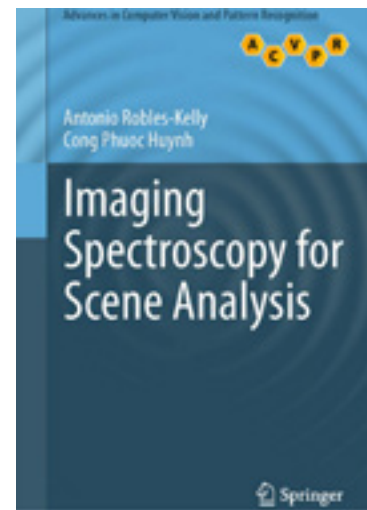
This book would be useful to various practitioners and scientists who are working in the area of color image processing, optics, graphics, object reconstruction etc. The authors have put a lot of effort into preparing the content to cover the wide range of topics presented in detail. They have brought together their work in imaging spectroscopy over the past decade, and now it will become a standard for the area. The combination of spatial and spectral cues promises a vast number of applications, including surveillance by composition-based object tracking, computational photography encoding material type in the color channels, and spectroscopic image analysis for non-intrusive diagnostics, monitoring and surveying. The book is divided into eleven chapters and each chapter provides detailed references to explore further work on the topic.

In the first chapter, Introduction, the authors have described the challenges and opportunities concerning to the use of imaging spectroscopy for scene analysis in brief.

In the second chapter, Spectral Image Acquisition, the authors have explained the image acquisition process. The chapter contains details of spectral cameras and sensors used for spectral imaging. A small section of the chapter also explains the dark current calibration method used to separate the incoming light into a set of wavelengths.

The spectral image formation process is illustrated in third chapter. Details of appropriate measurement of the accuracy of colors acquired by the camera with respect to human perception are explained. Nomenclature and definition of basic radiometric terms are also covered.

Chapter Four, describes two classes of reflectance model: physics based and phenomenological models. The physics based Beckmann Kirchhoff model and its variant is described in second section of this chapter. Eight different phenomenological models like Lambertian model, dichromatic



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

reflection model, Wolff model and Oren Nayar model etc are also described in this chapter which is very useful in post-processing.

In the visible spectrum, the CIE actually defines a number of standard illuminant power spectra. An object scene depends on the reflectance properties of the surface and power spectrum of the illuminant, the scene geometry and the imaging device. The estimation of the illuminant power spectrum also related to the color constancy literature. These topics form the crux of the fifth chapter of the text.

The estimation of reflectance parameters related to the problems of recovering the shape of an object from its shading information is explained in Chapter Six. Various methods of separating the reflection components are described in detail. The optimization approach with a detailed procedure for illuminant and photometric invariant recovery parameters are also discussed.

In Chapter Seven, Spectrum Representation, classical pattern recognition and machine learning algorithms are explained to perform feature extraction and classification. Compact representation of spectra and their modeling by B-splines, as well as spectral descriptor theory are presented together with the relevant calculus. Hyperspectral imaging and material chemistry can be used for the purpose of material identification where automatic absorption detection algorithms play an important role, so in this chapter, such algorithms are discussed.

Any scene is composed of material that can be “unmixed” for the purpose of recovering its end members. In Chapter Eight, the use of imaging spectroscopy for scene analysis also permits the representation of scenes in terms of material and their constituents is elaborated. The separated components can then be used for

recognition and classification.

Chapter Nine, Reflection Geometry, covers the framework and methods for recovering the illuminant and shape from monochromatic, trichromatic and spectral images captured from a single view. In this chapter, the basic general reflectance model and parametric form of specific reflectance models described in Chapter Four and their correspondence is explained in detail.

Polarization of light, a well known concept for astronomy and optic researchers, is explained in Chapter Ten. In this chapter, computational models of polarimetric imaging and their applications for the recovery of shape and material properties are discussed. A polarimetric reflection model for rough surfaces and reflection component separation methods are also explained for scene understanding.

In the last chapter, Shape and Refractive Index Computation from Polarization, the process of shape and refractive index recovery is explained. In this chapter, the authors cover details of azimuth angle and phase of diffuse polarization, disambiguation of the azimuth angle, estimation of the azimuth angle, zenith angle and refractive index, integrability constraint, material dispersion, optical zenith angle and refractive index and explain its computation with mathematical theory.

The book can be useful for researchers and academics who want to understand imaging spectroscopy for scene understanding. It is a valuable contribution in the area of hyperspectral imaging and explains new ways of extracting the physical properties of materials, objects, scenes and illuminants better than a three colour system.

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](#), Associate Editor for Book Reviews

We are offering the following latest titles for review. These have been published (or will very soon be available) in the "Advances in Computer Vision and Pattern Recognition" series from Springer.

* ***Integrated Imaging and Vision Techniques for Industrial Inspection*** by Zheng Liu et al. (Eds.): <http://www.springer.com/us/book/9781447167402>

* ***Probabilistic Graphical Models*** by Luis Enrique Sucar: <https://www.springer.com/us/book/9781447166986>

* ***Sparse Representation, Modeling and Learning in Visual Recognition*** by Hong Cheng: <http://www.springer.com/us/book/9781447167136>

Other recently published Springer titles include:

* ***Guide to Signals and Patterns in Image Processing*** by Apurba Das: <http://www.springer.com/gb/book/9783319141718>

* ***Practical Biometrics (Second edition)*** by Julian Ashbourn: <http://www.springer.com/gb/book/9781447167167>

* ***Computer Vision for X-Ray Testing*** by Domingo Mery: <http://www.springer.com/gb/book/9783319207469>



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

Call for Proposals for Summer Schools

Deadline: January 31, 2016 (for schools planned for March-August 2016)

Background: In 2012, the IAPR Executive Committee (ExCo) drafted an Initiative on Technical Committee Activities specifically related to Summer Schools. Since that time, several summer schools (on Biometrics, Complex Networks, Computer Vision, and Document Image Processing) have applied for and been given grants to support their activities.

These summer schools are training activities where participants are exposed to the latest trends and techniques in the particular pattern recognition field. To be eligible for a grant, the organizers must work through at least one of the IAPR's technical committees as they develop and present the proposal.

Call for Proposals: This is a call for proposals for summer schools that are planned for March to August, 2016. A separate call will address schools planned from September 2016 to February 2017.

The ExCo believes summer schools provide a unique opportunity to engage students and junior researchers with senior scientists in a fruitful way consistent with the mission of the IAPR.

Of course, the term "Summer School" is somewhat generic and traditional. There is no requirement that a school be offered during the summer. The ExCo is confident that summer school organizers will select a time not in conflict with the academic schedules of the target audience and lecturers.

How to Submit: Proposals for IAPR funded summer schools should be submitted to IAPR Second Vice President Simone Marinai by electronic mail (simone.marinai@unifi.it). A PDF attachment containing all the required information is appreciated.

For detailed guidelines on the proposal, see the [ExCo Initiative on Summer Schools](#).

Pending Book Reviews

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. [Support Vector Machines for Pattern Classification, 2nd Ed.](#), by Shigeo Abe (Springer, 2010). Reviewer: Huthaifa Abderahman. Under review since July 2013.
3. [Concise Computer Vision](#) by Reinhard Klette (Springer 2014). Reviewer: Tayyab Naseer. Under review since February 2014.
4. [Decision Forests for Computer Vision and Medical Image Analysis](#) by Antonio Criminisi and Jamie Shotton, Eds. (Springer 2013). Reviewer: Zeeshan Zia. Under review since April 2014.
5. [Scalable Pattern Recognition Algorithms](#) by Pradipta Maji and Sushmita Paul. Reviewer: Munish Kumar. Under review since February 2015.
6. [Handbook of Biometric Anti-Spoofing](#) edited by Sebastien Marcel et al. Reviewer: George A. Papakostas. Under review since February 2015.

Meeting and Education Planner

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

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

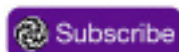
* Asterisks denote non-IAPR events *

	Meeting	Report on previous edition	Venue
2015	ACPR 2015 : 3rd Asian Conference on Pattern Recognition	ACPR 2013	Malaysia
	CIARP 2015 : XX Iberoamerican Congress on Pattern Recognition		Uruguay
	DICTA 2015 : International Conference on Digital Image Computing: Techniques and Applications	DICTA 2012	Australia
	ICVNZ 2015 : Image and Vision Computing New Zealand		New Zealand
	PSIVT15 : 7th Pacific Rim Symposium on Image and Video Technology	PSIVT13	New Zealand

2016	FEB	CVIP 2016 : International Conference on Computer Vision and Image Processing		India
	MAR	IWBF 2016 : 4th International Workshop on Biometrics and Forensics	IWBF 2014	Cyprus
	APR	DAS 2016 : 12th IAPR International Workshop on Document Analysis Systems	DAS 2014	Greece
		DGCI 2016 : 19th IAPR International Conference on Discrete Geometry for Computer Imagery	DGCI 2014	France
	MAY	ICISP 2016 : 7th International Conference on Image and Signal Processing	ICISP 2014	Canada
	JUN	ICB 2016 : 9th International Conference on Biometrics	ICB 2015	Sweden
	OCT	ICFHR 2016 : 15th International Conference on Frontiers in Handwriting Recognition	ICFHR 2014	China
	NOV	S+SSPR 2016: IAPR Joint International Workshops on Statistical Techniques in Pattern Recognition (SPR 2016) and Structural and Syntactic Pattern Recognition (SSPR 2016)	S+SSPR 2014	Mexico
	DEC	ICPR 2016 : 23rd International Conference on Pattern Recognition	ICPR 2014	Mexico

The *IAPR Newsletter* is published in association with the IAPR website, www.iapr.org

The *IAPR Newsletter* is published four times per year, January, April, July, and October.



Deadline for the next issue: December 7, 2015

To contact us:

Arjan Kuijper, Editor-in-Chief, arjan.kuijper@igd.fraunhofer.de

Zeeshan Zia, Associate Editor for Book Reviews, zeeshan@nec-labs.com

Linda J. O'Gorman, Layout Editor, logorman@alumni.duke.edu