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Newsletter

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Getting to know...

José Ruiz-Shulcloper, IAPR Fellow

José Ruiz-Shulcloper, IAPR Fellow

ICPR 2012, Tsukuba, Science City, Japan

*For contributions to pattern recognition
and data mining, and services to the IAPR*

I started to work in pattern recognition in 1978 at the Havana University after having finished my PhD on Mathematical Logic, precisely on Testor Theory, at the University of Moscow "Lomonosov" and at the Computing Center of the Academy of Science of the former Soviet Union.

Following the ideas of Yuri I. Zhuravlev, who was my PhD advisor, I started to apply the Testor Theory in feature selection problems and in the development of supervised classifiers based on partial precedents principles. I introduced this theory in Cuba and other Latin American countries, and with the support of my students in Cuba and Mexico, we developed these theories and applications to real world problems in Soft Sciences, particularly

José Ruiz-Shulcloper is Head and founder of Advanced Technologies Applications Center, (CENATAV), DATYS: Technologies & Systems, Havana, Cuba. His research interests include pattern recognition, testor theory, logical combinatorial pattern recognition, mixed and incomplete data mining, and are mainly focused on mixed and incomplete data analysis. He was co-founder and President of the Cuban Association for Pattern Recognition, (ACRP) and promoter of similar national associations in Mexico, Brazil, Chile and Argentina. He was co-founder of the Computer Research Center of the National Polytechnic Institute of Mexico. He is Emeritus member of the ACRP since 2010. He is member of the King Sun Fu Prize Committee and the Membership Committee of the IAPR, is an IAPR Fellow (2012). He has authored a number of book chapters, conference papers and journal articles and has edited a few books.



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/

[Call for Contest, Tutorial and Workshop Proposals for ICPR 2014](#)

Deadline: Sep. 15, 2013

[DAS 2014](#)

11th IAPR International Workshop on Document Analysis Systems

Tours, Loire VALley, France

Dates: Apr. 7-10, 2014

Deadline: Sep. 30, 2013

[J. K. Aggarwal Prize](#)

to be presented at ICPR 2014

Deadline: ????? 2014

[ICFHR 2014](#)

14th International Conference on Frontiers in Handwriting Recognition

Crete, Greece

Dates: Sep.1-4, 2014

Deadline: Feb. 10, 2014

[ICPR 2014](#)

22nd International Conference on Pattern Recognition
Stockholm, Sweden

Dates: Aug. 24-28, 2014

Deadline: Dec. 20, 2013

[IAPR Fellow Award](#)

to be presented at ICPR 2014

Deadline: Jan. 31, 2014

[S+SSPR 2014](#)

Joint Workshops on Statistical Techniques in Pattern Recognition (SPR 2014) and

Structural and Syntactic Pattern Recognition (SSPR 2014)

Joensuu, Finland

Dates: Aug. 20-22, 2014

Deadline: Mar. 1, 2014

[K. S. Fu Prize](#)

to be presented at ICPR 2014

Deadline: Jan. 15, 2014

[DGCI 2014](#)

18th IAPR International Conference on Discrete Geometry for

Computer Imagery

Siena, Italy

Dates: Sep. 10-12, 2014

Deadline: Feb. 3, 2014

[IJCB 2014](#)

International Joint Conference on Biometrics

Clearwater, Florida, USA

Dates: Sep. 29-Oct. 2, 2014

Deadline: Apr. 10, 2014

in Medicine, Geosciences and Criminalistics.

In 1980, I started to work at the Institute of Mathematics and Computing Sciences of the Cuban Academy of Sciences and a few years later this research center became the Institute of Cybernetics, Mathematics and Physics. For 22 years, I worked in this research center and founded several research groups, in Cuba and Mexico, on Logical

Combinatorial Pattern Recognition (LCPR), which was the name that I gave to the research area for the development of mathematical and for mixed and incomplete data analysis in Pattern Recognition. Also, we made several researches on Mixed and Incomplete Data Mining (MID Mining). These are my current research interest areas on Pattern Recognition and Data Mining.

Our first step was the development

of the testor concept. The real world problems needed a more flexible concept than a Boolean based one; the comparison criteria of feature values and similarity functions that we modeled from the real world problems were not Boolean concepts as were the initial concepts in Testor Theory and in Pattern Recognition. Concepts like k-testor, fuzzy testor, ϵ -testor, generalized testor, testor in certain grade, and others were introduced and applied.

Also, the development of efficient algorithms for the calculus of all typical (or irreducible) testors of each type were developed. This is an open problem today because these algorithms have exponential complexity.

Problems with mixed and incomplete data appear in many applied sciences, in many real world problems. Many supervised and unsupervised classification real world problems deal with object descriptions in terms of mixed and incomplete data. To face these kinds of problems, discretization of quantitative feature or codification of qualitative feature, or split the data into homogeneous types of features are not adequate solutions for these kinds of problems. It was necessary to develop mathematical and computational tools to adequately solve these real world problems. In this sense were introduced a series of concepts and algorithms in supervised and unsupervised classification problems, in particular, in free unsupervised classification and in conceptual clustering problems.

In 1995, in Havana, with the cooperation of Dr. Adolfo Guzman-Arenas, we organized the first Iberoamerican Workshop on Pattern Recognition. This conference changed its name several times, but the idea of being a forum for exchanging scientific results and experiences, as well as for sharing new knowledge and increasing the co-operation between research groups in pattern recognition and related areas, has been preserved. The 18th edition of this workshop will take place in Havana in 2013. In all these years I collaborated with the organizers of these conferences in several countries.

In 1997, we organized the Cuban Association for Pattern Recognition

(ACRP) as an IAPR association. In this year, I was co-founder of the Computer Research Center of the National Polytechnic Institute of Mexico and worked there as Senior Researcher for several years. From 2003 till now, I have worked as Head of the Advanced Technologies Applications Center, (CENATAV), DATYS: Technologies & Systems, Havana, Cuba.

For several years I was the President of the ACRP. I collaborated with the Executive Committee of the ACRP and since 2010, I am Emeritus Member of the ACRP. We also promoted similar national associations in Mexico, Brazil, Chile and Argentina. Also, I collaborated with the IAPR working as a member in the King Sun Fu Prize Committee and the Membership Committee of the IAPR. I received the IAPR Fellow Award in 2012.

IAPR Then and Now

This announcement appeared in the Summer 2000 issue (Vol. 22 Nol 3) of the *IAPR Newsletter* under the heading "New Members"

"We are pleased to announce the 37th member association for the IAPR. The Cuban Association for Pattern Recognition (Asociacion Cubana para el Reconocimiento de Patronos, ACPR) joined the IAPR after a GB ballot with a deadline of April 29, 2000. ACPR currently has 36 individual members (the list of members is already in the IAPR archives together with a copy of the English version of the ACPR C&B) and its GB representative is Dr. Roberto Rodriguez Morales. The complete addresses of ACPR as well as that of Dr. Rodriguez Morales, can be found on the IAPR web site."

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

The *IAPR Newsletter* is published four times per year, during the third week of January, April, July, and October.

Deadline for the October issue: September 13, 2013

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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 [Jia-Bin Huang](#)

Department of Electrical and Computer Engineering
University of Illinois at Urbana-Champaign (UIUC)

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

I started to get involved in pattern recognition research projects in my senior year at the National Chiao-Tung University, Taiwan. Because my uncles are colorblind, I was motivated to apply what I learned in classes to develop techniques

that could potentially provide color vision deficient (CVD) people with a better color vision. Along with two classmates, we started a research project under the guidance of Prof. Sheng-Jyh Wang. Given a color image, we first analyze its color distribution; we then re-color the image for CVD people through a nonlinear mapping with a contrast preserving process. This idea was first presented at a Conference on Computer Vision, Graphics, and Image Processing. In spite of being the only paper done by undergraduate students, it won the best paper award runner up from among more than 200 papers. Its revised version ("[Information](#)

[Preserving Color Transformation for Protanopia and Deuteranopia](#)")

was later published in IEEE Signal Processing Letters. In this teamwork experience, we divided tasks, shared knowledge, and complemented each other's different backgrounds. I learned to conduct effective discussions, to persuade others, and, most importantly, to accept compromises. In addition, I learned how to convey ideas through concise scientific writing and presentation.

After graduating from NCTU, I continued computer vision research with Prof. Chu-Song



Jia-Bin Huang received his Bachelor of Science degree from the department of Electronics Engineering in National Chiao-Tung University, Hsinchu, Taiwan in 2006. He is currently a Ph.D. student in the department of Electrical and Computer Engineering in the University of Illinois, Urbana-Champaign, under the supervision of Prof. Narendra Ahuja. His research interests are in the area of computer vision. In particular, he is interested in high-level computer vision problems such as image understanding, object detection and recognition in images. He received the Best student paper award in Computer Vision and Robotics track in ICPR 2012.

Chen at the Institute of Information Science (IIS), Academia Sinica, Taiwan. My work at IIS aimed at detecting moving cast shadows for robust foreground extraction. I found this problem very interesting, since it is an intersection of several topics, involving physical modeling of light and scenes, statistical learning, labeling problems and inference algorithms. In this project, I learned to grasp the essential concepts from theories and to tackle problems. We proposed an online learning approach to describe the cast shadow appearance variations using physics-based features. We published our work in CVPR 2009.

In spring 2009, I spent four months as a visiting student working with Prof. Ming-Hsuan Yang at the University of California, Merced. In my projects, we investigated methods and applications of sparse and redundant representations for computer vision. Specifically, we explored several applications, including human pose estimation from occlusion, image super-resolution, and image deblurring as well as developing fast algorithm for sparse coding.

In Fall 2010, I started the University of Illinois, Urbana-Champaign working with Prof. Narendra Ahuja on the intersection of 3D object recognition and reconstruction.

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

Currently, I am interested in various topics in high-level vision. The ultimate goal is to develop intelligent vision algorithms that are able to understand visual data.

Toward this goal, the first project I worked on is saliency detection. Visual saliency is the perceptual quality that makes some items in the scene pop out from their

surround and immediately attract our attention. It is well known that humans can detect salient areas effortlessly even in complex scenes and in clutter. An effective computational model for automatically generating a saliency map from images is of great interest because it can facilitate many important computer vision and graphics applications. In this project, we examined the existing works on bottom-up saliency detection algorithms.



Since these methods have been developed from intuition and principles inspired by psychophysical studies of human vision, the theoretical relations among them are unclear. We present a unifying perspective. Saliency of an image area is defined in terms of divergence between certain feature distributions estimated from the central part and its surround. We show that various seemingly different saliency estimation algorithms are in fact closely related. This work thus provides a unified perspective on a broad class of saliency detection algorithm.

Now my focus has been shifted to high-level image understanding. Especially, we would like to address the problem of detecting 3D categorical objects in unconstrained images. This is a challenging yet rather unexplored area. I am excited to work on this area and hope I could contribute to this field in the near future.

For more information, please visit my website: <http://www.jiabinhuang.com>

3. How can the IAPR help young researchers?

I have two suggestions on helping young researchers in our community.

First, attending conferences is probably the most effective way to exchange ideas and share experiences. I found that connecting with other people (either with junior or senior researchers) is very helpful for my own research. To help young researchers grow their connections, there may be several possible ways. For example,

- social events provide a great platform for students and young researchers connect with each other.
- panel discussion sessions on emerging topics in the field allow young researchers to have a direct conversation with the community.

My second suggestion is interviewing senior researchers in the community. I usually found that the learning process of other researchers is quite interesting. Learning from others' experiences may help young researchers to avoid common pitfalls in research.

Editor's note: The paper "[Saliency Detection via Divergence Analysis: A Unified Perspective](#)" by Jia-Bin Huang and Narendra Ahuja [Proceedings of the International Conference on Pattern Recognition \(ICPR\) 2012](#) won the Best Student Paper award in the Computer and Robot Vision track.

From the



Uppsala July 9, 2013

This time of the year, we experience lots of light in Sweden. The evenings are long, the nights are short, and the morning light arrives early. Many of us take a well-earned Summer vacation during July and/or August to enjoy the light and return refreshed to teaching and research in Fall.

Between ICPRs the Executive Committee has one physical meeting. According to the tradition, this meeting is hosted by the Past President. We have been invited by Professor Denis Laurendeau to meet on August 20-21 at his lab in Quebec City, Canada. On our agenda is to check the status of the Standing and Technical Committees by reading and acting on interim reports that the respective Chairs have sent us and review the financial situation, e.g., by checking the membership dues. Of course, progress of the [upcoming ICPR in Stockholm](#) is

also on the agenda among other things that may arise. Hence, we will have a busy two-day meeting in order to cover all the items.

I am looking forward to re-visiting Quebec City. From my visit during ICPR 2002, I recall strolling in the historic parts of the city and after the conference going to a nice park with a high waterfall a short distance out of town. It was also my first experience of an IAPR Governing Board meeting. I was fascinated by the discussions and the different aspects of membership rules, et cetera, being brought up by the different member societies. IAPR is truly international with members from most parts of the world and the Governing Board is set up with representatives from every member society. Another thing I recall is that the GB meeting lasted from the afternoon until long after midnight, which is an experience in itself.

I would like to take this opportunity

to point you to the calls for 22nd International Conference on Pattern Recognition (ICPR 2014) in Stockholm on August 24-28 next year. The call for contest, tutorial, and workshop proposals is open until September 15. The call for full papers has the firm deadline December 20 (there will be no extensions, so you must submit your manuscripts prior to the Holiday Seasons and leave for a break while the conference organisers work with distributing the manuscripts to reviewers). See <http://www.icpr2014.org/> for details.

In this Summer edition of the IAPR Newsletter, we are "Getting to Know" IAPR Fellow Professor José Ruiz-Shulcloper, who was the IAPR GB representative for the Cuban Association for Pattern Recognition (ACPR) during many years. In fact, he has been a pioneer in his country for the promotion of pattern recognition and related topics. As usual, we can also read a number of conference and book reports thanks to our editors.

Please, visit the IAPR webpage <http://www.iapr.org/> regularly. Thanks to the IAPR webmaster Edward Sobczak, who updates our website continuously.

Ingela Nyström
IAPR Secretary



The following calls related to ICPR2014 appear in this issue of the IAPR Newsletter:

(click on the links below)

[ICPR2014 Call for Papers](#)

[Call for Nominations for the K. S. Fu Prize](#)

[Calls for Nominations for the J. K. Aggarwal Prize and the IAPR Fellow Award](#)

[Calls for contest, workshop and tutorial proposals](#)

Meeting Reports

Conferences, Workshops & Summer Schools

[ICPR 2012 Workshop: VAIB2012](#)

Visual observation and analysis of animal and insect behavior

Tsukuba, Science City, Japan
November 11, 2013

General Co-Chairs:

[Robert Fisher](#) and [Bas Boom](#) (University of Edinburgh, UK)
John Hallam (University of Southern Denmark, Denmark)

<http://homepages.inf.ed.ac.uk/rbf/vaib12.html>

by R. B. Fisher

The Fish4Knowledge (www.fish4knowledge.eu/) team organized a one day workshop on “Visual observation and analysis of animal and insect behavior”.

There has been an enormous amount of research on analysis of video data of humans, but relatively little on visual analysis of other organisms. The goal of this workshop was to stimulate and bring together the current research in this area, and provide a forum for researchers to share expertise. The types of issues that the research addressed include:

- detection of living organisms
- organism tracking and movement analysis
- dynamic shape analysis
- classification of different organisms (eg. by subspecies)
- assessment of organism behavior or behavior changes
- size and shape assessment
- counting
- health monitoring

These problems can be applied to a variety of species at different

sizes, such as fruit and house flies, crickets, cockroaches and other insects, farmed and wild fish, mice and rats, commercial farm animals such as poultry, cows and horses, and wildlife monitoring, etc. One aspect that they all have in common is video data.

The talks were selected for presentation based on 4 page extended abstracts to create a less formal atmosphere suitable for young researchers and preliminary research. The aim was to encourage discussion and sharing of ideas in the emerging area.

24 extended abstracts were received and each was reviewed by 3 members of the organizers and program committee. 18 talks were accepted based on the abstracts. 35 people attended the workshop. It was interesting, fun and the delegates found it a worthwhile event. We received several compliments on the program.

The program was divided into these sections:

- Insects

- Flying Animals
- Ground Animals
- Fish and Other Marine Animals

An example of fish detection and tracking from the paper of Boom et al is:



The online version of the program at <http://homepages.inf.ed.ac.uk/rbf/vaib12.html> which has the PDF for each paper linked to the titles.

[DICTA 2012](#)

Digital Image Computing: Techniques and Applications

Fremantle, Western Australia
December 3-5, 2012

General Co-Chairs:

[Geoff West](#) (Curtin University, Australia)

[Peter Kovesi](#) (The University of Western Australia, Australia)

<http://dicta2012.csse.uwa.edu.au>



[DICTA 2012 Delegates outside the Esplanade Hotel, Fremantle. Note the Father Christmas breaking into the top floor.](#)

by Geoff West

The International Conference on Digital Image Computing: Techniques and Applications (DICTA) is the main Australian Conference on computer vision, image processing, pattern recognition, and related areas. DICTA was established as a biannual conference in 1991 and became an annual event in 2007. It is the premiere conference of the Australian Pattern Recognition Society (APRS). In 2012 DICTA celebrated its coming of age, 21 years old celebrated at the Conference Banquet by a special presentation of a birthday card signed by all the delegates to the President of the APRS, Nick Redding.

DICTA 2012 was held at the heritage listed Esplanade Hotel in Fremantle, near Perth, Western Australia. The venue was well situated near the boat harbour, brewery and not far from the café strip. The format of the conference was single-track with both oral presentations and posters. DICTA 2012 was technically co-sponsored by the IEEE and IAPR. Sponsorship was obtained from national bodies: Commonwealth Defence Science and Technology Organisation (DSTO), Canon Information Systems Research Australia (CiSRA), National ICT Australia (NICTA), and a significant local supplier of image processing and computer

vision hardware, software and solutions: Adept Turnkey. We thank these sponsors for their generous donations that made it easier to support international presenters and provide the excellent level of hospitality to the delegates.

There were five international [keynote speakers](#):

- Josef Kittler from the University of Surrey, UK;
- Maryellen Giger from the University of Chicago;
- Ian Reid from the University of Adelaide;
- Anton van den Hengel from the University of Adelaide; and

- Zhouchen Lin from Peking University.

Ian Reid has recently moved to Adelaide from Oxford so was effectively an international speaker and Anton van den Hengel stepped in to be an invited speaker because of

Proceedings are available at [IEEE Xplore](#).

visa issues with the original invited speaker. We thank these speakers for coming to the conference. The invited speakers covered a broad spectrum of topics of interest to the audience including anomaly detection applied to event identification and description in video, medical image processing, visual tracking and visual SLAM, interactive computer vision and augmented reality, and . All of the keynote presentations were well attended and well received.

Dicta 2012 had 172 papers submitted for review which is a great result as Fremantle, near Perth, is one of the most isolated cities in the world, requiring long travel times to reach. Each 8-page paper was reviewed by at least two independent review panel members using a double blind system. From these, the committee accepted 79 papers, representing an acceptance rate of just less than 45.9%. The organizing committee then selected 39 papers for oral and 40 for poster presentation. The proceedings were presented to the delegates on a USB lanyard

and all accepted papers and the [proceedings](#) appear in the IEEE Xplore online database.

Four prizes were awarded at the conference dinner:

- The APRS/IAPR Best Paper Prize awarded by the Dicta2012 Committee, the IAPR and the APRS – awarded to Hamid Laga, Mahmood Golzarian, Sebastian Kurtek, Anuj Srivastava and Stan Miklavcic (University of South Australia), Elastic metric for shape-based plant leaf classification.
- The APRS Best Student Paper Prize Awarded by the Dicta2011 Committee and the APRS – awarded to Ross Marchant (James Cook University) and David



Jackway (CSIRO), Feature detection from the maximal response to a spherical quadrature filter set.

- The Canon “Best Recognition Paper” Prize Awarded by Canon Information Systems Research Australia (CiSRA) – awarded Yanzhi Chen, Anthony Dick and Xi Li (University of Adelaide), Visual distance measures for object retrieval.
- The DSTO Best Fundamental Contribution

to Image Processing Paper Prize Awarded by Defence Science and Technology Organisation (DSTO) – awarded to Zygmunt Szpak, Wojciech Chojnacki and Anton Hengel (University of Adelaide), A comparison of ellipse fitting methods and implications for multiple-view geometry estimation.

In addition to these traditional prizes, some frivolity was brought to the conference dinner by the co-chair of the conference Peter Kovesi who presented some special awards for first paper submitted, last paper submitted, longest equation, paper with most authors, co-authors with names on most papers, longest and shortest titles, most co-authors on a paper, solo author, best illustrations, most references and, finally the delegate with the loudest shirt! Prizes included a rubber duck as the ‘early bird’ award for the 1st paper submitted and a calendar for the last paper submitted (which had the APRS president as a co-author!). A series of other novelty items were presented relevant to the prize subject.





Workshop Organizers/Chairs:

Shoji Tominaga (Chiba University, Japan)

[Raimondo Schettini](#) (University of Milano Bicocca, Italy)

[Alain Trémeau](#) (Université Jean Monnet, France)

<http://dippix.tp.chiba-u.jp/CCIW2013/index.html>

by Shoji Tominaga

The Computational Color Imaging Workshop (CCIW2013) brought together 88 researchers from more than 12 countries in the beautiful city of Chiba, Japan. This, the fourth CCIW, was organized by the Chiba University with the endorsement of the International Association for Pattern Recognition (IAPR), the Color Science Association of Japan (CSAJ), the Groupe Français de l'Imagerie Numérique Couleur (GFNIC), Gruppo Italiano Ricercatori in Pattern Recognition (GIRPR) affiliated with IAPR, L'Association Française pour la Reconnaissance et l'Interprétation des Formes (AFRIF) affiliated with IAPR, and the Special Interest Group on Foundations of Visual Information (SigFVI) affiliated with CSAJ.

There were many excellent submissions with high scientific level, and each paper was peer reviewed. However, because of time slot constraints, only the best 21 papers were selected for presentation at the workshop. The final decision of which paper



to be selected was based on the criticisms and recommendations of the reviewers and the content relevance of the particular paper to the goal of the workshop. Only 62% of the papers submitted were accepted for inclusion in the program. The 21 accepted papers were published by Springer Verlag in the volume [Computational Color Imaging, LNCS 7786](#), edited by Shoji Tominaga, Raimondo Schettini, and Alain Trémeau.

In addition to the contributed papers, five distinguished researchers were invited to this fourth CCIW to deliver [keynote speeches](#) on current hot research directions of the topics on computational color imaging:

The keynote talk by Brian A. Wandell was titled "Color Perception Networks in Human Cortex".

Invited talks were given by: Hidehiko Komatsu, on "Yellow' or 'Gold'? : Neural processing of gloss information"; James A. Ferwerda, on "Tangible Images: Bridging the Real and Virtual Worlds"; Joost van de Weijer, on "Combining Color and Shape for Object

Recognition"; and Francisco Imai, on "Computational Spectral Imaging based on Adaptive Spectral Imaging"

The conference was organized in one track for oral presentations. The GIRPR Young Color Imaging Scientist Award was conferred to two young researchers: Simone Bianco for the paper entitled "High Contrast Color Sets Under Multiple Illuminants," and Tetsushi Tanimoto for the paper entitled "Precise Estimation of Painting Surfaces for Digital Archiving."

The next edition, CCIW2015, will be organized in Saint-Etienne, France.



DGCI 2013
**17th IAPR International Conference on
Discrete Geometry for Computer
Imagery**

**Sevilla, Spain
March 20-22, 2013**

General Chairs:

Rocío González-Díaz and María José Jiménez (Universidad de Sevilla, Spain)

<http://dgci2013.us.es>

by the DGCI2013 Co-Chairs

DGCI is the main conference of the [IAPR Technical Committee on Discrete Geometry \(TC18\)](#) and is held approximately every 18th months. The 17th edition was organized by the Andalusian research group Combinatorial Image Analysis (CIMAgroup).

Submissions from 26 different countries confirm the international status of the conference. Following a peer-reviewing process by at least 2 qualified reviewers, 34 papers were accepted, out of 56 submissions. Altogether, 22 papers were scheduled for oral presentation in single-track sessions, and 12 papers were presented as posters. Slides of the talks are available on DGCI 2013 webpage <http://dgci2013.us.es/program.php>. The conference brought together 95 participants.

[Proceedings](#) of the conference have been published by Springer-Verlag in Lecture Notes in Computer Science Series (volume number 7749). This collection documents the contributions presented at DGCI 2013, which focused on geometric transforms, discrete and combinatorial tools for image segmentation and analysis, discrete and combinatorial topology, discrete

shape representation, recognition and analysis, models for discrete geometry, morphological analysis and discrete tomography. Following the conference, two special issues of the journals [Discrete Applied Mathematics](#) and [Computer Vision and Image Understanding](#) are scheduled to appear in 2014.

As previously, this edition also hosted a demonstration session. Proceedings of this session were published in the electronic journal IMAGEN-A (<http://imagen-a.us.es>), ISSN: 1885-4508, volume 3, number 5, 2013. An evaluation committee composed of members of the Steering Committee and Program Committee of DGCI, attributed the [Best Demo Prize](#) to the demonstration entitled TKDetection: a software to detect and segment wood knots, by the authors Adrien Krähenbühl, Bertrand Kerautret and Isabelle Debled-Rennesson.

Three internationally well-known researchers gave [IAPR invited lectures](#): Herbert Edelsbrunner, Professor at the Institute of Science and Technology, Vienna University, Austria, gave a talk on “Stable length estimates of tube-like shapes”; Francisco Escolano, Associate professor at the University of Alicante, Spain,

gave a lecture on “The complexity of discrete objects”; Konrad Polthier, MATHEON-Professor and director of the Mathematical Geometry Processing group at Freie Universität Berlin, Germany, talked about “Differential-Based Geometry Modeling”.

The social program included a visit to Reales Alcázares, a royal palace in Seville, originally a Moorish fort, which is the oldest royal palace still in use in Europe; a Welcome Cocktail at the University of Seville’s main building (Rector’s office), which was the Royal Tobacco Factory in the 18th century; a gala dinner in Abades Triana Restaurant, placed at the main street of Triana neighbourhood, Betis Street, with



Click above to go the publisher's web site.



spectacular views to the city.

Apart from the IAPR sponsorship, DGC1 2013 was supported by

the University of Seville (Vice-rectorate for Research, Vice-rectorate of Internationalization, the Mathematics Institute (IMUS),

the Research and Teaching Foundation FIDETIA, Applied Math-I Department, School of Computer Engineering), the Spanish Ministry of Economy and Competitiveness (Project MTM2012- 32706) and the European Science Foundation (ACAT program).

The next conference will be held in Siena, Italy, September 2014, organized by the Dipartimento di Matematica ed Informatica (Università di Siena).



International Workshop on Biometrics and Forensics

April 4-5, 2013, Lisbon, Portugal

General Chairs:

[Paulo Lobato Correia](#) (IST-IT, Portugal)
Luis Ducia Soares (ISCTE/IUL-IT, Portugal)

<http://www.img.lx.it.pt/iwbf2013/index.htm>

by the Workshop Co-Chairs

The first International Workshop on Biometrics and Forensics was organized by Instituto de Telecomunicações – Instituto Superior Técnico and held in Lisbon-Portugal. 23 papers were accepted for presentation, 16 of which for oral presentation. There were also 3 [invited lectures](#) and 2 [discussion panels](#). The conference was attended by 70 participants. IWBF was a single track workshop, allowing for in-depth discussions among the participants. A high

level of participation was registered during the two days of the workshop.

This was the first edition of the IWBF workshop series, promoted by the European COST Action IC1106 – “Integrating Biometrics and Forensics for the Digital Age”. IWBF constitutes an international forum devoted specifically to the development of synergies between the biometrics and forensic science research areas. It was technically co-sponsored by IAPR, IEEE, EURASIP and IET. The

[proceedings](#) are available on IEEE Xplore.

The technical program featured three invited lectures: “Some Challenges in Forensics: Facial Sketch, Latent Prints, Scars, Marks & Tattoos”, by Prof. Anil K. Jain, Michigan State University; “Introducing a LR-based Identification System in Forensic Practice: Opportunities and Challenges”, by Prof. Christophe Champod, University of Lausanne; and “Gait as Evidence”, by Prof. Niels Lynnerup, University of

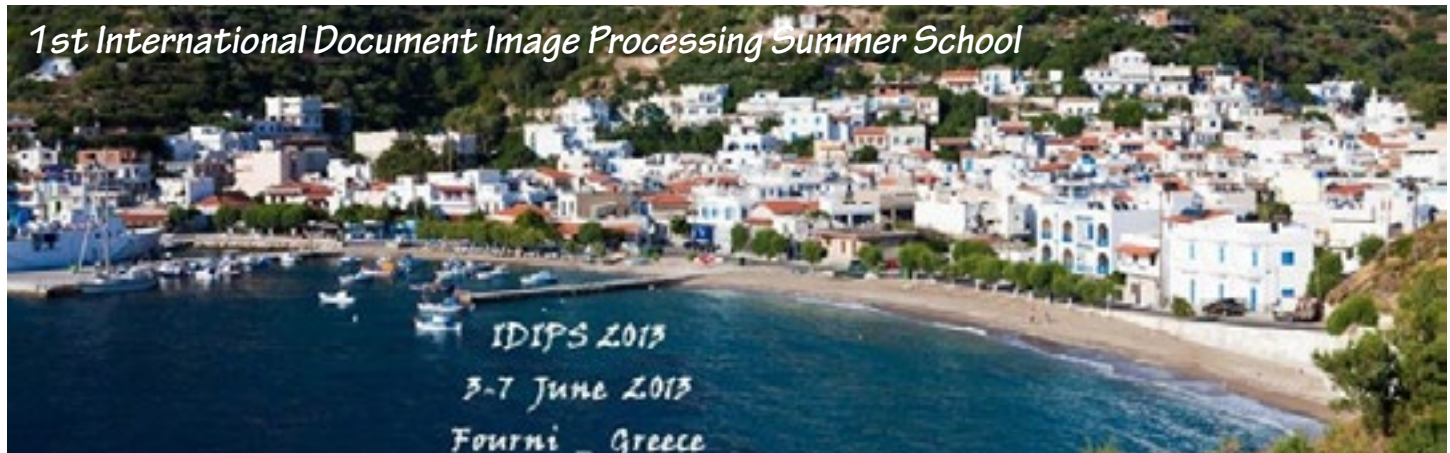
Copenhagen.

There were also two panels: "Are Automatic Biometric Recognition Schemes Really Useful for Forensic Analysis?", chaired by Prof. Massimo Tistarelli, University of Sassari, with the panelists: Prof. Andrzej Drygajlo, EPFL, Dr. Arnout Ruifrok, Netherlands Forensic Institute, Dr. Emilio Mordini, CSSC, and Dr. Aldo Mattei, Innovation Factory and "The Role

of Behavioral and Soft Biometrics in Forensic Analysis", chaired by Prof. Mark Nixon, University of Southampton, with the panelists: Prof. Peter Larsen, University of Copenhagen, Prof. Patrizio Campisi, University of Roma TRE, and Prof. Chang-Tsun Li, University of Warwick. Both panels were successful in extending the discussion to actively involve the audience.

Many outstanding researchers of both communities (biometrics and forensics), as well as practitioners and students, actively participated in IWBF, contributing to the success of the event.

**Proceedings are
available at
[IEEE Xplore.](#)**



Organizing Committee

[Ergina Kavallieratou](#), [Efstathios Stamatatos](#) and [Irine Stathi](#) (University of the Aegean, Greece)

<http://samosweb.aegean.gr/idips2013/>

by The Organizing Committee

The 1st International Document Image Processing Summer School (IDIPS2013) was held on the island of Fourni, Greece. IDIPS2013 was endorsed by the IAPR Technical Committee TC-11 (Reading Systems) and co-organized by the Department of Information and Communication Systems Engineering and the Department of Cultural Technology and Communication of the University of the Aegean. It was financially sponsored by the IAPR, the ESPA European project and the Greek companies of Tsakoumagkos, NEL and BIC, while the ELCVIA journal will publish a special issue of participants' papers. The authorities of Fourni island performed the local arrangements

very smoothly. The summer school attracted participants from 12 countries and 9 universities/research institutes/companies.

Venue

The venue of IDIPS2013 deserves a special mention. The Summer School took place at the City Hall of Fourni.

Fourni is a complex or archipelago of small Greek islands that lie between Ikaria, Samos and Patmos in the North Aegean region. The two largest islands of the complex, the main isle of Fourni (31 km²) and the isle of Thymaina (10 km²), are inhabited, as is Agios Minas Island (2.3 km²) to the east. On the main isle Fourni (town) is the largest settlement of

800 habitants and the main ferry harbor.

Fourni, as proven by various archeological sites and other findings on the islands, have been the home of a civilization dating back to the 3rd century B.C. 'till the 2nd to 3rd century A.C. Many of the inhabitants are fishermen, although during the summer season the population is also occupied in tourist activities, mostly room rentals and catering.

The Organizers provided IDIPS-2013 participants transportation from/to the airport Aristarchos of Samos. During their visit to Fourni, the participants enjoyed swimming in exotic beaches, staying in hospitable rooms, tasting traditional Greek

dishes, fresh fish and lobsters, as well as local honey and cheese of fine quality.

Technical Program

The technical program was divided in five main areas of Document Image Processing, namely:

- Digital Image Fundamentals
- Denoising
- Document Image Preprocessing
- Recognition
- Historical Document Images

During the morning, the program comprised 2 lectures by well known researchers on Document Image Processing or other relevant areas, while in the afternoons there were panel discussions with the program committee members and the invited speakers, students' presentations and evaluation tasks. In more detail, the lectures were given by (chronologically ordered):

- Irimi Stathi, University of the Aegean
- Athanasios Skodras, University of Patras
- Nikolaos Mitianoudis, Democritus University of Thrace
- Ioannis Pratikakis, Democritus University of Thrace
- Basilis Gatos, NCSR Demokritos
- Daniel Lopresti, Lehigh University
- Efstathios Stamatatos, University of the Aegean
- Josep Lladós, CVC, University Autònoma de

Barcelona

- Apostolos Antonopoulos, PRIMA, University of Salford
- Ergina Kavallieratou, University of the Aegean

Six students submitted papers that were presented in two evening sessions. The Proceedings were published in hardcopy and electronic form (USB drives) that were provided to the participants. Moreover, the ELCVIA journal will publish a special issue that will include abstracts of the lectures, improved versions of the student papers and other paper of the participants relative to the subjects of the summer school.

There was a competition among the presented papers, where the best paper was selected by the reviewer's marks and participants' voting. Another student evaluation procedure was performed by the lecturers based on questionnaires about the lecture topics. The four best participants were selected by their overall marks.

The final panel discussion included interesting opinions and proposals on planning the next IDIPS.

Social Program

All the registered participants were invited to dinner every evening in different restaurants on the island. After dinner there was always a special event. Thus, on Monday the whole group attended a performance of Greek traditional dancing offered by the City Hall and given by the local dancing group. On Tuesday there was a fishing contest and on Thursday

a tavli contest (greek traditional game). Finally, on Friday the Mayor of the island invited IDIPS-2013 participants to dinner.

Moreover, in Wednesday evening the program, instead of sessions, included an excursion to the nearby island of Thymaina, where the participants had the chance to swim, have dinner, fish, dance and meet each other better.

Awards



IDIPS 2013 Best Paper Award, an award of 400 Euros in the name of IAPR was split between the following papers:

- "Efficient Binarization-Free Text Line Segmentation for Historical Documents", by Angelika Garz, and
- "Detecting Main Body Size in Historical Document Images", by Paraskevas Diamantatos and Ergina Kavallieratou

Certificates of Excellence

There were 4 awards given of 400 Euros, 2 in the name of IAPR and 2 in the name of IAPR TC-11, to the following participants: Angelika Garz, Stefan Fiel, Markus Diem and Mikhail Atroshchenko.

IAPR: Then and Now

30 years ago...

IAPR's TC-11 was called Applications in Text Processing and was chaired by Ching Y. Suen (Concordia University, Quebec, Canada)

Today (since ~2000)...

TC-11 is called Reading Systems and is chaired by Daniel Lopresti (Lehigh University, Pennsylvania, USA)



22nd INTERNATIONAL
CONFERENCE ON
PATTERN
RECOGNITION
2014

CALL FOR PAPERS FOR ICPR 2014

Check the ICPR 2014 web site
www.icpr2014.org
for the most up-to-date information

**AUGUST 24-28, 2014,
STOCKHOLM WATERFRONT, STOCKHOLM, SWEDEN**
www.icpr2014.org

ICPR 2014 will be an international forum for discussions on recent advances in the fields of Pattern Recognition; Machine Learning and Computer Vision; and on applications of these technologies in various fields.

ORGANIZING COMMITTEE

General Chair Prof. Magnus Borga, LINKÖPING UNIVERSITY
Program Chair Prof. Anders Heyden, LUND UNIVERSITY
Local Arrangements Chair Prof. Ingela Nyström, UPPSALA UNIVERSITY
Finance Chair Prof. Ewert Bengtsson, UPPSALA UNIVERSITY
Invited Speakers Chair Prof. Gunilla Borgefors, UPPSALA UNIVERSITY
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Kostas Danilidis, US
Kenichi Kanatani, JAPAN

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Eduardo Bayro-Corrochano, MEXICO
Shin'ichi Satoh, JAPAN

Document Analysis, Biometrics and Pattern Recognition Applications

Massimo Tistarelli, ITALY
Larry Davis, US
Bidyut B. Chaudhuri, INDIA

IMPORTANT DATES

20 September 2013 Submission opens
20 December 2013 Deadline for submission of full papers
24 March 2014 Notification of paper acceptance
24 May 2014 Deadline for camera-ready papers and Early Bird registration

WORKSHOPS, CONTESTS AND TUTORIALS

Workshops, contests and tutorials will be arranged the first day of the conference.

Conference Secretariat:
Academic Conferences, info@icpr2014.org





22nd INTERNATIONAL
CONFERENCE ON
PATTERN
RECOGNITION

CALL FOR ICPR 2014 CONTEST, TUTORIAL AND WORKSHOP PROPOSALS

Check the ICPR 2014 web site for the most up-to-date information
www.icpr2014.org

The [ICPR 2014 Organizing Committee](#) invites proposals for contests, tutorials and workshops in conjunction with the 22nd International Conference on Pattern Recognition (www.icpr2014.org). These events will be held on August 24, 2014, immediately before the main conference.

CONTESTS

The aim of contests and challenges is to advance algorithm and method development by objective evaluation on common data sets. The contest organizer is responsible for providing good quality data and defining objective evaluation criteria that are applied to the results of submitted algorithms.

TUTORIALS

We seek tutorials on core techniques, application areas and emerging research topics that are of interest within the ICPR community. A good tutorial should provide a broad introduction to the chosen research area as well as in-depth coverage on selected advanced topics. Proposals that focus exclusively on the presenters' own work or commercial presentations are not eligible.

WORKSHOPS

Workshops provide an informal setting for discussing specific topics in depth. Good workshops encourage discussion and interaction between the participants. This can be achieved in a number of ways, e.g., through presentations of submitted work, panel discussions and hands-on sessions.

CLICK ON THE LINK BELOW FOR FULL DETAILS SUBMITTING PROPOSALS

<http://www.icpr2014.org/call-for-contest-tutorial-and-workshop-proposals>

CONTACT

ICPR 2014 Contest, Tutorial and Workshop co-chairs:

Cris Luengo [<cris \(at\) cb.uu.se>](mailto:cris@cb.uu.se)

Ola Friman [<ola.friman \(at\) foi.se>](mailto:ola.friman@foi.se)

**Deadline for contest, tutorial and workshop proposals:
15 September 2013**

Call for Nominations

King-Sun Fu Prize

**Nomination
deadline:
January 15, 2014**

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

The International Association for Pattern Recognition (IAPR) is pleased to announce a call for nominations for the King-Sun Fu Prize in honor of the memory of Professor King-Sun Fu. (Professor Fu's biography appeared in the IEEE Trans. PAMI, May 1986 and is also available at http://dataclustering.cse.msu.edu/KSFu_Biography.pdf.)

Videos and slides of talks given by the most recent recipients of the KS Fu Prize can be retrieved from this website: http://www.cse.nd.edu/Fu_Prize_Seminars/.

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

Past Winners of the K-S Fu Prize

Rama Chellappa

2012 Japan

Horst Bunke

2010 Istanbul

Josef Kittler

2008 Tampa

J. K. Aggarwal

2004 Cambridge

Thomas Huang

2002 Quebec City

Theo Pavlidis

2000 Barcelona

Jean-Claude Simon

1998 Brisbane

Teuvo Kohonen

1996 Vienna

Herbert Freeman

1994 Jerusalem

Laveen Kanal

1992 The Hague

R. L. Kashyap

1990 Atlantic City

Azriel Rosenfeld

1988 Rome

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

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

The 2014 prize will be presented at the

[22nd International Conference on Pattern Recognition \(ICPR\)](#)

Stockholm, Sweden, August

August 24-28, 2014

The nomination must be made on special nomination and endorsement forms, and must be received by the Prize Committee Chairman **no later than January 15, 2014**. Completed and signed nomination and endorsement forms must be submitted as pdf files to the chairman of the Prize Committee:

Prof. Rama Chellappa

Chair, K-S. Fu Prize Committee

University of Maryland, College Park, MD, 20742, USA

email: rama@cfar.umd.edu

King-Sun Fu Prize nomination and endorsement forms can be retrieved here:

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

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

Additional ICPR 2014 Calls for Nominations

Call for Nominations

J. K. Aggarwal Prize

Deadline information was not available at the time of publication of this issue.

Please see the IAPR web site: http://www.iapr.org/fellowsandawards/awards_aggarwal.php

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

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

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

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

The 2014 prize will be presented at the

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

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

More information will be available at the [IAPR web site](#).

Call for Nominations

IAPR Fellow Award

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

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

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

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

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

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

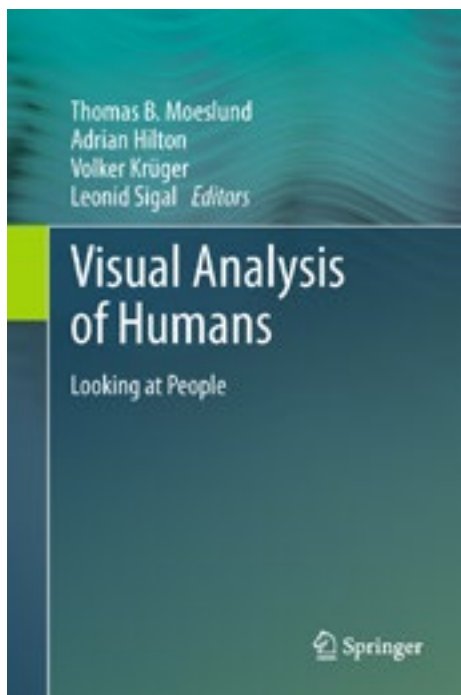
To: lovell@itee.uq.edu.au
Subject: IAPR Fellowship 2014
CC: webmaster@iapr.org

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

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

IAPR appreciates your efforts to support our fellowship program!

BOOKSBOOKSBOOKS



Visual Analysis of Humans: Looking at People

by Thomas B. Moeslund, Adrian Hilton, Volker Krüger, Leonid Sigal (Editors)

Springer, 2011

Reviewed by: Norberto Goussies (Argentina)

This book is a collection of 30 scientific papers organized in four parts. The topics that are reviewed in this book are mainly people and face detection, pose estimation, tracking and activity recognition. The book covers a broad domain making the book appealing to not only graduate students in the computer vision field, but also scholars and researchers. The chapters' difficulty ranges from beginner to advanced. There are simple introductory overview chapters but also advanced chapters with extensive experimental results.

As a collection of independent

scientific papers written by various authors, there is some repetition of topics in the book. Although, this can be seen as an advantage since one can see different views on the same algorithms and different interpretations of similar results. Also, it is possible to clearly find the methods that have great influence in the area. These methods range from background subtraction to more complicated ones like SIFT and bag-of-words.

The first part (Chapters 1-7) provides an overview of methods for detection and tracking of people. The second part (Chapters 8-13) addresses the problem of recovering the poses of people from images and videos. The third part (Chapters 14-20) focuses on the problem of action recognition. The last part (Chapters 21-30) reviews the state-of-the-art for several application domains. Each part has a survey chapter that provides an overview of the problems and others that describes the methods in depth.

The first part focuses on the two main approaches for detecting people: pixel-based segmentation and object-based segmentation, each of them having its own chapter. Also in this part there is a chapter that reviews some of the most popular methods in the literature to track people in videos, an important step for analyzing humans. Detecting the body of a person is challenging for different reasons, among them body shape, clothing and posture are particularly important. An alternative is explored in Chapter Five, which consist in only detecting the face. The final chapter in this part describes

benchmark datasets and their availability to the computer vision community.

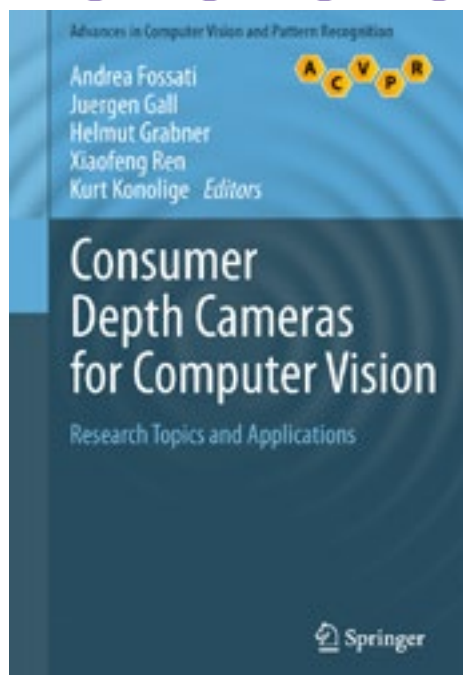
“The book covers a broad domain making the book appealing to not only graduate students in the computer vision field, but also scholars and researchers.”

The second part describes methods for pose estimation, one of the most important problems when analyzing humans. The pose estimation from individual images is analyzed in chapters 11 and 12. Also, there are two chapters that focus on the evolution of the configuration on an image sequence. The last chapter describes the datasets that are currently available and the performance of state-of-the-art methods on them. Most of the chapters in this part take a probabilistic approach, as this provides a sound framework to account for some of the challenges that exist in the domain.

The third part of the book discuss different approaches to the challenging problem of action recognition. The main focus is in complex activities involving multiple objects and natural environments, having two chapters specifically approaching the issue of context. Also in this part there is a focus on machine learning methods that can learn to recognize actions with different levels of supervision. A more application oriented chapter overviews the recent approaches for learning and modeling action

primitives for human and robot action. One of the last chapters of this part reviews the current efforts in automated facial expression recognition.

The last part of the book reviews applications for the visual analysis of people in videos. A broad range of application areas are covered in nine chapters. A few chapters discuss security applications, with emphasis in biometrics and surveillance. Also, there are some chapters that extensively review different techniques for human-computer interaction. Additionally, applications for entertainment and sports analysis are covered in two chapters. The last chapter gives a concise overview of applications, challenges and approaches for visual analysis of people in a vehicle.



Consumer Depth Cameras for Computer Vision

By Fossati, A.; Gall, J.; Grabner, H.; Ren, X.; Konolige, K. (Eds.)
Springer, 2013

Reviewed by [Owais Mehmood](#)
(France)

There have been several books

addressing [Kinect](#) from a hacking perspective, but *Consumer Depth Cameras for Computer Vision* is among the first few written from a research point of view. It is based on research published in the Workshop on Consumer Depth Cameras and includes some of the notable researchers in the field and the original team behind Kinect itself. It's an excellent resource for researchers working in computer vision and robotic vision or for students having knowledge of vision who wish to start working with Kinect. But, I don't expect that a beginner in the field of computer vision or robotics could understand the level of detail presented. The foreword is an interesting read as it gives a unique and interesting perspective of the development of Kinect, its research at various labs, even before its release. I will not be going into the mathematical details and verifications, because this book is the result of a workshop in a notable conference.

The book is divided into three parts: 3D Registration and Reconstruction, Human Body Analysis and RGB-D Datasets for Recognition.

Part 1: The first chapter presents the state-of-the-art Kinect geometric model and calibration techniques - an improvement upon the previous and open source methods available. For example, it does better accounting for the close range residual errors, the treatment of infrared and depth images separately. The authors also compare the accuracies of TOF, SLR based stereo and Kinect in the SFM based reconstruction module, however this section is not very detailed.

The second chapter deals with real-time 3D scene modelling using Iterative Closest Point (ICP) algorithm. They modify

the GPU based random ball cover (RBC) data structure and search algorithm to incorporate both photometric and geometric information. The one-shot approach is optimized to trade off accuracy against run-time. Practical implementation details, including hardware related aspects of GPU, are covered in detail. Qualitative analysis for scene reconstruction is provided, whereas quantitative analysis and comparisons are presented for runtime. Parameter analysis comparison with exact RBC is also presented to define the acceptable operating scale of their algorithm. To report a single number, they mention less than 20ms reconstruction times.

The third chapter deals with the same problem as in the last chapter, but, contrary to ICP based approach the authors use the depth image's coherent projective geometry to introduce a matching criterion in full 6D transformation space, taking into account the parallel processing architectures. The authors have presented a qualitative and quantitative analysis but no real performance assessment with any other algorithm is presented. They do present a computation time analysis with EM-ICP, but their algorithm results in non-negligible runtimes, and they themselves state that "their approach could be used as a preliminary step in order to reduce the computation payload of a fine matching procedure such as this EM-ICP algorithm". While this algorithm presents a completely different approach to solve the problem, it still falls short of the level of detail, analysis and results presented in the previous chapter.

Part 2: The part on human body analysis begins with a chapter by Microsoft researchers and spans

four recent publications related to single image human pose estimation, including the original publication related to the algorithm behind the commercial success of Kinect, [Xbox 360](#). The chapter doesn't go into detail but presents an overview of the publications and the links between them, concluding with the remaining open questions of the field.

Chapter 5 deals with real time pose reconstruction from single depth images on a standard single-core desktop. The main idea is to stabilize the generative optimization algorithm by a discriminative component based on a classification scheme. Quantitative comparisons with other algorithms are provided. They report comparable average pose error with another algorithm but "at least 10x speedup" with a single-core. However, to be fair, the authors did only select the frames in which extrema (hands, feet, head) are visible and the algorithm is limited in terms of body proportions, visibility requirements, and rotation limits of $\pm 45^\circ$; so, while the Microsoft algorithms can handle people with many variations for pose estimation, this algorithm requires a person specific model for pose reconstruction.

Following on that, the sixth chapter combines multiple RGB-D views in multi-pose configuration to construct 3D body models, and the setup is replicable for a home user. Without going into the technical details, it is a well articulated chapter covering all the details from calibration to depth and silhouette objective functions. Both qualitative and quantitative results prove the competitiveness of the algorithm even when compared to much more expensive full-body laser scanners. However, the system is not real-time, with optimization taking up to 65

minutes per body. This part closes with an application of Kinect's original algorithm (presented in Chapter 4) to hand pose estimation and recognition of American Sign Language symbols. A detailed 3D skinned mesh of a hand is used to generate a synthetic dataset. The original algorithm is used to perform pose estimation and is extended for sign recognition, using joint estimates as features with SVM, to achieve recognition rates up to 99.9%.

Part 3: The last part of the book deals with RGB-D datasets and techniques for visual recognition and categorization. The first two chapters present the important datasets and state-of-the-art for object detection and classification respectively. Chapter 8 introduces a realistic, challenging Berkeley 3D object dataset, arranged in a fashion similar to the PASCAL detection challenge. They present a baseline for object detection based on HOG features for colour and depth images, in combination with deformable part model detector, and improve it by using object size information (depth on HOG performs worse). The authors have introduced a novel feature based on second-order statistics called Histogram of Curvature (HOC), which is most suitable for depth images. The feature is presented in theoretical detail. Experiments provide a benchmark of HOC and other features in 18 different combinations. This benchmark shows that the three feature combination of HOG on color, HOG on depth and HOC provides the best results for most classes. However, some anomalies, like better results without depth features for some classes, are not well explained. The authors do not present the results of overall detection but only for the individual classes.

Chapter 10 is a must-read article for researchers on RGB-D recognition and presents very detailed coverage of category and of instance and pose level recognition, combining multiple publications by the same authors. Two novel datasets are introduced for objects and scenes, and their setup, statistics, segmentation and annotation is described in detail. For object recognition, they present results using a combination of shape features such as spin images with Efficient Match Kernel (EMK) and visual features like EMK SIFT, textron histograms. SVM, RF, Instance distance learning (IDL), and Kernel Descriptors for RGB-D are used for learning, where the last two are novel techniques for RGB-D recognition, described in the chapter. For pose recognition, they propose a baseline with an object-pose tree. Besides this, for object detection, they use the scene dataset with almost the same basic concepts of the last chapter. Interestingly, unlike the last chapter and for this dataset, HOG on depth performs better than RGB but the combination of colour and depth is still complementary. It seems that the object detection baselines have a lot more research potential. Finally, the chapter concludes with technique and results on the pixel level classification. Hence, this chapter discusses several aspects of recognition to form the core for this part of the book.

The book concludes with a chapter on human activity recognition. The RGBD-HuDaAct database is introduced, and two multi-modal fusion schemes for RGB-D activity recognition are presented: depth-layer spatio temporal interest points (DLMC-STIPs) and 3D motion history images (3D-MHIs). Comparing all techniques, best results are obtained with spatial pyramid based DLMC-STIP.

The authors present this work in the hope of establishing it as a benchmark test bed of RGB-D activity recognition and this chapter doesn't provide anything more than the benchmark.

In summary, based on my personal experiences with the Kinect

research, it's a very good, precise and to the point collection of articles, and I would have liked to have this book at the start of my research, a time when there was no book. For anyone starting with Kinect, it's a must read, and still remains up-to-date. The part of RGB-D recognition, an area of my

expertise, includes the two most important papers of the field and is very well organized, updated to the time of book's publication. While, the last chapter in each part seems to be weak, even then, I would highly recommend this book to any researcher of Kinect.

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

The following titles in the "[Advances in Computer Vision and Pattern Recognition](#)" series are available:

- ◆ *Shape Perception in Human and Computer Vision* by Sven J. Dickinson (ISBN 978-1-4471-5194-4)
<http://www.springer.com/computer/image+processing/book/978-1-4471-5194-4>
- ◆ *Unsupervised Process Monitoring and Fault Diagnosis with Machine Learning Methods* by Chris Aldrich (ISBN 978-1-4471-5184-5) <http://www.springer.com/computer/ai/book/978-1-4471-5184-5>
- ◆ *Decision Forests for Computer Vision and Medical Image Analysis* by A. Criminisi (ISBN 978-1-4471-4928-6)
<http://www.springer.com/computer/image+processing/book/978-1-4471-4928-6>
- ◆ *Visual Texture* by Michal Haindl (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 (ISBN 978-1-4471-4651-3)
<http://www.springer.com/computer/image+processing/book/978-1-4471-4651-3>

Related textbooks include:

- ◆ *Principles of Digital Image Processing: Advanced Methods* by Wilhelm Burger and Mark J. Burge (ISBN 978-1-84882-918-3) <http://www.springer.com/computer/image+processing/book/978-1-84882-918-3>

Relevant titles from "[SpringerBriefs in Computer Science](#)" short communication series include:

- ◆ *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 M. Hansard, S. Lee, O. Choi and R. Haraud (ISBN 978-1-4471-4657-5)
<http://www.springer.com/computer/image+processing/book/978-1-4471-4657-5>
- ◆ *Real-Time Detection of Lines and Grids* by A. Herout, M. Dubska and J. Havel (ISBN 978-1-4471-4413-7)
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- ◆ *Graph-Based Clustering and Data Visualization Algorithms* by A. Vathy-Fogarassy and J. Abonyl (ISBN 978-1-4471-5157-9)
<http://www.springer.com/computer/database+management+%26+information+retrieval/book/978-1-4471-5157-9>

Meeting and Education Planner

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

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

* Asterisks denote non-IAPR events *

		Meeting	Report	Location
2013	AUG	GREC 2013 : 10th IAPR International Workshop on Graphics Recognition	GREC 2011	USA
		CBDAR13 : 5th International Workshop on Camera-Based Document Analysis and Recognition		USA
		HIP 2013 : 2nd International Workshop on Historical Document Imaging and Processing		USA
		ICDAR 2013 : 12th International Conference on Document Analysis and Recognition	ICDAR 2011	USA
		CAIP 2013 : 15th International Conference on Computer Analysis of Images and Patterns	CAIP 2011	UK
		ICIAP 2013 : 17th International Conference on Image Analysis and Processing	ICIAP 2011	Italy
		PSIVT 2013 : 6th Pacific-Rim Symposium on Image and Video Technology		Mexico
		ACPR 2013 : 17th International Conference on Image Analysis and Processing	ACPR 2011	Japan
		LS 2013 : ISPRS Workshop on Laser Scanning 2013		Turkey
		CMRT13 : ISPRS Workshop on City Models, Roads and Traffic 2013		Turkey
		CIARP 2013 : 18th Iberoamerican Congress on Pattern Recognition	CIARP 2012	Cuba
		PReMI'13 : 5th Int'l Conf. on Pattern Recognition & Machine Intelligence	PReMI'11	India
2014	APR	DAS 2014 : 11th IAPR International Workshop on Document Analysis Systems	DAS 2012	France
	AUG	S+SSPR 2014 : Joint Workshops on Statistical Techniques in Pattern Recognition (SPR 2014) and Structural and Syntactic Pattern Recognition (SSPR 2014)	S+SSPR2012	Finland
		ICPR 2014 : 22nd International Conference on Pattern Recognition	ICPR 2012	Sweden
		ICFHR 2014 : 14th International Conference on Frontiers in Handwriting Recognition	ICFHR 2012	Greece
		DGCI 2014 : 18th IAPR International Conference on Discrete Geometry for Computer Imagery	DGCI 2013	Italy
		IJCB 2014 : International Joint Conference on Biometrics	ICB 2012	USA

Conference and Workshop Announcements, March 1983

- Simulation in Engineering Sciences IMACS'83 Symposium (France)
- Robotique: Perception et Intelligence Artificielle (France)
- Satellite Symposium of 11th I.C.A.: Process of Phonetic Encoding and Decoding of Speech (France)
- Specialist Workshop: Pattern Recognition in Photogrammetry (Austria)
- Third ASSP Workshop on Multidimensional Digital Signal Processing (USA)