

# Newsletter

Volume 2

JAN 2012

## Highlights

- [Interview with EDPS](#)
- [IJCB 2011 \(Report\)](#)
- [Secure Face Recognition](#)
- [Biometrics Council Election](#)
- [New IEEE Fellows](#)

## New European Commission Proposal on Data Protection Rules

The European Commission has announced a new comprehensive proposal on 25 Jan 2012 to reform the EU's 1995 data protection rules to further strengthen the online privacy rights. The proposal is aimed to reinforce the consumer confidence in the advanced data acquisition, data protection, data sharing and biometrics technologies. The commission has proposed two legislative proposals; a general regulatory on data protection and a specific directive for the area of police and justice. The proposed general regulation introduces **compulsory** mechanisms (such as impact assessments, data protection officers and documentation on processing), data controllers in the private and the public sectors to further improve the accountability. The proposed single law is expected to replace the divergences in the enforcement of 1995 EU directives in 27 European Union Member States. The commission has argued that the consistent implementation of new rules will also reduce the current administrative burden on member states, leading to savings for businesses of around €2.3 billion a year, and will free the business firms in dealing with the diverging national legislative regimes and authorities. The detailed/original proposal, corresponding legislative texts, fact sheets and the public opinion surveys can be accessed from [http://ec.europa.eu/justice/newsroom/data-protection/news/120125\\_en.htm](http://ec.europa.eu/justice/newsroom/data-protection/news/120125_en.htm)



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## CONTENTS

<b>EC Proposal</b>	1
<b>Spotlight EDPS</b>	1-3
<b>IJCB 2011</b>	4
<b>AdCom Members</b>	5
<b>Technical Committee</b>	6
<b>Secure Face Recognition</b>	7
<b>Forthcoming Conferences</b>	8
<b>New ExCom Members</b>	9-10
<b>AdCom Meeting</b>	11
<b>New Databases</b>	12

### Spotlight



The [European Data Protection Supervisor \(EDPS\)](#) is an independent supervisory authority devoted to ensuring that the European Union (EU) institutions and bodies respect their data protection obligations. The supervisory competences of the EDPS do not extend to processing in the 27 Member States falling under the national legislation which has been adopted in order to comply with 1995 EU

Directives on the protection of individuals with regard to the processing of personal data and the free movement of such data (*Data Protection Directive*). The duties of the EDPS related to *biometrics* is prior checking DPO's notifications of processing operations which are likely to post specific risks to the data subjects. The EDPS concerns the use of *biometric data*, and how the biometric data is protected. Since January 2004, the EDPS has ensured the supervision of the central unit of *Eurodac* which is a database of applicants' fingerprints for asylum seekers and illegal immigrants within Europe.

The EDPS also examines the data protection and privacy impact of proposed new legislation in terms of limitations in scope, working methods and main orientations. The EDPS lists the Commission proposals as an collections of his [priorities](#) in December for the next year. Such an [inventory of 2012 priorities](#) suggest that the *Cloud computing*, *eHealth* and *Financial Services* will receive high this year. The EDPS has committed to devoting substantial efforts in 2012 to four areas of strategic importance; (i) [New legal framework for data protection](#), (ii) Technological development and the digital Agenda, IP rights, and the Internet, (iii) Developing Freedom, Security and Justice, and (iv) Introducing financial sector reforms.

The EDPS is one of the most influential figures in regulating the deployment of emerging data protection and biometrics technologies in Europe. We are now going to ask the EDPS a few questions and these have been answered from the highest level in our spotlight section on next page.



## Spotlight: Biometrics Data Protection and Privacy



### INTERVIEW QUESTION

**M. Peter Hustinx**

**European Data Protection Supervisor (EDPS)**

has been the EDPS since January 2004, and was reappointed on January 2009 to serving a second five-year term. Before working as the EDPS, he worked as President of the Dutch Data Protection Authority for more than twelve years.



There are some concerns in the biometrics industry on the questions posed in the upcoming 'new EU directives' as to biometrics identification. It will restrain the deployment of biometrics services in Europe essentially because actors will not understand the way how to apply the new regulations. On the other hand, large countries around the world will progress faster than the EU. How would you advise them on these concerns?

*These concerns are unjustified. The review of the EU legal framework for data protection is designed to ensure that our current principles and safeguards continue to be effective in a changing world that is increasingly based on the wide use of ICT. The European Commission has recently proposed a draft Regulation that aims to replace the current Directive and will be directly applicable in all EU member states. This proposal will have to be discussed and adopted by the European Parliament and the Council of Ministers. In the meantime, probably until 2014, the present rules will continue to apply. We believe that the new rules will set a world standard for effective data protection and generate trust and confidence in the digital economy.*

The draft Regulation for new EU policy framework on privacy and data protection does not classify biometric data as a "special category of data" (falling into Article 9 of the draft Regulation<sup>o</sup>). However, where prior authorizations are in principle abolished, the process put into place by the draft Regulation can be even more burdensome: a data protection impact assessment would be required for the processing of a number of data including biometric data (Article 33.2 (d), this DPIA can nevertheless lead to a prior consultation of the Supervisory Authority where it indicates that the processing operations "are likely to present a high degree of specific risks to the rights and freedoms of data subjects [.]"). This reference to "specific risks" in relation to data processing appears several times, could you please explain and give examples on what would be considered as a risk?

*It is true that biometric data are not considered as "sensitive per se", but may give rise to specific risks, especially if used in large scale systems, for instance for border control, affecting millions of people. In those cases, a separate impact assessment is required, and if there is a high degree of specific risks, also a consultation of the data protection authority, to check whether these risks have been addressed adequately. On the basis of our experience with the use of biometric data in the context of such large scale systems, this seems fully appropriate. This approach is to confirm good practice in the industry and discourage practices which are not acceptable.*

The draft Regulation promotes "Privacy by Design" and "Privacy by Default". "Privacy by Design" is a Trademark and is described by the Ontario (Canada) Data Protection Officer. Will the EU legislation depend on concepts defined abroad? Are you considering adopting an EU definition?

*The terms used in the draft Regulation are "Data protection by design" and "Data protection by default", but they are indeed closely related to "Privacy by Design" and "Privacy by Default". The draft Regulation makes it a legal obligation to take data protection into account from the beginning and implement appropriate technical and organisational measures and procedures in such a way that compliance will be assured. This is the essential point. Further details will be addressed at a later stage.*

## CONTENTS

EC Proposal	1
Spotlight EDPS	1-3
IJCB 2011	4
AdCom Members	5
Technical Committee	6
Secure Face Recognition	7
Forthcoming Conferences	8
New ExCom Members	9-10
AdCom Meeting	11
New Databases	12

## Spotlight: Biometrics Data Protection and Privacy



The Commission is considering adopting delegated acts for data protection by design requirements applicable across sectors, products and services? Do you consider this approach as being operational? Wouldn't it be preferable to adopt a sectorial approach, in particular for biometrics technology?

The draft Regulation provides for delegated acts and implementing rules where required. This option will not be used routinely and should therefore not stand in the way of good initiatives in relevant sectors. Standards for responsible use of biometrics are a very good example.

On the other hand, "Privacy by default" is not described. Do you intend to describe this concept as IPC Ontario did?

That is too early to say at this stage. Further discussions will show to what extent there is a need for clarification.

What are the biggest unexpected challenges that the EDPS has faced recently with the emerging biometrics and data sharing technologies? Would you mind sharing some of the experience gained?

We have been involved in the discussions about the Visa Information System (VIS) and the new Schengen Information System (SIS II). It was not easy to find the best way forward. We should therefore not rush in other systems for border control and only go step by step. Careful assessments help to chart a good course and should therefore be used as an essential instrument for good practice.

## Welcoming New Executive Committee Members

It is my pleasure to introduce new officers of the IEEE Biometrics council as a result of regular elections held in November- December 2011. Please join me in welcoming *Tieniu Tan* as President Elect, *Ioannis Kakadiaris* as VP Technical Activities, *Sudeep Sarkar* as VP Conferences, and *Stephanie Schuckers* as VP Finance. The President elect will assume the office of President in Jan 2013.

The newly elected VPs assume their office from Jan 2012 and will continue to serve until Dec 2013. They join current VP's *Ajay Kumar* (VP Publications) and *Arun Ross* (VP Education).

The outgoing VP Technical Activities *Joe Campbell*, has devoted significant efforts to organizing technical committee of world-class technical subject-matter experts in the biometrics council. The outgoing VP Conferences *Patrick Flynn*, has managed his role extremely well in coordinating evaluation of several conference and school proposals submitted to the council. *Salil Prabhakar*, the outgoing VP Finance, put enormous efforts in coordinating the revenue generating activities to meet the expenses for the new council activities and managed the council budget very well.

Many thanks to *Joe Campbell*, *Patrick Flynn*, and *Salil Prabhakar* for all their efforts and contributions.

We thankfully acknowledge nomination committee chair *Prof. Rama Chellappa* and his committee members for running a smooth and professional election for the council.

I am delighted to report that the council has had its first successful batch of IEEE Fellows in the class of 2012. Congratulations to *Patrick Flynn* and *Salil Prabhakar* for bringing this unique honor to the council.

*Nalini Ratha*, President, IEEE Biometrics Council

## CONTENTS

EC Proposal	1
Spotlight EDPS	1-3
IJCB 2011	4
AdCom Members	5
Technical Committee	6
Secure Face Recognition	7
Forthcoming Conferences	8
New ExCom Members	9-10
AdCom Meeting	11
New Databases	12

## International Joint Conference on Biometrics 2011



The [International Joint Conference on Biometrics 2011](#) was the first joining of two major conference series in biometrics research, the [Biometrics Theory, Applications and Systems \(BTAS\)](#) tradition and the [International Conference on Biometrics \(ICB\)](#) tradition. Measured by the number of papers submitted, IJCB 2011 was the largest of either conference held to date. The IJCB 2011 was made possible through special agreement between the *IEEE Biometrics Council* and the *IAPR TC 4*. Based on the success of IJCB 2011, discussions are in progress to have another IJCB in 2014.

The winner of the Honeywell Best Student Paper Award is “[Mining patterns of orientations and magnitudes for face recognition](#)”, by Ngoc-Son Vu and Alice Caplier at Grenoble INP, France. The Honeywell Best Student Paper Award was selected from among the best-reviewed submissions to the conference by a special committee appointed by the Program Chairs. Following the ICB tradition, the IAPR Best Biometrics Student Paper Award was awarded to the paper “[Latent Fingerprint Enhancement via Robust Orientation Field Estimation](#)”, by Soweon Yoon at Michigan State, Jianjiang Feng at Tsinghua University, and Anil Jain at Michigan State. The IAPR Best Biometrics Student



Rama Chellappa and Kevin Bowyer presented the Honeywell Best Student Paper Award to Alice Caplier.



Massimo Tistarelli presented the IAPR Best Biometrics Student Paper Award to Soweon Yoon.

Paper Award was selected by a committee organized by the IAPR TC 4.

Following the traditional BTAS practice, IJCB also included Best Poster Paper Awards that were selected from among each day’s poster presentations by a vote of the attendees at the conference. There was a tie on Tuesday, and a single winner on each of the other two days. The winning papers on Tuesday were “[On Co-training Online Biometric Classifiers](#)”, by Himanshu Bhatt, Samarth Bharadwaj, Richa Singh, and Mayank Vatsa, all from IIT Delhi, and Afzel Noore and Arun Ross, from West Virginia University, and “[Latent-to-full palmprint comparison based on radial triangulation under forensic conditions](#)” by Ruifang Wang, Daniel Ramos, Julian Fierrez, from Universidad Autonoma de Madrid.

The winner on Wednesday was “[Reliability-balanced Feature Level Fusion for Fuzzy Commitment Scheme](#)”, by Christian Rathgeb, Andreas Uhl and Peter Wild, from the University of Salzburg. The winner on Thursday was “[Investigating Age Invariant Face Recognition Based on Periocular Biometrics](#)”, by Felix Juefei-Xu (Carnegie Mellon University), Khoa Luu (Concordia University), Marios Savvides (Carnegie Mellon University), Tien Bui (Concordia University), and Ching Y. Suen (Concordia University).

The very international flavor of IJCB 2011 is exemplified in the range of countries represented in the award-winning papers. Authors of the various award-winning papers are at institutions in Austria, Canada, China, France, India, Spain and the United States.

IJCB 2011 included a number of changes and improvements relative to past BTAS and ICB conferences. For the first time, there was a *Doctoral Consortium*, with PhD student participation sponsored by the National Science Foundation and by IAPR. Reviewing this year was done in “double blind” style and allowed for an author rebuttal phase, as described below. And relative to the BTAS conference series, both a tutorials program and a competitions program were added. In addition, the presentations at this



Rama Chellappa and Kevin Bowyer presented the Best Poster Paper Awards to Richa Singh, Samarth Bharadwaj, Arun Ross and Mayank Vatsa (on right).

### CONTENTS

EC Proposal	1
Spotlight EDPS	1-3
IJCB 2011	4
AdCom Members	5
Technical Committee	6
Secure Face Recognition	7
Forthcoming Conferences	8
New ExCom Members	9-10
AdCom Meeting	11
New Databases	12

## International Joint Conference on Biometrics 2011



year's conference were recorded and are available online at [www.TechTalks.tv](http://www.TechTalks.tv). Organizers hope that this will provide a *lasting value* to attendees and others who are interested in biometrics, complementary to the papers being available in [IEEE Xplore](http://IEEE Xplore).

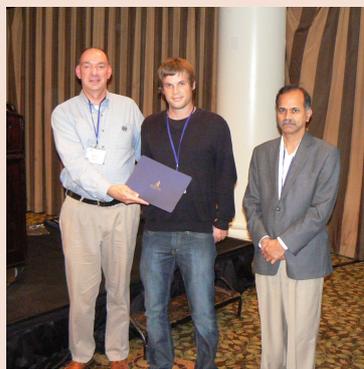
The IJCB 2011 had 324 papers registered and 306 reviewed, from which 31 papers were accepted for oral and 76 for poster presentations. This represents an increase in papers submitted, accepted and overall selectivity relative to past BTAS and ICB conferences. The topics with the most submissions were 2D face, fingerprint and iris with 71, 29, and 29 submissions respectively.

The review process for IJCB 2011 was diligent and required 951 reviews to support the decision process. This involved 154 reviewers who spent significant time and effort in reviewing. IJCB 2011 introduced a **rebuttal phase** for the authors to comment on the reviews and a discussion phase for the reviewers to discuss among themselves. The **discussion phase** enabled each reviewer to adjust his/her reviews based on the opinions of the other reviewers, the rebuttal from the authors and a discussion. The whole process, conducted double blind within CMT, tended to result in a consensus opinion on most submissions. Papers associated with any Chair were handled separately with no involvement of that Chair and virtually no difference in acceptance rate. The Program Chairs carefully considered all the information available to make the final decisions on submitted papers. The Program Chairs coordinated the provision of meta-reviews, especially for the submissions with inconsistent reviews. The rigorous acceptance standards and selectivity resulted in rejection of some potentially interesting papers that suffered from presentation problems.

The resulting Conference Program had wide international representation, with papers from 26 countries. It includes **four tutorials**, and the presentation of the results of four **biometric algorithm competitions**. The Conference Program was further enhanced by 3 invited talks by eminent speakers. Brian Lovell gave The 2011 IAPR Biometrics Lecture, speaking on "Remote Face, Iris, and Appearance Biometrics for Border and Transport Security". Mark Nixon gave a very entertaining talk at the conference banquet on "A Brief History of Biometrics In the Media". And Dr. Michael C. King gave an excellent overview of current advances in biometric technology spurred by the IARPA BEST program that he directs, titled "Current Successes and Future Directions of the BEST Program".

### CONTENTS

EC Proposal	1
Spotlight EDPS	1-3
IJCB 2011	4
AdCom Members	5
Technical Committee	6
Secure Face Recognition	7
Forthcoming Conferences	8
New ExCom Members	9-10
AdCom Meeting	11
New Databases	12



Christian Rathgeb (middle) earned Best Poster Paper Award.



Mark Nixon informed and entertained the audience with his talk at the conference banquet.

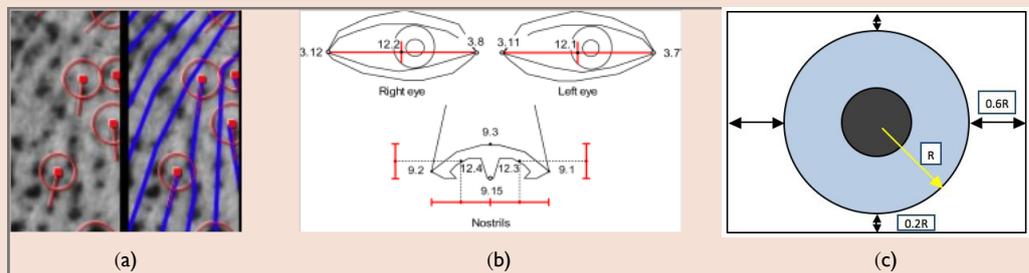
## IEEE Biometric Council Administrative Committee

**Shirley N. Cheng**, Boeing, USA; **Ljiljana Trajkovic**, Simon Fraser University, Canada; **Anil Jain**, Michigan State University, USA; **Peter Corcoran**, National University of Ireland, Ireland; **Jose Principe**, University of Florida, USA; **Voicu Groza**, University of Ottawa, Canada; **Mario Degenais**, University of Maryland, USA; **Sudeep Sarkar**, University of South Florida, USA; **Paolo Dario**, Scuola Superiore Sant'Anna, Italy; **Wanda K. Gass**, Texas Instruments, USA; **Vijayakumar Bhagavatula**, Carnegie Mellon University, USA; **Joel Snyder**, Snyder Associates, USA; **Jie Tian**, Chinese Academy of Sciences, China. **Lipo Wang**, Nanyang Technological University, Singapore; **Javier Sempere**, Universidad Miguel Hernández de Elche, Spain; **Bruce Hecht**, Analog Devices, USA; **Manfred Wehnacht**, Leibniz Institute for Solid State and Materials Research Dresden, Germany;

## New Biometrics Data Standard for fingerprints, palmprints, footprints, face, DNA and iris images



The National Institute of Standards and Technology (NIST) has introduced new biometrics data interchange standard that extends the scope and type of biometrics information that can be shared to facilitate accurate identification of humans across the organizations and between the dissimilar systems from different manufacturers. The new standard, referenced as ANSI/NIST-ITL 1-2011, now includes first international standard for the exchange of DNA data. It also includes new capability to share the images of body parts and anthropometric measurement points of face and iris images. One of the key features of the new standard is the inclusion of Extended Feature Set (EFS) for exchanging a very rich set of latent friction ridge prints (fingerprint, palmprint and footprint) that can be used by the forensic examiners or in an automated system (or both). Researchers are working on voice biometrics, traumatic injury imaging and analysis, and dental forensics for the future standard. Earlier versions of NIST standard have been widely used in the biometrics community to provide a common language and data format for the exchange of biometrics data and the associated metadata. The new biometrics standard is now (January 2012) available online and can be accessed from [www.nist.gov/customcf/get\\_pdf.cfm?pub\\_id=910136](http://www.nist.gov/customcf/get_pdf.cfm?pub_id=910136).



**Figure:** (a) Examples of *minutiae of uncertain type* and radii of uncertainty, without and with ridge segments, in the EFS of new standards; (b) Eye and nostril center feature points for the exchange of *facial image data* in the new standard; (c) Iris margin specifications to support the accurate localization of iris boundaries.

## IEEE Biometrics Council Technical Committee

The Technical Committee for the *IEEE Biometrics Council* currently consists of the following 32 members. The members were selected in accordance with the bylaws (especially article XIII 3 a, b, c), they are world-class technical subject-matter experts, and they were painstakingly selected in consultation with the Biometrics Council Executive Committee, external experts, and Vin Piuri. The Chairs are regulated by the article XIII section 3 points a, d, g, h. The IEEE Biometrics Council's Technical Committee's roles and responsibilities include supporting conference paper reviews, reviewing and creating expert web content, reviewing tutorials, supporting award nominations, cooperating with the publications, conferences and education committees, and actively shaping the technical future of biometrics within the IEEE.

The Biometrics Council AdCom meeting held in Washington DC on 10th October 2011 endorsed the following Technical Committee for the *IEEE Biometrics Council*.

1. **Joseph Campbell**, MIT Lincoln Laboratory, USA (Acting Chair);
2. **J. Ross Beveridge**, Colorado State University, USA;
3. **Jean-Francois Bonastre**, University of Avignon, LIA, France;
4. **Terrance Boulton**, University of Colorado, USA;
5. **Christoph Busch**, Gjøvik University College, Norway;
6. **James Cambier**, Cross Match Technologies, Inc., USA;
7. **Jan Cernocky**, Brno University of Technology, Czech Republic;
8. **Rama Chellappa**, University of Maryland, USA;
9. **Martin Drahansky**, Brno University of Technology, Czech Republic;
10. **Patrick Flynn**, University of Notre Dame, USA;
11. **Patrick Grother**, NIST, USA;
12. **Peter Higgins**, Higgins & Associates, International, USA;
13. **James Hutchinson**, US Army, USA;
14. **Anil Jain**, Michigan State University, USA;
15. **Ioannis Kakadiaris**, University of Houston, USA;
16. **Josef Kittler**, University of Surrey, UK;
17. **Ajay Kumar**, The Hong Kong Polytechnic University, Hong Kong;
18. **Gerald Larocque**, MIT Lincoln Laboratory, USA;
19. **Philip Melese**, SRI, USA;
20. **William Murphy**, SRI, USA;
21. **Mark Nixon**, University of Southampton, UK;
22. **Sharath Pankanti**, IBM, USA;
23. **Jason Pelecanos**, IBM, USA;
24. **Paula Pomianowski**, MIT Lincoln Laboratory, USA;
25. **Salil Prabhakar**, USA;
26. **Nalini Ratha**, IBM, USA;
27. **Brian Redman**, Lockheed Martin Coherent Technologies, USA;
28. **Arun Ross**, West Virginia University, USA;
29. **Marios Savvides**, Carnegie Mellon University, USA;
30. **Stephanie Schuckers**, Clarkson University, USA;
31. **David Stoker**, SRI, USA;
32. **James Wayman**, San José State University, USA.

## CONTENTS

EC Proposal	1
Spotlight EDPS	1-3
IJCB 2011	4
AdCom Members	5
Technical Committee	6
Secure Face Recognition	7
Forthcoming Conferences	8
New ExCom Members	9-10
AdCom Meeting	11
New Databases	12

## Antispoofing for Secure Face Biometrics

Stan Z. Li, Zhiwei Zhang, Zhen Lei and Dong Yi, Chinese Academy of Sciences, Beijing



The face recognition technologies are increasingly being used in biometrics-inside applications such as access control in mobile phones and borders crossings. However, naive face recognition based security can be fooled by spoofing attacks. For example, it is reported that the *Face Unlock* feature of Google's Android 4.0, running on Samsung Galaxy Nexus, is duped by a mere target facial image displayed on another mobile phone screen [1]. Therefore such security measures can be vulnerable.

The potential attacks on popular face recognition systems can include the use of printed face images, face video replay, and face masks. The development of biometric countermeasure against fake faces is also known as *face anti-spoofing*. Face recognition systems embedded with proper anti-spoofing techniques can differentiate genuine face image from fake ones, minimizing the risk of spoofing attacks to face biometric systems.

A solution which naturally combines face recognition and face anti-spoofing is the use of Near Infrared (NIR) face recognition technologies. The NIR face technology, patented by AuthenMetric Co. Ltd, uses controlled active NIR illumination from the *frontal* direction to improve face recognition accuracy [2]. Products using engines trained on NIR face images with frontal illumination generally provide much higher accuracy and reliability than those using conventional visual (VIS) image based technologies. As a byproduct, it also has an advantage of immunity against spoofing attacks of VIS types of fake faces, such as aforementioned, due to the characteristics of the NIR face engine. Figure 1 shows such a face biometric product



Figure 1: AuthenMetric embedded NIR face recognition system.

running on an embedded system. The ability to countermeasure can be enhanced by using multispectral characteristics [3], making the system highly robust toward diverse attacks.

In the *2D face anti-spoofing contest* [4] at *IJCB 2011*, organized by the team of the European Commission supported project "Trusted Biometrics under Spoofing Attacks (*Tabula Rasa*)", the facial texture based techniques have achieved good results for VIS Image based systems [5]. Facial texture based algorithms believe that images of fake faces can be treated as *genuine* face images post-processed by some quality-degrading operations such as blurring and aliasing. By exploring the facial texture difference, the genuineness of target faces can be determined. The advanced methods under this category utilize only the visible face images, and can be readily adopted for the face recognition system on mobile phones.

As one of the participants in the contest, the authors also developed a successful solution to combating the problem presented at the beginning of this article, based on facial texture features. The algorithm consists of two steps: First, facial texture quality measurements are computed, and second the measurements are analyzed to determine if they are affected by the degradation due to exhibition medium such as paper print or LCD screen. Figure 2 shows the reflectance distribution of photo faces and genuine faces. Figure 3 shows face images captured by a Samsung Android

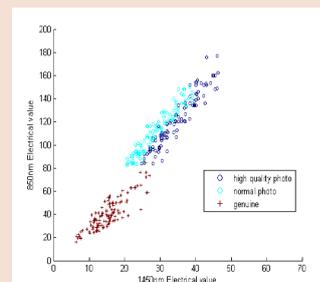


Figure 2: The distribution of genuine faces and photos.



Figure 3: (a) Genuine and (b-d) fake faces acquired as face images by a Samsung mobile phone.

mobile phone, including (a) a genuine face image, (b) a *fake face images* displayed by a mobile phone, (c) by a computer screen, and (d) a photo print. Even though the fakes look much like the genuine, the algorithm successfully detected the attacks. The system has been implemented on mobile phones.

### References

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- [4] <http://www.tabularasa-euproject.org/evaluations/ijcb-2011-competition-on-countermeasures-to-2d-facial-spoofing-attacks>, Dec. 2011.
- [5] J. Maatta, A. Hadid, and M. Pietikainen, "Face Spoofing Detection From Single Images Using Micro-Texture Analysis", *Proc. IJCB 2011*, Washington DC, Oct 2011.

## CONTENTS

EC Proposal	1
Spotlight EDPS	1-3
IJCB 2011	4
AdCom Members	5
Technical Committee	6
Secure Face Recognition	7
Forthcoming Conferences	8
New ExCom Members	9-10
AdCom Meeting	11
New Databases	12

## Forthcoming Biometrics Conferences



### International Conference on Biometrics (ICB 2012)

New Delhi, India, 30 Mar - 1 Apr 2012

<http://icb12.iitd.ac.in>



The 5th International Conference on Biometrics (ICB 2012) will have a broad scope and papers that advance biometric technologies, sensor design, feature extraction and matching algorithms, analysis of security and privacy, and evaluation of social impact of biometrics technology.

The ICB 2012 program includes four 1/2 day tutorials by experts in face (*Stan Li*), fingerprint (*Davide Maltoni*), iris (*John Daugman*) and best practices (*Jim Wayman*). The program also includes a panel discussion on India's Unique Identification Program (UID), the keynote talks by *Ming Hsieh* (founder of Cogent Systems), *John Daugman* (inventor of iris matching) and *Nandan Nilekani* (Chairman of UID program in India). More information is available on the conference website <http://www.icb12.iitd.ac.in>.

### IEEE International Workshop on Information Forensics and Security (WIFS'12)

Tenerife, Spain, 2-5 Dec, 2012

<http://www.wifs12.org>



The IEEE International Workshop on Information Forensics and Security (WIFS) is the primary annual event organized by the IEEE's Information Forensics and Security Technical Committee (IEEE IFS TC). Being the main annual event organized by IEEE IFS TC, the scope of WIFS is broader than other more specific conferences, and it represents the most prominent venue for researchers to exchange ideas and identify potential areas of collaboration. Focusing on these targets, the conference will feature three keynote speakers, up to four tutorials, a track of lecture and poster sessions.

## CONTENTS

EC Proposal	1
Spotlight EDPS	1-3
IJCB 2011	4
AdCom Members	5
Technical Committee	6
Secure Face Recognition	7
Forthcoming Conferences	8
New ExCom Members	9-10
AdCom Meeting	11
New Databases	12

### Biometrics: Theory, Applications and Systems (BTAS' 2012)

Washington DC, USA, 23-27 Sept, 2012

[https://sites.google.com/a/nd.edu/btas\\_2012/](https://sites.google.com/a/nd.edu/btas_2012/)



The IEEE Fifth International Conference on Biometrics: Theory, Applications and Systems (BTAS 2012), a continuation of the highly successful BTAS conference series started in 2007, will be held in the September 23-27, 2012 time period in the Washington, DC area. BTAS 2012 is the premier research conference focuses on all aspects of biometrics. It is intended to have a broad scope, including advances in fundamental signal processing, image processing, pattern recognition and statistical and mathematical techniques relevant to biometrics, new algorithms and/or technologies for biometrics, analysis of specific applications, and analysis of the social impacts of biometrics technology.

Tutorials will be held on September 23, and the committee is pleased to invite tutorial proposals. The deadline of tutorial proposals submission is May 15, 2012.

## IEEE Fellows: 2012



### Patrick Flynn

Patrick Flynn is Professor of Computer Science and Engineering and Concurrent Professor of Electrical Engineering at the University of Notre Dame (Notre Dame, IN, USA). He received the Ph.D. in Computer Science from Michigan State University in 1990, and was a member of the faculty of Washington State University (Pullman, WA, USA) and Ohio State University (Columbus, OH, USA) prior to his position at Notre Dame.



Dr. Flynn's research interests include computer vision, image processing, pattern recognition, and biometrics. His research has been funded by many governmental and industrial organizations, and published in the field's leading journals and conferences. He was associate editor and an associate editor-in-chief of TPAMI.

### Salil Prabhakar

Salil Prabhakar received his PhD degree in Computer Science & Engineering from Michigan State University in 2001. He has worked in the biometrics industry for 10+ years as an engineer and scientist and has contributed to several award-winning products as Chief Scientist and Director of R&D at DigitalPersona Inc. Salil is a co-author of 50+ publications, two editions of the Handbook of Fingerprint Recognition, five book chapters, and seven edited proceedings. He holds two patents. He has been an associate editor IEEE TPAMI, EURASIP JIVP, PR, and Current Bioinformatics, was a guest co-editor of a TPAMI special issue on biometrics, has been a co-chair/program-chair of 10+ IEEE, IAPR and SPIE conferences, is a general co-chair for ICB2012, and has served as VP Finance for Biometrics Council.



## Introduction to New Executive Committee Members

### Ioannis Kakadiaris: Vice President (Technical Activities)

Ioannis Kakadiaris is a Hugh and Lillie Cranz Cullen Distinguished University Professor of Computer Science, Electrical & Computer Engineering, and Biomedical Engineering at the University of Houston. He joined UH in August 1997 after a postdoctoral fellowship at the University of Pennsylvania. Ioannis earned his B.Sc. in physics at the University of Athens in Greece, his M.Sc. in computer science from Northeastern University and his Ph. D. in Computer Science from the University of Pennsylvania. He is the founder and director of the Computational Biomedicine Lab ([www.cbl.uh.edu](http://www.cbl.uh.edu)). His research interests include biometrics, non-verbal human behavior understanding, computer vision, and pattern recognition. CBL's Face recognition software (URxD) ranked first in the 3D-shape section of the 2007 Face Recognition Vendor Test (FRVT) organized by NIST. Dr. Kakadiaris serve as Associate Editor for the Image Vision Computing and Machine Vision and Applications journals.



Dr. Kakadiaris has served in a variety of capacities in conference organization including conference co-chair, program co-chair, demos co-chair, video proceedings co-chair, publications co-chair, and area chair. He is the recipient of a number of awards, including the NSF Early Career Development Award, Schlumberger Technical Foundation Award, UH Computer Science Research Excellence Award, UH Enron Teaching Excellence Award, and the James Muller Vulnerable Plaque Young Investigator Prize. His research has been featured on The Discovery Channel, National Public Radio, KPRC NBC News, KTRH ABC News, and KHOU CBS News.

### Stephanie Schuckers: Vice President (Finance)

Stephanie Schuckers is an Associate Professor in the Department of Electrical and Computer Engineering at Clarkson University and serves as the Director of the Center of Identification Technology Research (CITeR), a National Science Foundation Industry/University Cooperative Research Center. She received her doctoral degree in Electrical Engineering from The University of Michigan. Professor Schuckers research focuses on processing and interpreting signals which arise from the human body.



Dr. Schuckers work is funded from various sources, including National Science Foundation, National Institute of Health, Department of Homeland Security, the Center for Identification Technology, and private industry, among others. She has started her own business, and has over 25 journal publications as well as over 40 other academic publications.

## CONTENTS

EC Proposal	1
Spotlight EDPS	1-3
IJCB 2011	4
AdCom Members	5
Technical Committee	6
Secure Face Recognition	7
Forthcoming Conferences	8
New ExCom Members	9-10
AdCom Meeting	11
New Databases	12

## Introduction to New Executive Committee Members



### Sudeep Sarkar: Vice President (Conferences)

Sudeep Sarkar received the B.Tech degree in Electrical Engineering from the Indian Institute of Technology, Kanpur, in 1988. He received the M.S. and Ph.D. degrees in Electrical Engineering, on a University Presidential Fellowship, from The Ohio State University, Columbus, in 1990 and 1993, respectively. Since 1993, he has been with the Computer Science and Engineering Department at the University of South Florida, Tampa, where he is currently a Professor and a Research Administration Faculty Fellow at the Office of Research and Innovation. He is a recipient of the National Science Foundation CAREER award in 1994, the USF Teaching Incentive Program Award for undergraduate teaching excellence in 1997, the Outstanding Undergraduate Teaching Award in 1998, and the Ashford Distinguished Scholar Award in 2004. He is a Fellow of the International Association for Pattern Recognition and the IEEE-CS Distinguished Visitor Program Speaker.



Dr. Sarkar's research interests include biometrics, automated sign language recognition, perceptual organization, and nano nanocomputing. He had participated in the US DARPA HumanID program, where he was instrumental in putting together the HumanID Gait Challenge problem and dataset. He has published more than 50 journal papers and 75 conference papers. He is the co-author of the book "Computing Perceptual Organization in Computer Vision," published by World Scientific. He also the co-editor of the book "Perceptual Organization for Artificial Vision Systems" published by Kluwer Publishers. He served on the editorial boards for the IEEE Transactions on Pattern Analysis and Machine Intelligence, Pattern Analysis & Applications Journal, Pattern Recognition journal, IEEE Transactions on Systems, Man, and Cybernetics, Part-B, Image and Vision Computing, and IET Computer Vision. He has been Area Chair for ICCV, CVPR, and ICPR. He was the Co-Program Chair for the BTAS 2010. He is currently the Co-Editor-in-Chief of Pattern Recognition Letters and the Chair of the IEEE-CS Technical Committee on Pattern Analysis and Machine Intelligence.

### Tieniu Tan: President Elect

Tieniu Tan received his B.Sc. degree in electronic engineering from Xi'an Jiaotong University, China, in 1984, and his MSc and PhD degrees in electronic engineering from Imperial College London, U.K., in 1986 and 1989, respectively. In October 1989, he joined the Computational Vision Group at the Department of Computer Science, The University of Reading, U.K., where he worked as a Research Fellow, Senior Research Fellow and Lecturer. In January 1998, he returned to China to join the National Laboratory of Pattern Recognition (NLPR), Institute of Automation of the Chinese Academy of Sciences (CAS). He was the Director General of the CAS Institute of Automation from 2000-2007, and has been Professor and Director of the NLPR since 1998. He also serves as Deputy Secretary-General of the CAS. He has published more than 350 research papers in refereed international journals and conferences in the areas of image processing, computer vision, pattern recognition and biometrics, and has authored or edited 9 books. He holds more than 50 patents. His current research interests include biometrics, image and video understanding, and information forensics and security.



Dr Tan is a Fellow of the IEEE and the IAPR (the International Association of Pattern Recognition). He is or has served as Associate Editor or member of editorial boards of many leading international journals, including IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), IEEE Transactions on Automation Science and Engineering, IEEE Transactions on Information Forensics and Security, IEEE Transactions on Circuits and Systems for Video Technology, Pattern Recognition, Pattern Recognition Letters, Image and Vision Computing, etc. He is Editor-in-Chief of the International Journal of Automation and Computing. He was the Founding Chair of the International Association of Pattern Recognition (IAPR) Technical Committee on Biometrics (TC4), founding chair of the IAPR/IEEE International Conference on Biometrics (ICB) and the IEEE International Workshop on Visual Surveillance. He currently serves as Vice President of the IAPR and Deputy President of the Chinese Association for Artificial Intelligence, and was the Executive Vice President of the Chinese Society of Image and Graphics, Deputy President of the China Computer Federation and the Chinese Automation Association. He has given invited talks and keynotes at many universities and international conferences, and has received numerous national and international awards and recognitions.

## CONTENTS

EC Proposal	1
Spotlight EDPS	1-3
IJCB 2011	4
AdCom Members	5
Technical Committee	6
Secure Face Recognition	7
Forthcoming Conferences	8
New ExCom Members	9-10
AdCom Meeting	11
New Databases	12

## IEEE Biometrics Council AdCom Meeting



Joseph Campbell, VP, reporting the formation of new Technical Committee during the AdCom meeting.

IEEE Biometrics Council Administrative Committee (AdCom) meeting was held in October, 2011, during IJCB 2011, in Washington DC. The attendees were Nalini Ratha, Rama Chellappa, Vin Piuri, Joseph Campbell, Patrick Flynn, Arun Ross, Ajay Kumar, Salil Prabhakar, Vijavakumar Bhagavatula, Sudeep Sarkar, Joel Rodrigues, Lipo Wang, Bruce Hecht, Xavier and Kevin Bowyer. In the overview of IEEE and region 10, Mos Kam will follow up more information about Human Technology challenge in the specific area of Patient ID and tying to health records.

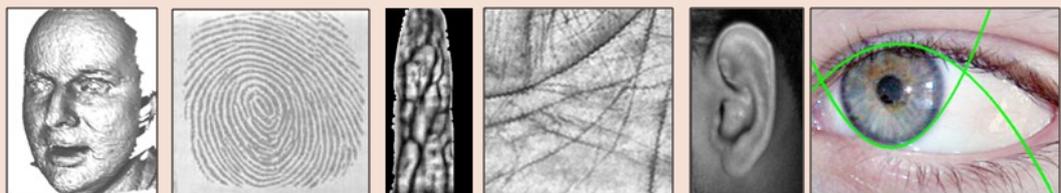
The VP Technical Activities presented the new Technical Committee (TC) who will be drawn from different geographies and member societies, and the TCs should cover a variety of areas. The TC committee meeting was suggested to be hosted during BTAS 2012 and the conference committee can be drawn from the TCs. The VP Publications presented the progress of the newly introduced newsletter and a new page of announcement for the Biometrics Compendium which is to be circulated at forthcoming IJCB, Biometrics UK, BCC, ICB, and other biometrics related meetings. The new features of the council website were introduced. These include new [conference web page](#) to be considered for hosting from the council web site and submission of conference/summer school sponsorship requests to be supported on the council web site. The VP Conferences presented the MoUs signed with several the conferences covering biometrics area which are needed to analyze the federal and federal system integrators participation summary over the last 5 years. The meeting also explored the possibility of introducing a Spring conference on biometrics. The *Editor-in-Chief* of the Biometrics Compendium (Kevin Bowyer) also updated the council on the challenges posed before the newly started compendium and the progress of this first virtual journal of IEEE.

### CONTENTS

EC Proposal	1
Spotlight EDPS	1-3
IJCB 2011	4
AdCom Members	5
Technical Committee	6
Secure Face Recognition	7
Forthcoming Conferences	8
New ExCom Members	9-10
AdCom Meeting	11
New Databases	12

## Biometrics Compendium

IEEE introduces its first virtual journal, the IEEE Biometrics Compendium



- A collection of recently published IEEE Transactions and Conference papers
- Chosen by leading biometrics experts
- Includes biometrics papers from *T-IFS*, *T-PAMI*, *T-IP*, *T-SMC A/B/C*, and more...
- Papers organized into face, fingerprint, iris, fusion, hand, spoofing and more...
- Value-added commentary from technology/area experts
- Produced by IEEE Biometrics Council, published quarterly
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## New Biometrics Databases in Public Domain



Several new biometrics databases have recently been made available in public domain to promote research and evaluation efforts. The databases detailed in the following list are freely and publicly accessible from their respective web links.

### 1. **MOBIO Database**

This database consists of bi-modal (audio and video) data from 152 individuals. This database was acquired at six different sites, in five different countries, during August 2008 to July 2010. The individuals contain both native and non-native English speakers. There are 12 sessions acquired from each individual, with 6 sessions for Phase I and 6 sessions for Phase II. The question types for the data are Short Response Question, Short Response Free Speech, Set Speech, and Free Speech. The data was captured from a NOKIA N93i mobile phone and a standard 2008 MacBook. Only the first session used both mobile and laptop to capture the data. The database can be requested online from the web link <http://www.idiap.ch/dataset/mobio>.

### 2. **Eye Movement Biometrics Database (EMBD) v1**

EMBD.v1 database is a collection of 358 eye movement recordings which are collected from 59 individuals. The datasets consist of the response to both horizontal and vertical step-stimulus and textual stimulus from the individuals. The data was collected in two sessions over the course of a single day, and another recording was collected in four sessions over the course during a single day after one week later. The data was recorded by an Eye Link 1000 eye tracker at the sampling rate of 1000Hz with employing chin rest to stabilize individual's heads. The average calibration error in this database of each recording is 1.1 degrees of the visual angle (SD=1.25), and the average data loss during a recording is 3.59% (SD=0.05%). The database can be requested from [http://www.cs.txstate.edu/~ok11/embd\\_v1.html](http://www.cs.txstate.edu/~ok11/embd_v1.html).

### 3. **Wet and Wrinkled Fingerprint (WWF) Database**

This database consists of 300 fingers that contain 185 visibly wrinkled fingers after immersion. There are total 3600 acquisitions from 30 people. The dataset contains both pressed images and air images with Wet-finger and Dry-finger. The pressed image was captured as a finger which was pressed against the platen, and the air image was a scan of a finger which was just above the platen. Each situation (Dry-Air, Dry-Pressed, Wet-Air and Wet-Pressed) has 3 repeated sampling. Each sampling contains a binary finger print image and a raw RGB image before and after socking with 352 x 544 pixels resolution. The data was captured with a Lumidigm sensor (Venus series). This database is available to download from the web link <http://vision.ucsd.edu/project/wet-and-wrinkled-fingerprint-recognition>.

### 4. **Tsinghua 500PPI Palmprint Database (THUPALMLAB)**

This is the *high-resolution* palmprint database from *Tsinghua University* and contains 1280 palmprint images from 80 subjects (8 impressions per palm from the left and right palm from each subjects). These images are acquired from a commercial palmprint scanner from Hisign. Each of the images have resolution of 500 ppi with 256 grey-levels and are of size 2040 x 2040 pixels. All the images are made available in jpg (\*.jpg) format. This database can now be requested from the URL <http://ivg.au.tsinghua.edu.cn/index.php?n=Data.Tsinghua500ppi>.

### 5. **The HK Polytechnic University FingerVein Image Database Version 1.0**

The Hong Kong Polytechnic University finger image database consists of 6264 *finger vein* and *finger texture* images from the 156 individuals. About 93% of the individuals are less than 30 years old. The data set was acquired in the campus in two sessions. The separation interval of two sessions was between one and six months with the average interval of 66.8 days. In each session, 6 image samples were collected from the subjects' index finger and the middle finger, and each sample has one finger vein image and one finger texture image. A total of 24 images were acquired from each of the subjects in one session. The database images are in bitmap (.bmp) format. The database can be requested from the URL <http://www.comp.polyu.edu.hk/~csajaykr/fvdatabase.htm>.

## CONTENTS

EC Proposal	1
Spotlight EDPS	1-3
IJCB 2011	4
AdCom Members	5
Technical Committee	6
Secure Face Recognition	7
Forthcoming Conferences	8
New ExCom Members	9-10
AdCom Meeting	11
New Databases	12

Please visit IEEE biometrics council website for more details on council activities. We welcome all your comments/suggestions and our mailing address is: [Ajay.Kumar@inet.polyu.edu.hk](mailto:Ajay.Kumar@inet.polyu.edu.hk)