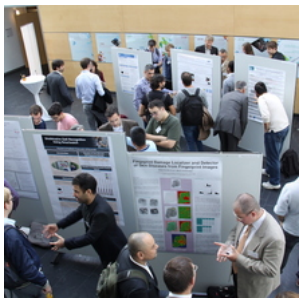
EAB Newsletter August 30, 2019

BIOSIG 2019 – Call for Participation



The technical program for the 18th BIOSIG conference is online. It includes three keynote talks as well as 22 oral and poster presentations that were selected by the program committee. Furthermore academic and industrial showcases are included in the poster exhibition area.

Full story

EAB Research Projects Conference 2019

The 6th edition of the EAB Research Projects Conference will take place on the 16th, 17th and 18th of September 2019, at the premises of Fraunhofer IGD in Darmstadt, Germany.

Full story

EAB Research Award 2019 Finalists

The final of the EAB Research and Industry Award 2019 will take place on September 18 in Darmstadt, Germany. The award ceremony will be at the same premises as the EAB Research Projects conference.

Full story

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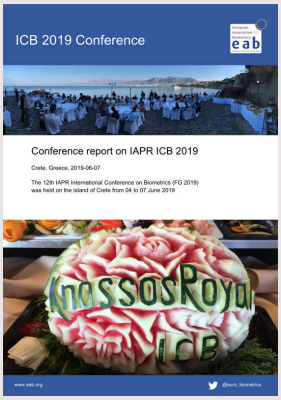
September 19 – 20, 2019: BIOSIG 2019 – 18th International Conference of the Biometrics Special Interest Group

Special reports:



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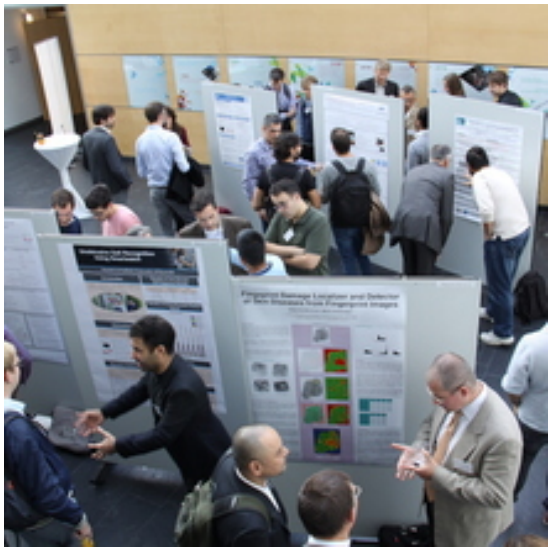
BIOSIG 2019 - Call for Participation



The technical program for the 18th BIOSIG conference is online. It includes three keynote talks as well as 22 oral and poster presentations that were selected by the program committee. Furthermore academic and industrial showcases are included in the poster exhibition area.

BIOSIG 2019 will cover topics on biometric authentication methods ranging from fingerprint and face recognition to behavioral biometrics. Moreover applications such as SmartBorders, ePassports and forensic applications will be addressed and critical factors for large scale systems will be discussed. Also security and privacy of biometrics will be in focus. The relevant techniques in the area of presentation attack detection and template protection are about to supplement biometric systems. Moreover numerous contributions cover deep learning methods.

The BIOSIG 2019 conference will present innovations and best practices that can be transferred into future applications. We invite stakeholders and technical experts to attend the main conference and its co-located satellite workshops.

Keynote Speakers at BIOSIG 2019

The three Keynote Talks are presented by:

- "Operational Biometric Systems and the Need for Future Research"
  Lena Klasen (Swedish Forensic Laboratory)
- "Evolution and Use Cases of Palm Vein Authentication"
  Takashi Shinzaki (Fujitsu Research Laboratory)
- "The Limits and Potentials of Deep Learning for Facial Analysis"
  Walter Scheirer (University of Notre Dame)

Registration for BIOSIG 2019

The details of the conference can be seen at: http://www.biosig.de/biosig-2019/program.html

The registration website for BIOSIG 2019 main conference is open at: https://cast-forum.de/en/workshops/registration/272

EAB Research Projects Conference 2019

The 6th edition of the EAB Research Projects Conference will take place on the 16th, 17th and 18th of September 2019, at the premises of Fraunhofer IGD in Darmstadt, Germany.

The conference is organized by the European Association on Biometrics (EAB) in cooperation with the Joint Research Centre (DG JRC) of the European Commission, through its Cyber and Digital Citizens' security Unit. The EAB-RPC 2019 will be co-located with the EAB Research Award and the IEEE BIOSIG Conference, later that same week.

The conference is currently the largest event on European research in the area of Biometrics and Identity Management, and it is endorsed by Matthias Oel (Director of Directorate B "Migration, Mobility and Innovation" of DG HOME) and by Dan Chirondojan (Director of Directorate E "Space Security and Migration" of DG Joint Research Centre).

Over the previous five successful editions, EAB-RPC has become the main forum in Europe where attendees can simultaneously: promote research carried out in biometrics, forge new links and networks, and identify the appropriate partners for possible future project applications.

This year's edition will feature:

- Presentations by 19 European funded projects in the fields of biometrics, border management and identity management: RHUMBO, TRESPASS-ETN, PRIMA, HUNIQUE, PROTECT, BODEGA, LIGHTEST, SMILE, FOLDOUT, TRESSPASS, SWAN, PYCSEL, STELLAR I-RIS, QUARDCARD, SMART-TRUST, SOTAMD, AMBER, D4FLY, RESPECT.
- Keynote by Andrea De Candido, Acting Head of Unit of Unit B.4 at DG HOME "Unit of Innovation and Industry for Security". The unit is responsible for the security calls in H2020 and the forthcoming Horizon Europe. Mr De Candido will address the priorities of the Commission on this field and the new pillars of Horizon Europe.
- Keynote by Richard Rinkens (DG Home, unit B.3). He will address the difficult topic of interoperability among the large European IT systems with special attention to biometrics.
- A session with life demonstrations of applications developed in the participating projects.
- A round table with 4 panelists coming from different European law-enforcement agencies where all attendees will have the chance to participate on the topic "Operational Needs meet research".

For further information on the conference, a detailed agenda, or to register to the event, please visit the dedicated website: https://www.eab.org/events/program/177

If you would like your European-funded project to participate in the conference please contact the Conference Chair: javier.galbally@ec.europa.eu

EAB Research Award 2019 Finalists

The final of the EAB Research and Industry Award 2019 will take place on September 18 in Darmstadt, Germany. The award ceremony will be at the same premises as the EAB Research Projects conference.

The finalist have been selected by a panel of internationally respected experts and will present the findings of their research projects:

- Tiago de Freitas Pereira (Idiap Research Institute): Learning How To Recognize Faces in Heterogeneous Environments
- Klemen Grm (University of Ljubljana): Face hallucination using cascaded super-resolution and identity priors
- Patrick Schuch (Norwegian University of Science and Technology):
  Learning Neighbourhoods for Fingerprint Indexing

Participation at the event is free of charge, but registration is required. For further details please visit:
https://www.eab.org/events/program/180

This prestigious award is granted annually to individuals, who have made a significant contribution to the field of biometrics research. For information please visit: https://www.eab.org/award/cfp.html

The history of the European Research and Industry Award can be studied in the EAB awards Hall of Fame:
https://www.eab.org/award/hall_of_fame.html

The European Biometric Research and Industry Awards 2019 are kindly sponsored by Idemia and mymarq.

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CEN/TS on Robustness against Biometric Presentation Attacks published

A new Technical Specification (TS) has been published as CEN/TS 17262, which deals with personal identification and robustness of European Automated Border Control against Biometric Presentation Attacks.

While more and more border crossings in Europe are equiped with Automated Border Control (ABC) systems, the potential vulnerability of such systems agains Presentation Attacks (a.k.a spoofing attacks) is a concern. For this reason, techniques for Presentation Attack Detection (PAD) mechanisms are essential. CEN/TS 17262:2018 focusses on them, providing recommendations for the implementation of PAD mechanisms in Europe.

You can read more at: https://www.cencenelec.eu/News/Brief_News/Pages/TN-2019-016.aspx

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EU LISA is launching Framework Contract for EES

The European Agency for the Operational Management of Large-Scale IT Systems in the Area of Freedom, Security and Justice (eu-LISA) has launched the Framework Contract for the implementation and maintenance of the the Entry/Exit System (EES).

The EU LISA agency has launched a contract with the winning tendere, a consortium let by IBM Belgium. This is the beginning of an implementation, which will impact EU border management and internal security.

You can read more at: https://www.eulisa.europa.eu/Newsroom/PressRelease/Pages/New-Information-Architecture.aspx

Prüm starts in the Next Generation

The Focus Groups of DNA, Fingerprints, Vehicle Registration and Facial Recognition have started their work.

Following the entry into force in 2007 of the Treaty of Prüm between the Kingdom of Belgium, the Federal Republic of Germany, the Kingdom of Spain, the French Republic, the Grand Duchy of Luxembourg, the Kingdom of the Netherlands and the Republic of Austria on the stepping up of cross-border cooperation, particularly in combating terrorism, cross-border crime and illegal migration, this initiative is submitted with the aim of incorporating the substance of the provisions of the Prüm Treaty into the legal framework of the European Union as regulated in the EU Council Decisions 2008/615/JHA and 2008/616/JHA.

In accordance with these EU Council Prüm Decisions, the data of DNA, Fingerprints and Vehicle Registration should be exchanged among the police and justice authorities of all EU member states in an automated procedure. In the first DNA data exchange between Austria and Germany in December 2007, more than 1.500 hits have been achieved. A substantial contingent of unsolved cases by the police authorities in both countries have received significant clues and traces leading to further investigations. Although the unsolved criminal cases were more than a few decades ago, the genetic traits have helped the investigators in finding out the criminals who have committed the crimes, especially in rape, homicide and murder cases, and even a few decades ago.

Since the transposition of the Prüm Treaty into the EU legal framework in 2008, almost all EU member states have joined daily operations of data exchange on these three data categories with more or less other EU member states. For the time being, Germany is exchanging DNA data with other 22 EU member states (Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Estonia, Finland, France, Hungary, Latvia, Lithuania, Luxemburg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and UK) in daily operations. It is anticipated, that Germany could start daily operations on DNA data exchange with Italy and Croatia still in this year.

By the end of 2018 the four Focus Groups (DNA, Facial Recognition, Fingerprints and Vehicle Registration) for the Next Generation Prüm have been established under the Austrian EU Presidency with the aim of optimizing daily operations and developing new mechanisms of data exchange in line with the international standards. In order to verify a DNA hit achieved in an automated procedure more effectively, the other biometric features and traits, e.g. fingerprints, may be taken into consideration. The notion of “Multiple Biometrics” may find its significant use in EU data exchange of the next generation of Prüm. The ISO Standardization series of 19794 and 39794 could be served as a reference interchange format among the EU member states. Resource Description Framework (RDF) is a standard model of W3C for data interchange on the Web. RDF has features that facilitate data merging even if the underlying XML Schemas differ, and it specially supports the evolution of XML Schemas over time without requiring all users’ data to be changed. On its merit, RDF extends the linking structure of the Web to use URIs to name the relationship between things as well as the two ends of the link. By using this simple model, it allows structured and semi-structured data to be mixed, exposed and shared across different applications. This linking mechanism forms a directed, labeled graph, where the edges represent the named link between two resources represented by the graph nodes.

Germany chairs the Focus Group of DNA. Austria, the Netherlands and Portugal hold the Chairman’s position respectively for the Focus Group Fingerprints, Vehicle Registration and Facial Recognition. All these four Focus Groups have started their work since April 2019. The voluntary delegates of the member states in the Focus Groups are working on four different Living Documents which will be forwarded to the EU community for approval by all EU member states.

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Call for Book Chapters: AI and Deep Learning in Biometric Security

This book provides an in-depth overview of the recent advancements in the domain of biometric security using artificial intelligence (AI) and deep learning techniques, enabling readers to gain a deeper insight into the technological background of this domain.

The text acts as a platform for decision on the use of advanced architectures of convolutional neural networks, generative adversarial networks, auto encoders, recurrent convolutional neural networks, and graph convolution neural networks for various biometric security tasks such as continuous user authentication, recognition in the wild, spoofing attacks/ liveness detection, quality analysis, cross-sensor matching, domain adaptation. In the domain of biometrics, deep learning techniques have also been explored for the analysis of bio-electric signals such as ECG, EEG, PPG. This book also examines the potential and future trend of AI and Deep learning in biometric template protection schemes. The edited book aims to provide better readability to readers through its chapter organization.

Read more: https://sites.google.com/view/adbs2019/

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Camvi ranked #1 in NIST face recognition test

Camvi Technologies announced that its face recognition technology was ranked #1 in accuracy in the most recent FRVT conducted by NIST

In the FRVT report released by NIST on July 31, 2019, Camvi's advanced face recognition algorithm was ranked #1 as the most accurate algorithm for Mugshot Photos among 139 algorithms submitted by 88 companies around the world.

The Mugshot Photos dataset used in the NIST FRVT comprises millions of live capture mugshots from millions of subjects in the United States. It is one of the largest datasets tested in the NIST FRVT, which involved face images of the same subjects, taken 14 years apart. Face recognition accuracy over time, specifically spanning 10 years or more, is one of the most challenging scenarios for face identification systems today. "We are very pleased that our advanced face recognition technology was once again recognized by NIST as a top-ranking technology," said John Chen, President and Chief Executive Officer of Camvi Technologies Inc. "In the latest FRVT, our algorithm was ranked #1 in accuracy for Mugshot Photos. Camvi was also ranked #1 in accuracy for Wild Photos in the FRVT report and set the world record in LFW earlier this year. Our dexterity with recognition algorithms ensures that Camvi's solutions are the most effective in a wide range of industry applications."

Camvi, an industry leader in the U.S. and worldwide, is growing rapidly as its comprehensive technology platform is being adopted by both government agencies and commercial enterprises. Camvi's customers benefit from the unparalleled accuracy, speed and scalability of Camvi's state-of-the-art, patent-pending face and object recognition technology.

See also: http://www.planetbiometrics.com/article-details/i/10388/desc/camvi-ranked-1-in-nist-face-recognition-test/

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Financial Transaktions, PSD2 and Biometrics

The new EU Payment Service Directive (PSD2) shall make financial transactions more secure and enables biometrics as authentication mechanism.

In this context the Paysafe study *Lost in Transaction: Payment Trends 2018* is of interest. It reports about consumer habits, specifically smartphone payments and the fraud situation. Further frictionless security and privacy worries of consumers are discussed.

See also: https://www.paysafe.com/lostintransaction/

You can download the study at: https://www.paysafe.com/fileadmin/content/pdf/Lost_in_Transaction_2018_-_Paysafe_-_web_spreads.pdf

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Australian Scientist improved Face Recognition

Members of the Australian Government Department of Defense's Science and Technolog (DST) presented an enhanced face recognition algorithm.

The research conducted by Sau Yee Yiu and Dmitri Kamenetsky is focused on face recognition in adverse environments like long distances (approx. 250m) and really dark situations (e.g. moonlight).

You can read more at: https://www.dst.defence.gov.au/news/2019/07/15/improved-vision-facial-recognition

and the paper at: https://ieeexplore.ieee.org/document/8615793

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JRC Report on DNA Profiling Published

The EU Joint Research Centre (JRC) has published its study on Study on DNA Profiling Technology for its Implementation in the Central Schengen Information System (SIS).

In 2018, Regulation (EU) 2018/1862 added the possibility to introduce DNA profiles in alerts related to missing persons, in the Schengen Information System (SIS), in order to contribute to their identification. The present report describes the state-of-the-art for the generation and use of DNA profiles for individualisation purposes. The objective is to inform on the type of data that compose a DNA profile, and to propose ways to evaluate its quality.

The report starts with an overview of the different types of DNA markers that are currently used in DNA-based forensics procedures, and a description of the processes involved in the generation and use of DNA profiles. It then provides an overview of important working groups and organisations that are active in establishing standards and best practices in the field, and examples of existing databases developed for the identification of missing persons. The practices and experiences of exchanging DNA profiles between Member States in the context of the Prüm Regulation are also discussed, highlighting the instances where the lessons learnt could be relevant for the SIS. The report concludes with an overview of the different levels of quality checks that can be performed on DNA profiles prior to their insertion in a database.

You can access the report at: http://publications.jrc.ec.europa.eu/repository/handle/JRC116742

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Computational Workload in Biometric Identification Systems: An Overview

Open access article published by researchers from Hochschule Darmstadt

CRISP scientists (P. Drozdowski, C. Rathgeb, C. Busch) from Hochschule Darmstadt investigated the topic of efficient biometric identification from both the academic and industry perspective.

The work was conducted in the context of LOEWE-3 sponsored project BioBiDa -- Biometrics and Big Data and resulted in an article entitled "Computational Workload in Biometric Identification Systems: An Overview" being published with an *open access license* in the IET Biometrics journal. The article can be freely accessed by following this link.

The article provides a comprehensive overview of methods for efficient biometric identification irrespective of the chosen biometric characteristic. Accordingly, its contributions are threefold:

- A taxonomy, which conceptually categorises the computational workload reduction methods in biometric identification.
- A comprehensive survey of the existing methods reported in the scientific literature and organised by the relevant high-level concepts from the aforementioned taxonomy.
- A diversified discussion pertaining to relevant technical and practical considerations and trade-offs, an industry perspective, and open research issues/challenges.

Abstract: Computational workload is one of the key challenges in biometric identification systems. The naïve retrieval method based on an exhaustive search becomes impractical with the growth of the number of the enrolled data subjects. Consequently, in recent years, many methods with the aim of reducing or optimising the computational workload, and thereby speeding-up the identification transactions, in biometric identification systems have been developed. In this article, a taxonomy for conceptual categorisation of such methods is presented, followed by a comprehensive survey of the relevant academic publications, including computational workload reduction and software/hardware-based acceleration. Lastly, the pertinent technical considerations and trade-offs of the surveyed methods are discussed, along with an industry perspective, and open issues/challenges in the field.

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Open access article published by researchers from EURECOM

EURECOM scientists (C. Gald, V. Chiesa and J.-L. Dugelay) have published with their international co-authors a survey article on the benefits of Light Fields for face recognition.

The article provides a comprehensive overview of the plenoptic function in light-field-capturing devices, which are rapidly evolving. Existing image-processing techniques need to be revisited to match the richer information provided. This article explores the use of Light Fields for face analysis.

This field of research is very recent but already includes several works reporting promising results. Such works deal with the main steps of face analysis and include but are not limited to: face recognition; face presentation attack detection; facial soft-biometrics classification; and facial landmark detection. This article aims to review the state of the art on light fields for face analysis, identifying future challenges and possible applications.

The article can be freely accessed at: https://www.mdpi.com/1424-8220/19/12/2687/pdf

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EU Regulation on Mandatory Biometric Data in ID Cards

The European Commission has published the new Regulation 2019/1157 on ID cards. This Regulation strengthens the security standards applicable to identity cards issued by Member States to their nationals and to residence documents issued by Member States to Union citizens.

New ID cards shall include face and fingerprint images as biometric reference data. However this Regulation does not require Member States to introduce identity cards or residence documents where they are not provided for under national law.

Considerable differences exist currently between the security levels of national identity cards issued by Member States and residence permits for Union nationals residing in another Member State and their family members. Those differences increase the risk of falsification and document fraud and also give rise to practical difficulties for citizens when they wish to exercise their right of free movement.

Security features are necessary to verify if a document is authentic and to establish the identity of a person. The establishment of minimum security standards and the integration of biometric data in identity cards are important steps in rendering their use in the Union more secure.

Identity cards shall include a highly secure storage medium which shall contain a facial image of the holder of the card and two fingerprints in interoperable digital formats. Children under the age of 12 years may be exempt from the requirement to give fingerprints. Children under the age of 6 years shall be exempt from the requirement to give fingerprints.

You can find the Regulation (EU) 2019/1157 at:
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32019R1157

