FRONTEX has been gathering over 200 participants in a 2-Day conference with morphing as its main theme.

The 10th International Conference on Biometrics: Theory, Applications and Systems (BTAS) was held on the Tampa, Florida from 23 to 26 September 2019.

The 6th edition of the EAB Research Projects Conference (EAB-RPC) took place on the 16, 17, and 18 September 2019 at the premises of Fraunhofer IGD in Darmstadt, Germany.

Frontex Conference on Biometrics for Borders

BTAS Conference Report

EAB Research Projects Conference 2019

Table of contents

Frontex Conference on Biometrics for Borders
BTAS Conference Report
EAB Research Projects Conference 2019
Workshop on Biometrics and Forensics (IWBF 2020)
FaceTec launches first biometric bounty program for liveness detection spoofing
Report on the ICAO Workshop on Passenger Data Exchange
EDPB Guidelines on Processing of personal Data
Google Pixel 4 Face Unlock
Face Hallucination Models made available
Fujitsu Develops AI based Facial Expression Recognition Technology
Human Signatures Research
Face Recognition Program in France
Springer book on Selfie Biometrics
New Lecture Recordings are Available for EAB Members
EAB Biometric Training – We need your input!
Monitoring Bachelor, Master and PhD Theses
Monitoring Open Source Activities
BIOSIG 2019 – Conference Report
EAB Awards 2019
NIST Draft Report on FRVT MORPH
NIST publishes report on 1:N track of FRVT
Consultation on Advanced Passenger Data

Next events:

November 20, 2019: Biometric Summit London 2019
December 10, 2019: German TeleTrusT Biometrics Working Group
May 7, 2020: Norsk Biometri Forum Meeting
September 14 – 16, 2020: EAB Research Projects Conference (EAB-RPC) 2020
September 14, 2020: German TeleTrusT Biometrics Working Group

Special reports:

EAB Newsletter October 30, 2019

© 2012-2019 European Association for Biometrics, Editors: Christian Rathgeb, Javier Calbally, Georg Hasse and Christoph Busch. Contact
Frontex Conference on Biometrics for Borders
Morphing and Morphing Attack Detection Methods, Warsaw, October 8–10, 2019

FRONTEX has been gathering over 200 participants in a 2–Day conference with morphing as its main theme.

The event was bracketed by two panels and included four thematic sessions totaling 26 speakers, and was launched by Mr. Javier Quesada, FRONTEX’s Head of Unit, Research and Innovation. High ranked executives from FRONTEX and the EU opened the event, namely Mr. Fabrice Leggeri, Executive Director of FRONTEX, the European Border and Coastal Guard Agency, and Mr. Olivier Onidi, Deputy Director–General, Directorate–General for Migration and Home Affairs of the European Commission.

EAB members did actively participate as panelists as well as speakers during the 2–day event.

The first panel reviewed “Biometrics for Border control and the Role of Frontex”. The 4 subsequent thematic sessions included:

- The challenges of morphing for border control,
- National approaches to prevent and detect morphing,
- Ongoing research in the area of morphing and morphing attack detection methods,
- The application of biometric technologies at our Borders: an industry perspective.

The closing panel concluded to “the way ahead for borders and biometrics”.

It is noteworthy that EAB members were invited to take part in both panels, and actively participated via their own academia presentations in three out of four thematic sessions.

Main takeaways

Based on various speaker presentations, there seems to be a strong consensus on sharing resources and intensify European as well as transcontinental links. It includes associating, for example, achievements via NIST controlled ongoing measurements and performance verifications of most recent morphing algorithms with large-scale public data bases made available to European academia to train DNNs to specific morphing detection use cases.

Recognizing the two focal points where MAN/PAD has to apply, namely during MRTD enrolment (single image “cleanness” verification) and border clearance MRTD ID check (1:1 dual image verification), work in progress evidences a number of different modelling approaches to MAD/PAD.

It is worth noting that a focused effort towards this threat mitigation was funded by the EU as a specific consortium named SOTAMD (State–of–the–Art Morphing Detection) in which several EAB members from the academia do actively participate in a joint effort with the Dutch National Office for Identity Data (NOI) and the German BKA.

Further Reading

You can read more about the conference at: https://frontex.europa.eu/media-centre/news-release/frontex-hosts-conference-on-biometrics-in-waraw-889K4E

You can read more about the morphing and morphing attack detection at: https://www.christoph–busch.de/projects-mad.html
BTAS Conference Report

The 10th International Conference on Biometrics: Theory, Applications and Systems (BTAS) was held on the Tampa, Florida from 23 to 26 September 2019.

BTAS 2019 was co-located with the FedID, the U.S. federal government’s primary outreach and collaboration-building event in the worldwide identity community since 1995. The conference also included a special session on generalizability and adaptability problems in biometrics.

You can read the full conference report at:

EAB Research Projects Conference 2019

The 6th edition of the EAB Research Projects Conference (EAB–RPC) took place on the 16, 17, and 18 September 2019 at the premises of Fraunhofer IGD in Darmstadt, Germany.

The conference was organized by the European Association of Biometrics (EAB) in cooperation with the Joint Research Centre (DG JRC) of the European Commission, through its Cyber and Digital Citizens’ security Unit.

This year’s edition featured presentations by 19 European funded projects in the fields of biometrics, border management and identity management: RHUMBO, TReSPAsS (ITN), PriMa, H–Unique, PROTECT, BODEGA, LIGHTest, SMILE, FOLDOUT, TRESSPASS, SWAN, PYCSEL, Stellar i–ris, QUARDCARD, SpeechXRays, SOTAMD, AMBER, PERSONA, D4FLY, RESPECT.

You can find the EAB–RPC conference report here:
http://z.eab.org/RPC19report

Photos from the conference are available here:
https://cloud.zeitform.de/s/kPLC3bCUYeDo3K

For information on EAB–RPC 2020 please visit: https://www.eab.org/events/program/195
Workshop on Biometrics and Forensics (IWBF 2020)

The 8th International Workshop on Biometrics and Forensics (IWBF 2020), jointly organized by INESC TEC and NTNU, will take place on April 29 and 30, in Porto, Portugal.

IWBF 2020 will be co–organized by EAB and is an international forum devoted to facilitating synergies in research and development among the areas of multimedia forensics, forensic biometrics, and forensic science. This workshop provides the meeting place for those concerned with the use of advanced biometric technologies in forensic applications, attracting participants from industry, research, academia, and end–users.

CfP Submission deadline: January 10th. You can read more about the workshop and the CfP at: https://vcmi.inesctec.pt/iwbf_2020/index.html

FaceTec launches first biometric bounty program for liveness detection spoofing

FaceTec has launched a liveness detection spoof bounty program with a total of $30,000 possible payouts

Ethical hackers will test the company’s ZoOm 3D Liveness Detection and its NIST–iBeta Certified Anti–spoofing AI to detect unknown vulnerabilities and boost the system’s security.

FaceTec claims its product is the only biometric certified to Levels 1 and 2 in iBeta Presentation Attack Detection (PAD) testing guided by the ISO 30107–3 standard. FaceTec has spent five years on developing ZoOm’s proprietary AI that has been trained to distinguish digital and physical spoof artifacts, including hi–res photos and videos, life–like masks, and mannequin heads, which used to be roadblocks for the system in the past. Bug bounty programs have grown in popularity, yet this is the first time such a project targets biometrics, according to the announcement. To participate in the program, follow the link. Spoof artifact categories have three levels of complexity based on the NIST PAD testing criteria, each with a matching bounty payout. Read more: https://www.biometricupdate.com/201910/facetec-launches-first-biometric-bounty-program-for-liveness-detection-spoofing
Report on the ICAO Workshop on Passenger Data Exchange

The ICAO Technical workshop on “Passenger Data Exchange” (API & PNR) & Implementation and Capacity Building Working Group Meeting, TAG/TRIP ICBWG, took place in Tunis, October 14–18, 2019.

A sustained ICAO effort to reach out to its Africa’s Member States to promote a secure, interoperable approach to ID management during border clearance

EAB has been invited to participate in the most recent Tunis edition of the regional ICAO seminar held in Tunis. During 4 days the ICAO’s ICBWG (Implementation and Capacity Building Working Group), composed of a mixed team of Government Agencies, Air Transportation stakeholders and MRTD ISO experts met interactively with 60 delegates from 11 African countries: Algeria, Chad, Egypt, Libya, Mali, Mauritania, Morocco, Niger, Nigeria, Senegal, and Tunisia.

The workshop’s goal was to review their current practices in terms of implementing Advanced Passenger information (APIs) and PNR (Passenger Name Record), which are the foundation of mitigating the risk by a receiving country to welcome a traveller prior to his embarking into a trans-border flight. The meeting included both frontal presentations and several breakout sessions, where delegates were tasked to interactively analyse and review several real uses cases, including their own operational environment.

A specific review of threats associated with data collection ad usage (e.g. image capture, and especially morphing) was part of the technical topics covered.

API & PNR-related challenges and opportunities

An advanced session detailing the introduction of an API program in the workshop countries was held, with itemized Q&As relevant to each MS represented. Delegates did endorse the straight benefit of an API program to empower a remote border inspection by the receiving country already at the outbound (origin) airport, since the API data essentially contains the traveller’s passport biographic data page.

A few of the countries represented already had an API program in place, or about to be launched.

As far as PNR is concerned, however, delegates learned about the content of the reservation data set collected by (electronic) travel distribution agencies (a.k.a. GDSs). They were sensitized to the large complexity added by implementing a PNR analysis program to risk-assess a given traveller. First, the program would be country-specific. Moreover, the PNR data’s ownership, content, and extent of downstream usage (i.e. the potential use of Big Data, strictly restricted today to forensics terrorism-linked investigations) is still in intense legal discussions among the countries’ various stakeholders around ICAO, as far as privacy limits of the stored data, retention time, and overall legislation is concerned.

To illustrate the difference in scale, cost and complexity, only 29 countries of the 78 areas with an API program (67 countries plus 11 territories) currently also run an operational PNR program (source IATA).

Addressing the ID spoofing and morphing issue: toward better (and safer) business practices

In line with the process improvements reviewed during the workshop, EAB’s CEO was tasked to provide a basic introduction about the emerging threat related to presentation attacks and morphing in particular, as a by-product of the last 10 years’ progresses in Face Recognition.

Without going into details, reference was made to the original Bologna 2014 report illustrating the onset of the concerted international effort leading now to the status reviewed during the last Warsaw FRONTEX conference. A basic description of the types of attacks was provided.

Delegates were repeatedly informed about the strong interest to prepare (or modify) their official process to prepare for MRTD production, by only accepting images after live enrolment capture at the official registration station.

The reader may be able to find a compendium of presentations available about the Tunis workshop directly from the ICAO Website.
EDPB Guidelines on Processing of personal Data

Back in July 2019 the European Data Protection Board (EDPB) has published guidelines on processing of personal data through video devices.

These guidelines discuss the compliance of video surveillance and face recognition under the GDPR.

You can read the guidelines at: https://edpb.europa.eu/sites/edpb/files/consultation/edpb_guidelines_201903_videosurveillance.pdf

A discussion of these guidelines was presented at the NBF meeting on October 17th. See: https://www.eab.org/upload/documents/1758/Arnes-Datatilsynet-191017.pdf

See also the revised and more strict guidelines of the Danish supervisory authority (SA) on the publishing of images on which individuals can be identified. The SA no longer makes a distinction between situational images for which it required previously no prior consent and portrait pictures for which prior consent was needed. Data controllers shall now assess and motivate the publication of the picture(s) on which individuals can be identified.

Google Pixel 4 Face Unlock

BBC reports about the Pixel 4 smartphone unlock by face recognition and the fact that the access control works with closed eyes.

According to the BBC report the phone can be unlocked also, when the user pretends to be sleeping.

You can read more at: https://www.bbc.com/news/technology-50085630

Face Hallucination Models made available

Publicly available source code

To facilitate fast and reproducible research in the area of face hallucination, researchers from the University of Ljubljana made available a collection of face hallucination models.

Face hallucination represents the task of recovering high-resolution face images from corresponding low-resolution inputs. Considerable progress has been made in this area over the last few years owing mainly to progress and developments in the area of deep learning and convolutional neural networks (CNNs). While new and more powerful face hallucination models are being developed at an increasing pace, researchers still spend a tremendous amount of time reproducing previously published results and reimplementing existing models instead of focusing on the development of new ideas and concepts that would help advance the field.

To facilitate fast and reproducible research in the area of face hallucination, researchers from the University of Ljubljana and the University of Notre Dame made available a collection (source code and weights) of trained state-of-the-art face hallucination models. The models were trained on the CASIA WebFace (>400k images) for the challenging tasks of...
upsampling tiny input images of 24x24 pixels by a factor of 8x and are free to use for research purposes. The collection of freely available models includes:

- The Cascaded Super-Resolution with Identity Priors approach (C-SRIP) [1]
- The Deep Laplacian Pyramid Network (LapSRN) [2]
- The Cascading Residual Network (CARN) [3]
- The Perceptual Loss based approach (lp) [4]
- The Ultra-Resolving approach relying on Discriminative Generative Networks (URDGN) [5]
- The Super-Identity Convolutional Neural Network (SICNN) [6]
- The Enhanced Deep residual network for Super Resolution (EDSR) [7]
- The Very Seep convolutional Super-Resolution network (VDSR) [8]
- The Super-Resolution Generative Adversarial Network (SRGAN) [9]
- The deep Convolutional Network for image Super-Resolution (SRCNN) [10]

The models are available from: https://lmi.fe.uni-lj.si/en/research/fh/

References:


Fujitsu Develops AI based Facial Expression Recognition Technology

Fujitsu Laboratories, Ltd. and Fujitsu Laboratories of America, Inc. today announced the development of an AI facial expression recognition technology that detects subtle changes in facial expression with a high degree of accuracy.

The new technology was developed in collaboration with Carnegie Mellon University School of Computer Science. One of the obstacles for facial expression recognition technology is the difficulty in providing large amounts of data required to train detection models for each facial pose, because faces are usually captured with a wide variety of poses in real-world applications. To address the problem, Fujitsu has developed a technology to adapt different normalization process for each facial image. For example, when the angle of the subject's face is oblique, the technology can adjust the image to more closely resemble the frontal image of the face, allowing the detection model to be trained with a relatively small amount of data. The technology can accurately detect subtle emotional changes, including uncomfortable or nervous laughter, confusion, etc.—even when the subject's face is moving in a real-world context. Fujitsu anticipates that the new technology will find use in a variety of real-world applications, including communication facilitation for employee engagement and to improve workplace safety for drivers and factory workers. Read more: https://www.fujitsu.com/global/about/resources/news/press-releases/2019/1015-01.html

Human Signatures Research

Biometrics updates reports about research into human signatures that is conducted to meet the goals of the US Air Force.

The research is conducted for the purpose of developing technologies that can sense and exploit human bio-signatures at both the molecular- and macro-level.

You can read the full article at: https://www.biometricupdate.com/201910/us-air-force-developing-human-molecular-biosignature-sensors-and-more

Face Recognition Program in France

A new nationwide face recognition program will be launched soon in France with the intention to create legal digital identities for citizens.

The new program is called Certified online Authentification on Mobile (Alicem) and was developed to simplify the access to online services, support the fight against identity theft, and protecting biometric data on the phone.

You can read more at: https://nakedsecurity.sophos.com/2019/10/08/nationwide-facial-recognition-program-underway-in-france/
EAB Biometric News, October 30, 2019

**Springer book on Selfie Biometrics**


---

EAB Biometric News, October 30, 2019

**New Lecture Recordings are Available for EAB Members**

In order to increase the value of the EAB membership, the set of recorded biometric keynote talks is growing on the EAB website. Selected keynote talks were recorded over 2019 and are now available for EAB members exclusively. The list of keynotes includes:

- Walter Scheirer: "The Limits and Potentials of Deep Learning for Facial Analysis"
- Richard Rinkens: "Implication of the Interoperability Regulations"
- Alice J. O'Toole: "Turning a face recognition black box white"
- Julien Bringer: "Blockchain Standards in ISO TC 307"
- John Callahan: "Blockchain and Biometric Identity Management"

You can view those lectures at: [https://www.eab.org/events/lectures.htm](https://www.eab.org/events/lectures.htm)

---

EAB Biometric News, October 30, 2019

**EAB Biometric Training – We need your input!**

At the recent EAB General Assembly in Darmstadt held on the 17th September 2019, the Association committed itself to exploring the development and support of biometric training initiatives. Across the stakeholders represented at the Assembly, there was evidence to support the development of training programmes on biometric systems and technologies that may be i) delivered both to end-users and students, ii) that may include both advanced and introductory-level material iii) across a range of subjects (including, but certainly not limited to, technical, legal, ethics, practical usage and testing issues).

Our initial ideas relate to Training Schools. At this stage we need input from EAB members at two levels:

1. A group of people to define a framework for training events – this may look at novel opportunities to complement existing biometric training programmes. We foresee that this group will meet electronically almost once a month with the initial aim of defining the platform for the first pilot event by the end of the year. Work will also continue into the New Year monitoring the progress of the initiative.
2. The wider EAB membership can provide inputs as to i) what are the training requirements of the community that you represent (and at what level); ii) what training you may be able to provide; iii) what kind of financial support you believe can be provided to ensure the sustainability of training initiatives. We are particularly interested in hearing also from end-users of biometric systems to your training requirements to match the training events to EAB expertise.

We are looking to act quite quickly on this so I’d be grateful if you could provide your inputs by sending an email to r.m.guest@kent.ac.uk by Friday, 11th October 2019.
EAB Biometric News, October 30, 2019

**Monitoring Bachelor, Master and PhD Theses**

**Call for Contributions**

During the EAB general assembly it was proposed to compose an annual academic graduation monitoring report, which should provide information about academic theses that are completed in EAB member institutions.

Such report will be composed early January 2020 and will contain Bachelor-, Master- or PhD-theses. Please contribute to this report and submit the work of your students in the following format

- Name of the student (optional with photo)
- Title of the thesis
- Level (Bachelor, Master, PhD)
- Institution
- Supervisor
- Contact email
- Abstract

We kindly ask for your support and participation of this initiative and to submit your contribution by 15th December 2019.

Please contact Christoph Busch at email: christoph.busch@eab.org

---

EAB Biometric News, October 30, 2019

**Monitoring Open Source Activities**

**Call for Participation**

During the EAB General Assembly it was proposed to start an EAB team in order to monitor Open Source activities, which are of relevance for industry and academia.

This initiative was proposed in order to improve the benefit of an EAB membership. For this reason we will re-activate the Industry Special Interest Group (or establish a new group) that is tasked to monitor Open Source activities.

As we all know, Open Source Software is empowered by the community and delivers transparent and reliable algorithms for research and industries. If you look at your toolbox, you will realize that you are using already open source in the one or the other form. GitHub, as one of the most common platforms, contains currently approx. 2500 projects, which are tagged with the keyword biometrics.

Have you ever been able to follow up with the community? For this simple reason, we like to establish a special interest group in EAB, which will monitor Open Source repositories and will provide a content list of Open Source projects, which are known to be useful for the field of biometrics.

We kindly ask for your support and participation in this special interest group to keep track on interesting biometric open source projects. The collected data will be presented at a closed section of the EAB website, only accessible for members.

Please contact Ralph Lessmann at email: ralph.lessmann@crossmatch.com
BIOSIG 2019 – Conference Report

The 18th edition of the International Conference of the Biometrics Special Interest Group (BIOSIG) from September 18 to 20, 2019 and attracted 84 registered participants.

The program was composed of scientific research contributions and three keynote talks.

You can read the conference report at: http://z.eab.org/BIOSIG2019-report

The 2019 BIOSIG conference was jointly organized by the EAB, the Competence Center for Applied Security Technology (CAST) and the special interest group BIOSIG of the Gesellschaft für Informatik e.V. (GI).

The conference was technically co-sponsored by IEEE Biometric Council and the papers will be added to IEEE Xplore.

Next year the BIOSIG conference will take place between September 16 to 18, 2020 in Darmstadt, Germany. See: www.biosig.org

EAB Awards 2019

In 2019 for the first time the EAB Max Snijder Award was announced in memory of the EAB founder and managing director. The Max Snijder Award is granted to a researcher, who through his work expressed a wider perspective to get a broader picture on biometric applications.

The very first winner of this award is Dr Klemen Grm from the University of Ljubljana (Slovenia), who presented his PhD thesis Super-resolution for automated face recognition from low-resolution imagery.

This year the European Biometrics Industry Award goes to Dr Patrick Schuch from the Norwegian University of Science and Technology (Gjøvik)/Dermalog (Hamburg) for the thesis titled Deep Learning for Fingerprint Recognition Systems.

The European Biometrics Research Award 2019 was granted to Tiago de Freitas Pereira from Idiap (Martigny)/EPFL (Lausanne) for his PhD-thesis Learning How to Recognize Faces in Heterogeneous Environments.

The European Biometric Research and Industry Awards 2019 were kindly sponsored by IDEMIA and mymarq.

You can read more about the awards at: https://www.eab.org/award/reports/report2019.html

For the history of the EAB awards and more details about the winners, please visit: https://www.eab.org/award/hall_of_fame.html
NIST Draft Report on FRVT MORPH

The first draft FRVT MORPH report is now available for public comment.


NIST is seeking feedback and comments to frvt@nist.gov by October 31, 2019.

NIST publishes report on 1:N track of FRVT

NIST Interagency Report 8271 documents accuracy of one-to-many search algorithms submitted to NIST in late 2018.

The 1:N track of FRVT resumed in June 2019 – developers may submit algorithms at any time but only if they have first submitted an algorithm with sufficient accuracy in the 1:1 track of FRVT. The IR 8271 is available at: https://www.nist.gov/sites/default/files/documents/2019/09/11/nistir_8271_20190911.pdf

An update to NISTIR 8271 can be expected in late October 2019. This will include results for algorithms submitted since June 2019.

Consultation on Advanced Passenger Data

The EU has started a consultation process to hear the views from all citizens, as well as non–government, public or private organisations/entities with an interest on the obligation of carriers to communicate passenger data (advance passenger data or API).

The Council Directive 2004/82/EC of 29 April 2004 regulates the collection and transmission of API data. API data is information on passengers (usually contained in travel documents like passports and identity cards) collected by air carriers during check-in and transmitted by these carriers after check-in closure to the border control authorities of the country of destination.

The consultation process is open until December 3rd. You can read more at: https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-5803367/public-consultation_en
Voice Presentation Attack without Detection

An insurance company has reported a major fraud incident based on a voice-imitation software, which was used in a CEO fraud attack.

The imitation software based on deep learning methods successfully learned to imitate a person's voice including the individual speech melody and the country-specific accent. In the specific case it was reported, the fake CEO instructed a British sub-company to transfer the amount of 220,000 EURO to an account in Hungary.

In general it is reported that despite the relatively high level of awareness of the fraud scam, the number of cases has been at a relatively high level for years. However, the amounts of damage have increased significantly in recent years.

You can read more details (in German) at:

https://www.eulerhermes.de/presse/neue-betrugsmasche-fake-president-mit-stimmimitation.html