2021 International Joint Conference on Biometrics (IJCB 2021)

Event Schedule

Wed, Aug 04, 2021

9:00am

Tutorial: Trustworthy biometrics

🕘 9:00am - 12:00pm, Aug 4

📍 Online

`Tutorials`

Abstract: With the wide application of biometrics systems and person analysis systems, it is becoming more and more important to ensure their trustworthiness. Untrustable biometrics systems can cause serious ethics and security problems, some of which are newly emerging and quickly gaining tremendous attentions. To name a few, facial recognition and analysis methods may be subject to bias and uncertainty, biometrics systems can be failed under adversarial attacks, imagery of people can maliciously tamper, and recently Deepfakes pose a serious problem against media trustworthiness. In this tutorial, we give a selected coverage on these issues, featuring detailed introduction on the causes, treatments, and prospects of these problems. We believe that this tutorial is of interest to a substantial part of the IJCB 2020 audience.

Prerequisites: The tutorial requires basic knowledge in graduate-level pattern recognition and computer vision. Specifically, the audience should know basic concepts in facial analysis, deep learning, and optimization. We think almost all participants of IJCB have the prerequisite knowledge.

Tutorials session topics:

Session 1: *Fairness Problems in Face Recognition*

Presented by: Prof. Weihong Deng
Estimated duration: 45 mins

Associated literature:

[1] Mitigating Bias in Face Recognition using Skewness-Aware Reinforcement Learning, Mei Wang, Weihong Deng, CVPR 2020

[2] Racial Faces in-the-Wild: Reducing Racial Bias by Information Maximization Adaptation Network, Mei Wang, Weihong Deng, et al., ICCV 2019.

[3] A Deeper Look at Facial Expression Dataset Bias, S Li, W Deng, IEEE Transactions on Affective Computing 2020

[4] Deep Face Recognition: A survey, Mei Wang, Weihong Deng, Neurocomputing, 2021 [5] Deep Face Expression Recognition: A Survey, Shan Li, Weihong Deng, IEEE Transactions on Affective Computing 2020

Session 2: *Security of Deep Learning: Adversarial attacks and Defenses*

Presented by: Prof. Baoyuan Wu
Estimated duration: 45 mins

Associated literature:

[1] Efficient Decision-based Black-box Adversarial Attacks on Face Recognition, Yinpeng Dong, Hang Su, Baoyuan Wu, Zhifeng Li, Wei Liu, Tong Zhang and Jun Zhu, CVPR 2019

[2] Boosting Decision-based Black-box Adversarial Attacks with Random Sign Flip, Weilun Chen, Zhaoxiang Zhang, Xiaolin Hu, Baoyuan Wu, ECCV 2020.

[3] Sparse Adversarial Attack via Perturbation Factorization, Yanbo Fan*, Baoyuan Wu*, Tuanhui Li, Yong Zhang, Mingyang Li, Zhifeng Li, Yujiu Yang, ECCV 2020.

[4] Backdoor Attack with Sample-Specific Triggers. Yuezun Li , Yiming Li, Baoyuan Wu, Longkang Li, Ran He, Siwei Lyu. Arxiv 2021.

[5] Targeted Attack against Deep Neural Networks via Flipping Limited Weight Bits. Jiawang Bai, Baoyuan Wu, Yong Zhang, Yiming Li, Zhifeng Li, Shutao Xia. ICLR 2021.

[6] TediGAN: Text-Guided Diverse Face Image Generation and Manipulation, Weihao Xia, Yujiu Yang,

Jing-Hao Xue, Baoyuan Wu, CVPR 2021. [7] Prototype-supervised Adversarial Network for Targeted Attack of Deep Hashing. Xunguang Wang, Zheng Zhang, Baoyuan Wu, Fumin Shen, Guangming Lu. CVPR 2021.

Session 3: *Person-Centric Image and Video Forensics*

Presented by: Prof. Jing Dong
Estimated duration: 45 mins

Associated literature:

[1] "Optimized 3D Lighting Environment Estimation for Image Forgery Detection," Bo Peng, Wei Wang, Jing Dong and Tieniu Tan, IEEE Transactions on Information Forensics and Security, vol. 12, no. 2, pp. 479-494, Feb. 2017.

[2] "Image Forensics Based on Planar Contact Constraints of 3D Objects," Bo Peng, Wei Wang, Jing Dong and Tieniu Tan, IEEE Transactions on Information Forensics and Security, vol. 13, no. 2, pp. 377-392, Feb. 2018.

[3] Position Determines Perspective: Investigating Perspective Distortion for Image Forensics of Faces, Bo Peng, Wei Wang, Jing Dong and Tieniu Tan, CVPR 2017 Media Forensics Workshop

[4] "Robust Face-Swap Detection Based on 3D Facial Shape Information", Weinan Guan, Wei Wang, Jing Dong, Bo Peng, Tieniu Tan, arXiv, 2021

[5] MUST-GAN: Multi-level Statistics Transfer for Self-driven Person Image Generation, Tianxiang Ma, Bo Peng, Wei Wang, Jing Dong, CVPR2021. [6] Exploring Adversarial Fake Images on Face Manifold, Dongze Li, Wei Wang , Hongxing Fan, Jing Dong, CVPR2021.

Session 4: *Detecting AI-synthesized Faces*

Presented by: Dr. Yuezun Li
Estimated duration: 45 mins

Associated literature:

[1] DeepFake-o-meter: An Open Platform for DeepFake Detection, Yuezun Li,Cong Zhang, Pu Sun, Lipeng Ke, Yan Ju, Honggang Qi and Siwei Lyu. Systematic Approaches to Digital Forensic Engineering, in conjunction with the IEEE Security and Privacy Smposium, 2021.

[2] Exposing GAN-generated Faces Using Inconsistent Corneal Specular Highlights, Shu Hu, Yuezun Li and Siwei Lyu. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2021.

[3] Landmark Breaker: Obstructing DeepFake By Disturbing Landmark Extraction, Pu Sun*, Yuezun Li*, Honggang Qi and Siwei Lyu. IEEE International Workshop on Information Forensics and Security (WIFS), 2020.

[4] Celeb-DF: A Large-scale Challenging Dataset for DeepFake Forensics, Yuezun Li, Xin Yang, Pu Sun, Honggang Qi and Siwei Lyu. IEEE International Conference on Computer Vision and Pattern Recognition (CVPR), 2020

[5] Exposing DeepFake Videos By Detecting Face Warping Artifacts, Yuezun Li and Siwei Lyu. IEEE International Conference on Computer Vision and Pattern Recognition Workshop (CVPRW), 2019.

[6] Exposing GAN-synthesized Faces Using Landmark Locations, Xin Yang, Yuezun Li, Honggang Qi and Siwei Lyu. ACM Workshop on Information Hiding and Multimedia Security (IHMMSec), 2019. [7] Exposing Deep Fakes Using Inconsistent Head Poses, Xin Yang*, Yuezun Li* and Siwei Lyu. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2019.

Prof. Weihong Deng http://www.whdeng.cn/ received the B.E. degree in information engineering and the Ph.D. degree in signal and information processing from the Beijing University of Posts and Telecommunications (BUPT), Beijing, China, in 2004 and 2009, respectively. From Oct. 2007 to Dec. 2008, he was a postgraduate exchange student in the School of Information Technologies, University of Sydney, Australia. He is currently a professor in School of Artificial Intelligence, BUPT. His research interests include computer vision and affective computing, with a particular emphasis in face recognition and expression analysis. He has published over 100 technical papers in international journals and conferences, such as IEEE TPAMI, TIP, IJCV, CVPR and ICCV. He serves as area chair for major international conferences such as IJCB, FG, IJCAI, ACMMM, and ICME, and guest editor for IEEE TBIOM, and Image and Vision Computing Journal and the reviewer for dozens of international journals, such as IEEE TPAMI, TIP, TIFS, TNNLS, TMM, IJCV, PR / PRL. His Dissertation titled "Highly accurate face recognition algorithms" was awarded the Outstanding Doctoral Dissertation Award by Beijing Municipal Commission of Education in 2011. He has been supported by the program for New Century Excellent Talents in 2014, Beijing Nova in 2016, Young Chang Jiang Scholar in 2020.

Prof. Baoyuan Wu https://sites.google.com/site/baoyuanwu2015/. Currently, I am Associate Professor of School of Data Science, the Chinese University of Hong Kong, Shenzhen (CUHK-Shenzhen). I am leading the Secure Computing Lab of Big Data (SCLBD), Shenzhen Research Institute of Big Data (SBRID). From November 2016 to August 2020, I was a Senior and Principal Researcher at Tencent AI lab. From August 2014 to November 2016, I was a Postdoc in KAUST, working with Prof. Bernard Ghanem. On June 2014, I received the Ph.D. degree from the National Laboratory of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences, supervised by Prof. Baogang Hu. I was a visiting student in Prof. Qiang Ji's lab of Rensselaer Polytechnic Institute, from Sept. 2011 to Sept. 2013. My research interests are machine learning, computer vision, and optimization, including deep learning, model compression, visual reasoning, image annotation, weakly/unsupervised learning, structured prediction, probabilistic graphical models, video processing, and integer programming. Recently, I am especially interested in AI security and privacy, such as adversarial examples, backdoor attacks and defenses, federal learning.

Prof. Jing Dong http://cripac.ia.ac.cn/people/jdong/en/ , associate researcher, master tutor, director of "Artificial Intelligence and Robot Education Joint Laboratory" of CASIA Intelligent Star. Mainly engaged in the research work of pattern recognition and image processing, computer vision, multimedia content security, has published nearly 50 academic papers in international authoritative journals and academic conferences, applied for 18 invention patents and software copyright, has authorized 11 patents, 3 international patent. She presided over or mainly participated in more than 30 national and provincial scientific research projects, such as the National 863 plan, the 973 Plan, the science and technology support plan, the key R & D plan, and the National Natural Science Foundation. She is a member of the youth innovation promotion association of the Chinese Academy of Sciences and the American Institute of Electrical and Electronic Engineers (IEEE) Senior member, an outstanding member of China artificial intelligence society; Deputy Secretary-General, and director of China Artificial Intelligence Society (2014 present); Deputy Secretary-General and director of China Image Graphics Society (2016 present).

Dr. Yuezun Li https://yuezunli.github.io/, is a lecturer in the Center on Artificial Intelligence, at Ocean University of China. I was a Senior Research Scientist at the Department of Computer Science and Engineering of University at Buffalo, SUNY, working with Prof. Siwei Lyu from 2020.09 to 2020.12. I received Ph.D. degree in computer science at University at Albany, SUNY in 2020. My Ph.D supervisor is Prof. Siwei Lyu. I received M.S. degree in Computer Science in 2015 and B.S. degree in Software Engineering in 2012 at Shandong University. My research interest is mainly focused on computer vision and multimedia forensics.

📢 **Speakers**

Weihong Deng Professor, Beijing University of Posts and Telecommunications

Baoyuan Wu Associate Professor, Chinese University of Hong Kong, Shenzhen

Jing Dong Associate Professor, Institute of Automation, Chinese Academy of Sciences

Yuezun Li Lecturer, Ocean University of China

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4 Subsessions

● Session 1: Fairness Problems in Face Recognition
🕑 9:00am - 12:00pm, Aug 4

● Session 2: Security of Deep Learning: Adversarial attacks and Defenses
🕑 9:00am - 12:00pm, Aug 4

- **Session 3: Person-Centric Image and Video Forensics**
  🕐 9:00am - 12:00pm, Aug 4

- **Session 4: Detecting AI-synthesized Faces**
  🕐 9:00am - 12:00pm, Aug 4

Tutorial: Deep learning for fingerprint recognition
🕐 9:00am - 12:00pm, Aug 4
📍 Online

Tutorials

Abstract:

Deep learning technology has an important impact on various aspects of fingerprint recognition. With well-designed and adequate high quality data, deep learning approaches have achieved better performances than traditional hand-crafted approaches on many topics. This tutorial aims at introducing recent deep learning based fingerprint recognition techniques, including feature extraction, pose estimation, distortion rectification, dense registration, matching, and indexing.

Tutorial session topics:

Session1: Basics of fingerprint recognition (20 minutes)
Session2: Fingerprint feature extraction (30 minutes)
Session3: Fingerprint pose estimation (20 minutes)
Session4: Fingerprint distortion rectification (20 minutes)
Session5: Dense fingerprint registration (20 minutes)
Session6: Fingerprint matching (20 minutes)
Session7: Fingerprint indexing (20 minutes)

Presenter bios:

Jianjiang Feng (https://scholar.google.com/citations?user=qlcjuzcAAAAJ&hl=zh-CN) is an associate professor in Department of Automation, Tsinghua University, Beijing. He received his Ph.D. degree from Beijing University of Posts & Telecommunications. After that, he has worked as a postdoc in the PRIP lab at Michigan State University. He has published over 60 papers on fingerprint/palmprint, among which two received the Best Student Paper Award on IJCB 2011 and the Best Student Paper Award Runner-Up on IJCB 2017. He has served as area chair for IJCB (2014, 2021), ICB (2015,2016), BTAS (2016), and program chair for CCBR (2015-2021). He has given tutorial talks on fingerprint recognition at several conferences (ICB 2013, CCBR 2013, Biometric Winter School 2014, IJCB 2014).

Kai Cao (https://scholar.google.com/citations?user=aA2HStQAAAAJ&hl=zh-CN&oi=ao) is a biometrics technique expert at Goodix in San Diego, CA. He received the Ph.D. degree from the Key Laboratory of Complex Systems and Intelligence Science, Institute of Automation, Chinese Academy of Sciences, Beijing, China, in 2010. He was a postdoc in the PRIP lab at Michigan State University. He has published over 50 papers on fingerprint recognition. His research interests include biometric recognition, computer vision, image processing and machine learning.

Zhe Cui (https://scholar.google.com/citations?user=3xGn0usAAAAJ&hl=zh-CN&oi=sra) received the Ph.D. degree from Tsinghua University, Beijing, China, in 2021. He is currently an associate professor in Beijing University of Posts & Telecommunications, Beijing, China. His research interests include fingerprint recognition, computer vision and pattern recognition.

📢 **Speakers**

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Jianjiang Feng Associate Professor, Tsinghua University, China

Kai Cao Biometrics Technique Expert, Goodix in San Diego, CA

Zhe Cui Associate Professor, Beijing University of Posts & Telecommunications, China

3 Subsessions

- **Session 1**
  🕐 9:00am - 12:00pm, Aug 4

- **Session 2**
  🕐 9:00am - 12:00pm, Aug 4

- **Session 3**
  🕐 9:00am - 12:00pm, Aug 4

2:00pm

Tutorial: Human-centric Visual Understanding: From Research to Applications
🕐 2:00pm - 5:00pm, Aug 4
📍 Online

Tutorials

Abstract:

Human-centric visual understanding is one of the fundamental problems of computer vision and multimedia under-standing. With the development of deep learning and multi-modalities analysis techniques, researchers have strived to push the limits of human-centric visual understanding in a wide variety of applications, such as intelligent surveil-lance and smart retailing. This tutorial will present recent advances under the umbrella of human-centric visual understanding, which range from the fundamental problems of person re-identification and gait recognition. In this tutorial, we will discuss the key problems, common formulations, existing methodologies, real industrial applications, and future directions in the five topics. Our tutorial views not only come from the research filed, but also combine the real-world requirements and experiences in the industrial community. Therefore, this tutorial will inspire the audiences from the research and industrial community, and facilitate research in computer vision for human behavior analysis and human-centric analysis modeling.   We have finished a related tutorial about Human-centric visual understanding in ACM Multimedia Asia 2019. We believe that our tutorial can be of interest to a substantial part of the IJCB 2021 audience.

Prerequisites: The tutorial requires basic knowledge in graduate-level pattern recognition and computer vision. Specifically, the audience should know some knowledge about image processing, deep learning, GAN. Besides, they should know how to evaluate the performance of re-id and gait recognition.

Tutorials session topics:

Person re-identification and gait recognition facilitates various applications that require painful and boring video watching, including searching a suspect person from a city surveillance system, a lost child in a shopping mall from camera videos. Their efficiency and effectiveness accelerate the process of video analysis. Although existing technologies have made significant advances in standard datasets, they are still far from meeting the requirement of practical applications. In this tutorial, we will respectively intro-duce the existing challenges and fundamental technologies in re-ID and gait recognition, and then discuss them from the perspective of data-driven and model-driven methods.

The content of the tutorial is as follows:

• We will first point out a few unsolved but interesting problems in re-ID. Then, we will give an overview of alternative strategies where datasets undergo various changes, either automatically or manually. For example, editing synthetic data allows us to augment existing databases; composing a validation/test set makes it possible to evaluate model performance when no test labels are given. We will conclude the tutorial with viable future directions in the re-ID field.

• We will conclude the existing challenging problems, such as occlusion, a person in similar clothes, model generalization, etc. in re-ID. We will review the recently published massive re-ID methods for addressing these challenges.

• We will introduce some applications in practical. And then we will introduce some unsupervised methods or self-supervised methods for re-id. • We will introduce the history, related challenges, advanced methods

and some applications of gait recognition

Presenter bios:

Shiliang Zhang is leading the Media and Vision Computing Group at Institute of Digital Media, Peking University. He received the Ph.D. degree from Institute of Computing Technology, Chinese Academy of Sciences in 2012 with honors. After that, he was a Postdoctoral Fellow in University of Texas at San Antonio and a Postdoctoral Scientist in NEC Labs America, Cupertino, CA. He has authored or co-authored over 80 papers in journals and conferences including IEEE Trans. on Pattern Analysis and Machine Intelligence (T-PAMI), International Journal on Computer Vision (IJCV), IEEE Trans. on Image Processing (T-IP), IEEE Trans. on Multimedia (T-MM), ACM Multimedia, CVPR, ICCV, ECCV, IJCAI, and AAAI. His research interests include large-scale image retrieval and computer vision. He was a recipient of the Distinguished Young Scholar Fund of Beijing Natural Science Foundation, Outstanding Doctoral Dissertation Awards from the Chinese Academy of Sciences and Chinese Computer Federation, the President Scholarship from the Chinese Academy of Sciences, the NVidia Pioneering Research Award, the NEC Laboratories America Spot Recognition Award, and the Microsoft Research Fellowship, etc. He was a recipient of the Top10% Paper Award at the IEEE MMSP 2011.

Liang Zheng (https://zheng-lab.cecs.anu.edu.au) is a Senior Lecturer and an ARC DECRA Fellow with the School of Computing, Australian National University (ANU), Australia. He received the B.S. degree in life science and the Ph.D. degree in electronic engineering from Tsinghua University, China, in 2010 and 2015, respectively. He is best known for his contributions in object re-identification, domain adaptation, and data synthesis. He is an Area Chair of CVPR 2021, ACM Multimedia 2020 and 2021, ECCV 2020, ICMR 2019, and ICPR 2018.He serves as an associate editor of IEEE Transactions on Circuits and Systems for Video Technology (IEEE TCSVT)and Visual Computer Journal. He is an organizer of "The AI CITY CHALLENGE" Workshop at CVPR 2020 and2021, and the workshop on "Target Re-Identification and Multi-Target Multi-Camera Tracking" at CVPR 2019.

Lingxiao He (https://lingxiao-he.github.io/) is a research scientist in JD AI Research. He received the B.E degree in information Engineer from the Chengdu University of Technology (CDUT), the Ph.D. degree in Computer Sciences from the Institute of automation, Chinese Academy of Sciences (CASIA) in 2014, 2019, respectively. He visits Learning and Vision Lab, National University of Singapore (NUS) from September 2018 to May 2019. Since August 2019. Dr. He's research areas include biometric, pattern recognition and computer vision, and he has authored/co-authored over 10 technical papers, including TIP, CVPR, ICCV etc. Dr. He is a tutor of the "Human-centric Visual Understanding" tutorial at ACM Multimedia Asia.

Weihua Chen (http://cwhgn.github.io/) is a senior algorithm engineer in Alibaba. He received the Ph.D. degree in Computer Sciences from the Institute of automation, Chinese Academy of Sciences (CASIA) in 2018. His research areas include computer vision and deep learning, particularly object tracking and person re-identification. He has authored/co-authored over 10 papers, including CVPR, AAAI and etc.

Dong Wang is currently with Watrix Technology (www.watrix.ai). Before joining Watrix, he is a post doctorate researcher in Beijing Institute of Technology. He received his PhD degree from Institute of Automation, Chinese Academy of Sciences. He is the principal investigator of several research projects funded by China Postdoctoral Science Foundation and National Natural Science Foundation. His research interests include deep learning, computer vision and biometrics.

📣 **Speakers**

Shiliang Zhang Assistant Professor, Peking University, China

Liang Zheng Senior Lecturer, Australian National University, Australia.

Lingxiao He Research Scientist, JD AI Research, China

Weihua Chen Senior Algorithm Engineer, Alibaba, China

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Dong Wang Researcher, Watrix Technology, China

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5 Subsessions

- **Session 1: Unsupervised Person Re-identification**
  ⏲ 2:00pm - 5:00pm, Aug 4

- **Session 2: Person Re-identification: From Research to Applications**
  ⏲ 2:00pm - 5:00pm, Aug 4

- **Session 3: Problems and Solutions for Supervised and Unsupervised Domain Adaptation Re-identification Tasks**
  ⏲ 2:00pm - 5:00pm, Aug 4

- **Session 4: Dynamic Dataset Composition**
  ⏲ 2:00pm - 5:00pm, Aug 4

- **Session 5: Gait Recognition: State-of-the-art and practical applications**
  ⏲ 2:00pm - 5:00pm, Aug 4

Tutorial: Face Analysis beyond Recognition
⏲ 2:00pm - 5:00pm, Aug 4
📍 Online

`Tutorials`

Abstract:

Face is a rich source of signal, conveying various individual information such as identity, age, and expression. In the last few years, with the fast development of deep learning, face recognition has been substantially advanced both in the academia and industry. Evidences are not only the very high scores on large-scale benchmarks but also the extensive real-world applications, e.g., access control and mobile unlock. Meanwhile, recent studies have dedicated to more tasks, including face anti-spoofing, fairness in face analysis, remote physiological signal sensing from face, facial expression classification, and 3D face modeling. They have shown much potential and received persistently increasing attention within the community. This forum focuses on face analysis, covering the topics beyond identification, with six lectures from basic knowledge to latest progress. It will be a high-level seminar to the participants.

Prerequisites: Basic knowledge of pattern recognition.

Tutorials session topics:

Session 1: *Physical and digital fake face detection* (Dr. Zhen Lei)

Session 2: *Fairnessinface analysis: criteria, datasets, and algorithms* (Dr. Weihong Deng)

Session 3: *Remote physiological signal sensing (RePSS) from face* (Dr. Hu Han)

Session 4: *Micro-expression recognition: challenges and trend* (Dr. Xiaopeng Hong)

Session 5: *Perceiving Faces in 2D Images from 3D Perspective* (Dr. QijunZhao)

Session 6: *Multi-modal emotionanalysis* (Dr. Di Huang)

Presenter bios:
Zhen Lei, IEEE Senior Member, received the BS degree in automation from the University of Science and Technology of China (USTC) in 2005 and the PhD degree from the Institute of Automation, Chinese Academy of Sciences (CASIA) in 2010. He is currently a professor at the National Laboratory of Pattern Recognition (NLPR) and the director of the Center for Biometrics and Security Research (CBSR), Institute of Automation (CASIA). His research interest includes pattern recognition and machine learning, image and vision processing, face recognition and video analytics. He has published over 180 papers in international journals and conferences, including top journals like IEEE T-PAMI, T-IP, T-CSVT, IJCV etc. and top vision conferences like ICCV, CVPR, ECCV. His work has been cited more than 16,000 times (by Google Scholar, with H-index: 62). He holds 18 invention patents and has drawn up 7 standards of public security. Zhen Lei

is an expert in face recognition, biometrics, and intelligent video surveillance. He has been awarded the IAPR Young Biometrics Investigator Award, given to a single researcher worldwide every two years under the age of 40, whose research work has had a major impact in biometrics. He serves as associate editor for journals of Neurocomputing and IET Computer Vision. He was the area editor of Encyclopedia of Biometrics, was the guest editor of special issue of neurocomputing and IET computer vision. He is/was the area chair of BTAS-2018, International Conference on Biometrics (ICB 2014-2016, 2018) and the area chair of 2015 IEEE Conference on Automatic Face and Gesture Recognition. He received the Best Student Paper in ICB-2006, 2014 and 2015, the Best Paper in ICB-2007, the Best Student Paper Honorable Mention in FG-2013, the Best Student Paper Honorable Mention in ICME-2018. He won the competition of facial micro-expression recognition in FG-2017, won the 300-w face landmark localization held in ICCV-2013, won the face liveness detection in ICB-2011 and 2013.

Weihong Deng received the B.E. degree in information engineering and the Ph.D. degree in signal and information processing from the Beijing University of Posts and Telecommunications (BUPT), Beijing, China, in 2004 and 2009, respectively. From Oct. 2007 to Dec. 2008, he was a postgraduate exchange student in the School of Information Technologies, University of Sydney, Australia. He is currently a professor in School of Artificial Intelligence, BUPT. His research interests include computer vision and affective computing, with a particular emphasis in face recognition and expression analysis. He has published over 100 technical papers in international journals and conferences, such as IEEE TPAMI, TIP, IJCV, CVPR and ICCV. He serves as area chair for major international conferences such as IJCB, FG, IJCAI, ACMMM, and ICME, and guest editor for IEEE TBIOM, and Image and Vision Computing Journal and the reviewer for dozens of international journals, such as IEEE TPAMI, TIP, TIFS, TNNLS, TMM, IJCV, PR / PRL. His Dissertation titled "Highly accurate face recognition algorithms" was awarded the Outstanding Doctoral Dissertation Award by Beijing Municipal Commission of Education in 2011. He has been supported by the program for New Century Excellent Talents in 2014, Beijing Nova in 2016, Young Chang Jiang Scholar in 2020.

Hu Han is an Associate Professor of the Institute of Computing Technology (ICT), Chinese Academy of Sciences (CAS). He received the B.S. degree from Shandong University, and the Ph.D. degree from ICT, CAS, in 2005 and 2011, respectively, both in computer science. He was a Research Associate in the PRIP Lab at Michigan State University, and a visiting researcher at Google in Mountain View from 2011 to 2015. His research interests include computer vision, pattern recognition, and biometrics. Hehas published more than 70 pa-pers in journal and conference including IEEE Trans. PAMI, IEEE Trans. IP, IEEE Trans. IFS, IEEE Trans. BIOM, Pattern Recognition, CVPR, NeurIPS, ECCV, MICCAI, with more than 3600 Google Scholar citations. He is/was the Associate Editor of Pattern Recognition, Area Chair of ICPR2020, and Senior Program Committee members of IJCAI2021. He was a recipient of the 2020 IEEE Signal Processing Society Best Paper Award, 2019 IEEE FG Best Poster Presentation Award, and 2016/2018 CCBR Best Student/Poster Award. He is/was an organizer of a number of special sessions and workshops in ICCV2021/CVPR2020/FG2020/WACV2020/FG2019/BTAS2019.

Xiaopeng Hong is a distinguished research fellow at Xi'an Jiaotong University, PRC. He had been a senior researcher/adjunct professor with University of Oulu, Finland until 2019.He has authored over 50 articles in top-tier journals and conferences such as IEEE T-PAMI and CVPR. He has served as an area chair/SPC for ACM MM 21/20, AAAI 21 and IJCAI21, and a guest editor for Signal, Image and Video Processing. His current research interests include visual surveillance, continual learning, robotic planning, and micro-expression analysis. His studies about subtle facial movement analysis have been reported by International media like MIT Technology Review and been awarded the IEEE Finland Section best student conference paper of 2020.

Qijun Zhao is currently a professor of computer science at Sichuan University, and a vis-iting professor at Tibet University. His research interests lie in the fields of biometrics and computer vision. He has been focusing on 3D face modeling and perception, and animal biometrics in recent years. He has published about 100 academic papers, and been granted with 8 patents. He served as program co-chair for CCBR2016, ISBA2018 and NCIG2022, and face recognition area co-chair for BTAS2018 and IJCB2021.

Di Huang is a Professor at School of Computer Science and Engineering, Beihang University, Beijing, China. He received the B.S. and M.S. degrees in computer science from Beihang University, Beijing, China, and the Ph.D. degree in computer science from the Ecole Centrale de Lyon, Lyon, France, in 2005, 2008, and 2011, respectively. His current research interests include biometrics, in particular on 2D/3D face analysis, image/video processing, and pattern recognition. In recent years, he has published more than 80 academic papers at major journals and conferences. His papers have received 4,200+ citations and five papers were awarded at international or domestic conferences, such as ICB 2016, CCBR 2016, and AMFG 2017. He also served as area chair or SPC forICPR2020, IJCB2021, IJCAI2021, MM2019/2020/2021etc.He is a Senior Memberof IEEE.

📢 **Speakers**

Zhen Lei Professor, Institute of Automation, Chinese Academy of Sciences

Weihong Deng Professor, Beijing University of Posts and Telecommunications

Hu Han Associate Professor, Institute of Computing Technology, Chinese Academy of Sciences

Xiaopeng Hong Distinguished Research Fellow, Xi'an Jiaotong University

Qijun Zhao Professor, Sichuan University, China

Di Huang Professor, Beihang University

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6 Subsessions

- **Session 1: Physical and digital fake face detection**
  ⊘ 2:00pm - 5:00pm, Aug 4

- **Session 2: Fairnessinface analysis: criteria, datasets, and algorithms**
  ⊘ 2:00pm - 5:00pm, Aug 4

- **Session 3: Remote physiological signal sensing (RePSS)**
  ⊘ 2:00pm - 5:00pm, Aug 4

- **Session 4: Micro-expression recognition: challenges and trend**
  ⊘ 2:00pm - 5:00pm, Aug 4

- **Session 5: Perceiving Faces in 2D Images from 3D Perspective**
  ⊘ 2:00pm - 5:00pm, Aug 4

- **Session 6: Multi-modal emotionanalysis**
  ⊘ 2:00pm - 5:00pm, Aug 4

Thu, Aug 05, 2021

8:30am

Welcome speech and Instructions
⊘ 8:30am - 9:00am, Aug 5
◉ Online

`Main Conference`

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3 Subsessions

- **Welcome Speech**
  ⊘ 8:30am - 8:40am, Aug 5

- **Review Procedure and Summary**
  ⊘ 8:40am - 8:50am, Aug 5

- **Instructions for Online Conference System Whova**
  🕐 8:50am - 9:00am, Aug 5

9:00am

Face 1
🕐 9:00am - 10:50am, Aug 5
📍 Online. Chair: Di Huang

`Main Conference`

📢 **Session Chair**

Di Huang Professor, Beihang University

9 Subsessions

- **(L) Federated Learning-based Active Authentication on Mobile Devices**
  🕐 9:00am - 9:20am, Aug 5
  📍 Online

- **(L) Simultaneous Face Hallucination and Translation for Thermal to Visible Face Verification using Axial-GAN**
  🕐 9:20am - 9:40am, Aug 5
  📍 Online

- **(S) Attention-guided Progressive Mapping for Profile Face Recognition**
  🕐 9:40am - 9:50am, Aug 5
  📍 Online

- **(S) Sequential Interactive Biased Network for Context-Aware Emotion Recognition**
  🕐 9:50am - 10:00am, Aug 5
  📍 Online

- **(S) Does Face Recognition Error Echo Gender Classification Error?**
  🕐 10:00am - 10:10am, Aug 5
  📍 Online

- **(S) FedFace: Collaborative Learning of Face Recognition Model**
  🕐 10:10am - 10:20am, Aug 5
  📍 Online

- **(S) Leveraging Adversarial Learning for the Detection of Morphing Attacks**
  🕐 10:20am - 10:30am, Aug 5
  📍 Online

- **(S) Attention Aware Wavelet-based Detection of Morphed Face Images**
  🕐 10:30am - 10:40am, Aug 5
  📍 Online

- **(S) Preserving Gender and Identity in Face Age Progression of Infants and Toddlers**
  🕐 10:40am - 10:50am, Aug 5
  📍 Online

11:00am

3D Face

🕐 11:00am - 12:10pm, Aug 5
📍 Online. Chair: Ioannis Kakadiaris

Main Conference

📣 **Session Chair**

Ioannis Kakadiaris Hugh Roy and Lillie Cranz Cullen Distinguished University Professor of Computer Science , University of Houston

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5 Subsessions

- **(L) PointFace: Point Set Based Feature Learning for 3D Face Recognition**
  🕐 11:00am - 11:20am, Aug 5
  📍 Online

- **(L) CAS-AIR-3D Face: A Low-Quality, Multi-Modal and Multi-Pose 3D Face Database**
  🕐 11:20am - 11:40am, Aug 5
  📍 Online

- **(S) High Quality Facial Data Synthesis and Fusion for 3D Low-quality Face Recognition**
  🕐 11:40am - 11:50am, Aug 5
  📍 Online

- **(S) Refining Single Low-Quality Facial Depth Map by Lightweight and Efficient Deep Model**
  🕐 11:50am - 12:00pm, Aug 5
  📍 Online

- **(S) 3D Face Point Cloud Super-Resolution Network**
  🕐 12:00pm - 12:10pm, Aug 5
  📍 Online

12:10pm

Physiological
🕐 12:10pm - 12:30pm, Aug 5
📍 Online. Chair: Emanuela Marasco

Main Conference

📣 **Session Chair**

Emanuela Marasco Assistant Professor, George Mason University

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2 Subsessions

- **(S) Multi-subband and Multi-subepoch Time Series Feature Learning for EEG-based Sleep Stage Classification**
  🕐 12:10pm - 12:20pm, Aug 5
  📍 Online

- **(S) Video-Based Physiological Measurement Using 3D Central Difference Convolution**

Attention Network

🕐 12:20pm - 12:30pm, Aug 5

📍 Online

1:30pm

Fingerprint, vein and others

🕐 1:30pm - 2:50pm, Aug 5

📍 Online. Chair: Ajay Kumar

`Main Conference`

📢 **Session Chair**

(A)

Ajay Kumar

6 Subsessions

- **(L) LFMB-3DFB: A Large-scale Finger Multi-Biometric Database and Benchmark for 3D Finger Biometrics**

  🕐 1:30pm - 1:50pm, Aug 5

  📍 Online

- **(L) Vulnerability Assessment and Presentation Attack Detection Using a Set of Distinct Finger Vein Recognition Algorithms**

  🕐 1:50pm - 2:10pm, Aug 5

  📍 Online

- **(S) STERLING: Towards Effective ECG Biometric Recognition**

  🕐 2:10pm - 2:20pm, Aug 5

  📍 Online

- **(S) Learning Discriminative Speaker Embedding by Improving Aggregation Strategy and Loss Function for Speaker Verification**

  🕐 2:20pm - 2:30pm, Aug 5

  📍 Online

- **(S) Finger Vein Verification using Intrinsic and Extrinsic Features**

  🕐 2:30pm - 2:40pm, Aug 5

  📍 Online

- **(S) Feasibility of Morphing-Attacks in Vascular Biometrics**

  🕐 2:40pm - 2:50pm, Aug 5

  📍 Online

3:00pm

Face 2

🕐 3:00pm - 4:50pm, Aug 5

📍 Online. Chair: Weihong Deng

`Main Conference`

📢 **Session Chair**

Weihong Deng Professor, Beijing University of Posts and Telecommunications

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9 Subsessions

- **(L) Self-Augmented Heterogeneous Face Recognition**
  🕐 3:00pm - 3:20pm, Aug 5
  📍 Online

- **(L) On the use of automatically generated synthetic image datasets for benchmarking face recognition**
  🕐 3:20pm - 3:40pm, Aug 5
  📍 Online

- **(S) Practical Face Swapping Detection Based on Identity Spatial Constraints**
  🕐 3:40pm - 3:50pm, Aug 5
  📍 Online

- **(S) RamFace: Race Adaptive Margin Based Face Recognition for Racial Bias Mitigation**
  🕐 3:50pm - 4:00pm, Aug 5
  📍 Online

- **(S) Gender-Invariant Face Representation Learning and Data Augmentation for Kinship Verification**
  🕐 4:00pm - 4:10pm, Aug 5
  📍 Online

- **(S) Face Sketch Synthesis via Semantic-Driven Generative Adversarial Network**
  🕐 4:10pm - 4:20pm, Aug 5
  📍 Online

- **(S) Joint Feature Distribution Alignment Learning for NIR-VIS and VIS-VIS Face Recognition**
  🕐 4:20pm - 4:30pm, Aug 5
  📍 Online

- **(S) MixFaceNets: Extremely Efficient Face Recognition Networks**
  🕐 4:30pm - 4:40pm, Aug 5
  📍 Online

- **(S) Child Face Age Progression and Regression using Self-Attention Multi-Scale Patch GAN**
  🕐 4:40pm - 4:50pm, Aug 5
  📍 Online

5:00pm

Faces & Emotional AI
🕐 5:00pm - 6:00pm, Aug 5
📍 Online. Chair: Julian Fierrez

`Keynotes` `Main Conference`

Abstract:
This talk is about emotional AI, about machine learning and computer vision methods developed for various human-centric AI applications, and about the face analysis technology in general.

Maja Pantic obtained her PhD degree in computer science in 2001 from Delft University of Technology, the Netherlands. Until 2005, she was an Assistant/ Associate Professor at Delft University of Technology. In 2006, she joined the Imperial College London, Department of Computing, UK, where she is Professor of Affective & Behavioural Computing and the Head of the iBUG group, working on machine analysis of

human non-verbal behaviour. From April 2018 to April 2020, she was the Research Director of Samsung AI Research Centre in Cambridge. In April 2020, she joined Facebook as an AI Scientific Research Lead in Facebook London.

Prof. Pantic is one of the world's leading experts in the research on machine understanding of human behavior including vision-based detection, tracking, and analysis of human behavioral cues like facial expressions and body gestures, and multimodal analysis of human
behaviors like laughter, social signals, and affective states. Prof. Pantic received various awards for her work including BCS Roger Needham Award, awarded annually to a UK based researcher for a distinguished research contribution in computer science, and IAPR Maria Petrou Award, awarded biannually to a living female scientist for her contributions to the field of Pattern Recognition. She is a Fellow of the UK's Royal Academy of Engineering, an IEEE Fellow, and an IAPR Fellow.

Website: http://ibug.doc.ic.ac.uk/~maja/
TEDx CERN talk: https://www.youtube.com/watch?v=4QjZDUaDxQU
WEF 2016 talk: https://www.youtube.com/watch?v=ZHxsRpd0XjI&t=10s

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📢 **Speaker**

Maja Pantic Professor, Imperial College London, Facebook London

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📢 **Session Chair**

Julian Fierrez Professor, Universidad Autónoma de Madrid

Fri, Aug 06, 2021

8:30am

Nighttime and low-light face recognition
🕐 8:30am - 9:30am, Aug 6
📍 Online. Chair: Arun Ross

`Keynotes` `Main Conference`

Abstract: Face is one of the most widely used biometric for person recognition. Various face recognition systems have been developed over the last two decades. Deep learning methods, enabled by the vast improvements in processing hardware coupled with the ubiquity of face data and algorithmic development, have led to significant improvements in face recognition accuracy, particularly in unconstrained scenarios. Also, largely driven by social network companies, progress in face recognition research, development and deployment have focused on faces collected in visible regimes of the electromagnetic spectrum. Thermal imaging has been proposed for nighttime and low-light face recognition when external illumination is not feasible due to various collection considerations. In this talk, I will provide some recent advances in thermal to visible face synthesis and verification using deep learning methods.

Bio: Vishal M. Patel is an Associate Professor in the Department of Electrical and Computer Engineering (ECE) at Johns Hopkins University. Prior to joining Hopkins, he was an A. Walter Tyson Assistant Professor in the Department of ECE at Rutgers University and a member of the research faculty at the University of Maryland Institute for Advanced Computer Studies (UMIACS). He completed his Ph.D. in Electrical Engineering from the University of Maryland, College Park, MD, in 2010. He has received a number of awards including the 2021 NSF CAREER Award, the 2016 ONR Young Investigator Award, the 2016 Jimmy Lin Award for Invention, A. Walter Tyson Assistant Professorship Award, Best Paper Awards at IEEE AVSS 2017 and 2019, Best Paper Award at IEEE BTAS 2015, Honorable Mention Paper Award at IAPR ICB 2018, two Best Student Paper Awards at IAPR ICPR 2018, and Best Poster Awards at BTAS 2015 and 2016. He is an Associate Editor of the IEEE Signal Processing Magazine, Pattern Recognition Journal, and serves on the

Machine Learning for Signal Processing (MLSP) Committee of the IEEE Signal Processing Society. He serves as the vice president of conferences for the IEEE Biometrics Council.

📢 **Speaker**

Vishal Patel Johns Hopkins University

📢 **Session Chair**

Arun Ross Professor, Michigan State University

9:30am

Security and Privacy
🕐 9:30am - 11:10am, Aug 6
📍 Online. Chair: Qijun Zhao

Main Conference

📢 **Session Chair**

Qijun Zhao Professor, Sichuan University, China

6 Subsessions

- **(L) Face Morphing of Newborns Can Be Threatening Too : Preliminary Study on Vulnerability and Detection**
  🕐 9:30am - 9:50am, Aug 6
  📍 Online

- **(L) Structure Destruction and Content Combination for Face Anti-Spoofing**
  🕐 9:50am - 10:10am, Aug 6
  📍 Online

- **(L) Conditional Identity Disentanglement for Differential Face Morph Detection**
  🕐 10:10am - 10:30am, Aug 6
  📍 Online

- **(L) Universal Adversarial Spoofing Attacks against Face Recognition**
  🕐 10:30am - 10:50am, Aug 6
  📍 Online

- **(S) A Temporal Memory-based Continuous Authentication System**
  🕐 10:50am - 11:00am, Aug 6
  📍 Online

- **(S) BioCanCrypto: An LDPC Coded Bio-Cryptosystem on Fingerprint Cancellable Template**
  🕐 11:00am - 11:10am, Aug 6

📍 Online

11:20am

Iris and EEG
🕐 11:20am - 12:30pm, Aug 6
📍 Online. Chair: Adams Wai Kin Kong

Main Conference

📢 **Session Chair**

A

Adams Wai Kin Kong Research Fellow, NTU

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5 Subsessions

- **(L) Concealable Biometric-based Continuous User Authentication System An EEG Induced Deep Learning Model**
  🕐 11:20am - 11:40am, Aug 6
  📍 Online

- **(L) Contrastive Uncertainty Learning for Iris Recognition with Insufficient Labeled Samples**
  🕐 11:40am - 12:00pm, Aug 6
  📍 Online

- **(S) A Large-scale Database for Less Cooperative Iris Recognition**
  🕐 12:00pm - 12:10pm, Aug 6
  📍 Online

- **(S) An End-to-End Autofocus Camera for Iris on the Move**
  🕐 12:10pm - 12:20pm, Aug 6
  📍 Online

- **(S) Avoiding Spectacles Reflections on Iris Images Using A Ray-tracing Method**
  🕐 12:20pm - 12:30pm, Aug 6
  📍 Online

1:30pm

Forensics
🕐 1:30pm - 2:20pm, Aug 6
📍 Online. Chair: Cunjian Chen

Main Conference

📢 **Session Chair**

C

Cunjian Chen

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4 Subsessions

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(L) Identifying Rhythmic Patterns for Face Forgery Detection and Categorization
🕐 1:30pm - 1:50pm, Aug 6
📍 Online

● **(L) Bita-Net:Bi-temporal Attention Network for Facial Video Forgery Detection**
🕐 1:50pm - 2:00pm, Aug 6
📍 Online

● **(S) Visual-semantic Transformer for Face Forgery Detection**
🕐 2:00pm - 2:10pm, Aug 6
📍 Online

● **(S) Robust End-to-End Hand Identification via Holistic Multi-Unit Knuckle Recognition**
🕐 2:10pm - 2:20pm, Aug 6
📍 Online

2:20pm

Spoofing Detection
🕐 2:20pm - 2:50pm, Aug 6
📍 Online. Chair: Wenxiong Kang

`Main Conference`

📢 **Session Chair**

Wenxiong Kang Professor, South China University of Technology

3 Subsessions

● **(S) Exploiting Non-uniform Inherent Cues to Improve Presentation Attack Detection**
🕐 2:20pm - 2:30pm, Aug 6
📍 Online

● **(S) On the Effectiveness of Vision Transformers for Zero-shot Face Anti-Spoofing**
🕐 2:30pm - 2:40pm, Aug 6
📍 Online

● **(S) Iris Presentation Attack Detection by Attention-based and Deep Pixel-wise Binary Supervision Network**
🕐 2:40pm - 2:50pm, Aug 6
📍 Online

3:00pm

Gait, ReID, Behavior
🕐 3:00pm - 4:10pm, Aug 6
📍 Online. Chair: Emanuele Maiorana

`Main Conference`

📢 **Session Chair**

Emanuele Maiorana Dr., Roma Tre University

- **(L) TDS-Net: Towards Fast Dynamic Random Hand Gesture Authentication via Temporal Difference Symbiotic Neural Network**
  ⏱ 3:00pm - 3:20pm, Aug 6
  📍 Online

- **(L) Contrastive Self-supervised Learning for Sensor-based Human Activity Recognition**
  ⏱ 3:20pm - 3:40pm, Aug 6
  📍 Online

- **(S) Collaborative Feature Learning and Credible Soft Labeling for Unsupervised Domain Adaptive Person Re-Identification**
  ⏱ 3:40pm - 3:50pm, Aug 6
  📍 Online

- **(S) Estimation of Gait Relative Attribute Distributions using a Differentiable Trade-off Model of Optimal and Uniform Transports**
  ⏱ 3:50pm - 4:00pm, Aug 6
  📍 Online

- **(S) Static and Dynamic Features Analysis from Human Skeletons for Gait Recognition**
  ⏱ 4:00pm - 4:10pm, Aug 6
  📍 Online

4:10pm

Fingerprint
⏱ 4:10pm - 4:50pm, Aug 6
📍 Online. Chair: Kiran Raja

`Main Conference`

📢 **Session Chair**

Kiran Raja Associate Professor, Norwegian University of Science and Technology (NTNU)

3 Subsessions

- **(L) A Unified Model for Fingerprint Authentication and Presentation Attack Detection**
  ⏱ 4:10pm - 4:30pm, Aug 6
  📍 Online

- **(S) MiDeCon: Unsupervised and Accurate Fingerprint and Minutia Quality Assessment based on Minutia Detection Confidence**
  ⏱ 4:30pm - 4:40pm, Aug 6
  📍 Online

- **(S) Optimizing contactless to contact-based fingerprint comparison using simple parametric warping models**
  ⏱ 4:40pm - 4:50pm, Aug 6
  📍 Online

5:00pm

Panel Discussion on Challenges in Biometrics

🕒 5:00pm - 6:00pm, Aug 6

📍 Online. Chair: Arun Ross

Main Conference

📢 **Chair**

Arun Ross Professor, Michigan State University

📢 **Speakers**

Jianguo Zhang Professor, Southern university of science and technology

Julian Fierrez Professor, Universidad Autónoma de Madrid

Kiran Raja Associate Professor, Norwegian University of Science and Technology (NTNU)

Sat, Aug 07, 2021

8:30am

Fighting AI-synthesized Fake Media

🕒 8:30am - 9:30am, Aug 7

📍 Online. Chair: Pong C Yuen

Keynotes **Main Conference**

Abstract: Recent years have witnessed an unexpected and astonishing rise of AI-synthesized fake media, thanks to the rapid advancement of technology and the omnipresence of social media. Together with other forms of online disinformation, the AI-synthesized fake media are eroding our trust in online information and have already caused real damage. It is thus important to develop countermeasures to limit the negative impacts of AI-synthesized fake media. In this presentation, Dr. Lyu will highlight recent technical developments to fight AI-synthesized fake media, and discuss the future of AI-synthesized fake media and their counter technology.

Siwei Lyu is an Empire Innovation Professor at the Department of Computer Science and Engineering and the founding Director of UB Media Forensic Lab (UB MDFL) of the University at Buffalo, State University of New York. Before joining UB, Dr. Lyu was an Assistant Professor from 2008 to 2014, a tenured Associate Professor from 2014 to 2019, and a Full Professor from 2019 to 2020, at the Department of Computer Science, University at Albany, State University of New York. From 2005 to 2008, he was a Post-Doctoral Research Associate at the Howard Hughes Medical Institute and the Center for Neural Science of New York University. He was an Assistant Researcher at Microsoft Research Asia (then Microsoft Research China) in 2001. Dr. Lyu received his Ph.D. degree in Computer Science from Dartmouth College in 2005, and his M.S. degree in Computer Science in 2000, and B.S. degree in Information Science in 1997, both from Peking University, China. Dr. Lyu's research interests include digital media forensics, computer vision, and machine learning. Dr. Lyu has published over 150 refereed journal and conference papers. He is the recipient of the IEEE Signal Processing Society Best Paper Award (2011), the National Science Foundation CAREER Award (2010), SUNY Albany's Presidential Award for Excellence in Research and Creative Activities (2017), SUNY

Chancellor's Award for Excellence in Research and Creative Activities (2018) and Google Faculty Research Award (2019).

📢 Speaker

Siwei Lyu Empire Innovation Professor, University at Buffalo, State University of New York

📢 Session Chair

Pong C Yuen Academic, Hong Kong Baptist University

9:30am

Behavior
🕐 9:30am - 10:50am, Aug 7
📍 Online. Chair: Adam Czajka

Main Conference

📢 Speaker

Adam Czajka Assistant Professor, University of Notre Dame

5 Subsessions

- **(L) Defending Touch-based Continuous Authentication Systems from Active Adversaries Using Generative Adversarial Networks**
  🕐 9:30am - 9:50am, Aug 7
  📍 Online

- **(L) Deception Detection and Remote Physiological Monitoring: A Dataset and Baseline Experimental Results**
  🕐 9:50am - 10:10am, Aug 7
  📍 Online

- **(L) ReSGait: The Real-Scene Gait Dataset**
  🕐 10:10am - 10:30am, Aug 7
  📍 Online

- **(S) YakReID-103: A Benchmark for Yak Re-Identification**
  🕐 10:30am - 10:40am, Aug 7
  📍 Online

- **(S) SADet: Learning An Efficient and Accurate Pedestrian Detector**
  🕐 10:40am - 10:50am, Aug 7
  📍 Online

11:00am

Fingerprint and Palmprint

🕐 11:00am - 11:50am, Aug 7

📍 Online. Chair: Jianjiang Feng

Main Conference

📢 **Session Chair**

J

Jianjiang Feng Associate Professor, Tsinghua University, China

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4 Subsessions

- **(L) FDeblur-GAN: Fingerprint Deblurring using Generative Adversarial Network**
  🕐 11:00am - 11:20am, Aug 7
  📍 Online

- **(S) Orientation Field Estimation for Latent Fingerprints with Prior Knowledge of Fingerprint Pattern**
  🕐 11:20am - 11:30am, Aug 7
  📍 Online

- **(S) Deep Multi-loss Hashing Network for Palmprint Retrieval and Recognition**
  🕐 11:30am - 11:40am, Aug 7
  📍 Online

- **(S) A Dense Pyramid Convolution Network for Infant Fingerprint Super-Resolution and Enhancement**
  🕐 11:40am - 11:50am, Aug 7
  📍 Online

12:00pm

Award Ceremony and Closing
🕐 12:00pm - 12:30pm, Aug 7
📍 Online

Main Conference

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5 Subsessions

- **Winner of Young Biometrics Investigator Award**
  🕐 12:00pm - 12:05pm, Aug 7

- **Best Paper and Best Biometric Student Papers**
  🕐 12:05pm - 12:10pm, Aug 7

- **Best Reviewers**
  🕐 12:10pm - 12:15pm, Aug 7

- **Closing Remarks**
  🕐 12:15pm - 12:20pm, Aug 7

- **Introduction to IJCB 2022**
  🕐 12:20pm - 12:30pm, Aug 7

1:30pm

7th Edition of International Fingerprint Liveness Detection Competition

🕐 1:30pm - 2:40pm, Aug 7

📍 Online. Chair: Gian Luca Marcialis

Competitions

The LivDet 2021 competition is open to all academic and industrial institutions which have a solution for software-based fingerprint liveness detection and verification problem. Each participant is invited to submit its algorithm in a Win32 or Linux console application. The performance will be evaluated by utilizing a very large data set of #fake" and #live" fingerprint images captured by two devices. This edition of LivDet 2021 has two challenges:

1. The Liveness Detection in Action challenge to investigate at which extent the integration of a liveness detector can impact, at the state-of-the-art, on the whole performance of a fingerprint verification system.
2. The Fingerprint representation challenge to investigate the compactness and the discriminability of feature vectors used by state-of-the-art Fingerprint Presentation Attack Detectors.

Organisers: Prof.Gian Luca Marcialis
Preferred contact person: Prof.Gian Luca Marcialis, livdet.diee@unica.it

Website: http://livdet.diee.unica.it

📢 **Speakers**

M

Marco Micheletto

Roberto Casula PhD Student, University of Cagliari

📢 **Preferred contact person, Session Chair**

G

Gian Luca Marcialis

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6 Subsessions

- **LivDet 2021 summary report**
  🕐 1:30pm - 1:45pm, Aug 7

- **Q & A**
  🕐 1:45pm - 1:50pm, Aug 7

- **Challenge 1 First place: Leveraging Adversarial Perturbations in Fingerprint Liveness Detection**
  🕐 1:50pm - 2:02pm, Aug 7

- **Challenge 2 First place: How to generalize fingerprint spoof detection: dealing with bias-variance tradeoff**
  🕐 2:02pm - 2:14pm, Aug 7

- **Challenge 2 Second place**
  🕐 2:14pm - 2:26pm, Aug 7

- **Honarable mention: Dermalog Fingerprint Presentation Attack Detection**
  🕐 2:26pm - 2:38pm, Aug 7

Liveness Detection Competition – Face (LivDet-Face 2021)

🕐 1:30pm - 2:40pm, Aug 7

📍 Online. Chair: Stephanie Schuckers

Competitions

Summary: Despite the high accuracy of current face recognition algorithms, the overall reliability of face recognition systems depends also on their capabilities of presentation attack detection (PAD). LivDet-Face 2021 competition will serve as a benchmark in face presentation attack detection by offering (a) independent assessment of the current state of the art in face PAD, and (b) evaluation protocol, including publicly available datasets of spoof and live face images, that can be easily followed by researchers after the competition is closed. LivDet-Face 2021 will accept either/both single image-based and video-based algorithms from the competitors. For more information please visit https://face2021.livdet.org/

Organisers: Dr. Stephanie Schuckers, Keivan Bahmani, Sandip Purnapatra, Nic Smalt, Georgia College of Engineering, Dr. Thirimachos Bourlai, Dr. Sébastien Marcel, Dr. Amir Mohammadi
Preferred contact person: Dr. Stephanie Schuckers, sschucke@clarkson.edu

Website: https://face2021.livdet.org/

📢 Preferred contact person, Session Chair

S

Stephanie Schuckers

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6 Subsessions

- **LivDet-Face 2021 summary report**
  🕐 1:30pm - 1:35pm, Aug 7

- **Presentation of the competition summary, results, and discussion**
  🕐 1:35pm - 1:50pm, Aug 7

- **LivDet-Face 2021 Awards Announcement**
  🕐 1:50pm - 1:55pm, Aug 7

- **Talk of the 1st place**
  🕐 1:55pm - 2:10pm, Aug 7

- **Talk of the 2nd place**
  🕐 2:10pm - 2:25pm, Aug 7

- **Talk of the 3rd place**
  🕐 2:25pm - 2:40pm, Aug 7

2:50pm

Deepfake Game Competition (DFGC 2021)

🕐 2:50pm - 4:00pm, Aug 7

📍 Online. Chair: Yuezun Li

Competitions

DeepFake technology is developing fast, and realistic face-swaps are growingly deceiving and hard to be detected. On the contrary, DeepFake detection methods are also improving. There is a two-party game between DeepFake creators and detectors. We are organizing this competition to provide a common platform for benchmarking the adversarial game between current state-of-the-art DeepFake creation and detection methods. The expected outcome is a comprehensive study of the DeepFake adversarial game in the current status and to further facilitate the research community to build a better defend against DeepFake together.

Organisers: Bo Peng, Wei Wang, Jing Dong, Qi Li, Zhenan Sun, Yuezun Li, and Siwei Lyu
Preferred contact person: Dr. Bo Peng, bo.peng@nlpr.ia.ac.cn

Website: http://dfgc2021.iapr-tc4.org/

📣 **Preferred contact person**

Bo Peng Associate researcher, Institute of Automation, Chinese Academy of Sciences

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📣 **Session Chair**

Yuezun Li Lecturer, Ocean University of China

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6 Subsessions

- **Summary Report: DFGC competition: Design an Results**
  🕐 2:50pm - 3:10pm, Aug 7

- **Creation track top solutions**
  🕐 3:10pm - 3:25pm, Aug 7

- **Detection track top solutions**
  🕐 3:25pm - 3:40pm, Aug 7

- **Further Analysis and Conclusions**
  🕐 3:40pm - 3:45pm, Aug 7

- **Award presentation to winning teams**
  🕐 3:45pm - 3:50pm, Aug 7

- **Discussions and Q&A**
  🕐 3:50pm - 4:00pm, Aug 7

Human Identification at a Distance 2021 (HID 2021)

🕐 2:50pm - 4:00pm, Aug 7
📍 Online. Chair: Md Atiqur Rahman Ahad

Competitions

The competition will mainly focus on human identification at a distance in videos (HID). It will be hosted by the professional competition web site https://codalab.org/ as the previous competition HID2020 in conjunction with ACCV2020. We have organized a similar competition in 2020. This is the 2nd competition on HID. The dataset proposed for the competition will be CASIA-E, which is to be released to the scientific community. It contains 1000 subjects and hundreds of videos sequences for each subject. Consequently, it is a challenging dataset for HID.

Organisers: S. Yu, Y. Huang, L. Wang, Y. Makihara, E. B. Garca Reyes, F. Zheng and M. A. R. Ahad
Preferred contact person: Prof. Shiqi Yu, yusq@sustech.edu.cn

Website: http://hid2021.iapr-tc4.org/

📣 **Session Chair**

Md Atiqur Rahman Ahad Specially Appointed Associate Professor, Osaka University

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7 Subsessions

- **HID2021 summary report**
  🕐 2:50pm - 3:00pm, Aug 7
  📍 Online

- **Award Ceremony**
  🕐 3:00pm - 3:05pm, Aug 7
  📍 Online

- **Talk of the 1st Place: Bag of Tricks and GaitMask Network for Gait Recognition**
  🕐 3:05pm - 3:16pm, Aug 7
  📍 Online

- **Talk of the 2nd Place: Learning Robust Feature via Data Augmentation for Gait Recognition**
  🕐 3:16pm - 3:27pm, Aug 7
  📍 Online

- **Talk of the 3rd Place: Enhanced Spatial and Multi-Scale Temporal Feature Modeling for Human Identfication at a Distance**
  🕐 3:27pm - 3:38pm, Aug 7
  📍 Online

- **Talk of the 4th Place: Learning Discriminative Representations by Fusing Multimodal Features for Gait Recognition**
  🕐 3:38pm - 3:49pm, Aug 7
  📍 Online

- **Talk of the 6th Place: Effective Usages of datasets for HumanIdentification at a Distance**
  🕐 3:49pm - 4:00pm, Aug 7
  📍 Online

4:10pm

Competition on Masked Face Recognition (IJCB-MFR-2021)
🕐 4:10pm - 5:20pm, Aug 7
📍 Online. Chair: Fadi Boutros

`Competitions`

Summary: Given the current COVID-19 pandemic, it is essential to enable contactless and smooth-running operations, especially in contact-sensitive facilities like airports. Face recognition has been preferred as a contactless means of verifying identities. However, wearing masks is now essential to prevent the spread of contagious diseases and has been currently forced in public places in many countries. The performance, and thus the trust on contactless identity verification through face recognition can be impacted by the presence of a mask. The effect of wearing a mask on face recognition in a collaborative environment is currently a sensitive issue. The MFR competition is the first to attract and present technical solutions that enhance the accuracy of masked face recognition on real face masks and in a collaborative face verification scenario. All participants, who achieve competitive results, will be invited as co-authors for a summary paper of MFR. The paper will submit IJCB 2021.

Organisers: Fadi Boutros,Dr. Naser Damer, Prof. Kiran Raja, Prof. Raghavendra Ramachandra, Prof. Arjan Kuijper
Preferred contact person: Fadi Boutros, fadi.boutros@igd.fraunhofer.de

Website: https://sites.google.com/view/ijcb-mfr-2021/home

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Fadi Boutros Research Scientist, Fraunhofer IGD

5 Subsessions

- **Summary report & Awards: Masked Face Recognition Competition - participant, team and result**
  🕐 4:10pm - 4:25pm, Aug 7

- **Participant talk: Sub-center ArcFace for Masked Face Recognition**
  🕐 4:25pm - 4:40pm, Aug 7

- **Participant talk: Boosting Masked Face Recognition for Arcface-Based Models**
  🕐 4:40pm - 4:50pm, Aug 7

- **Participant talk: Real World Occluded Faces Dataset and Benchmark**
  🕐 4:50pm - 5:05pm, Aug 7

- **Invited talk: On the effect of mask wearing presentation attack on the attack detectability and face recognition vulnerability**
  🕐 5:05pm - 5:20pm, Aug 7

NIR Iris Challenge Evaluation in Non-cooperative Environments: Segmentation and Localization (NIR-ISL 2021)
🕐 4:10pm - 5:20pm, Aug 7
📍 Online. Chair: Yunlong Wang

`Competitions`

For iris recognition in non-cooperative environments, iris segmentation has been regarded as the first most important challenge still open to the biometric community, affecting all downstream tasks from normalization to recognition. In recent years, deep learning technologies have gained significant popularity among various computer vision tasks and have also affected the iris biometrics, especially iris segmentation. To investigate recent developments and attract more interests of researchers in the iris segmentation method, we are planning to host the challenge competition. In this challenge, we aim to benchmark the performance of iris segmentation on NIR iris images from Asian and African people captured in non-cooperative environments. Moreover, we specially split the general iris segmentation task in the conventional iris recognition pipeline into the segmentation of noise-free iris mask and the localization of inner and outer boundaries of the iris, which are narrowly referred to as iris segmentation and iris localization. Therefore, the challenge encourages the submission of a complete solution taking the iris segmentation and iris localization into consideration.

Organisers: Dr. Caiyong Wang, Dr. Yunlong Wang, Dr. Kunbo Zhang , Jawad Muhammad, Tianhao Lu, Prof. Qichuan Tian, Prof. Zhaofeng He, Prof. Zhenan Sun
Preferred contact person: Dr. Caiyong Wang, wangcaiyong@bucea.edu.cn

Website: https://sites.google.com/view/nir-isl2021/home

Caiyong Wang Lecturer , Beijing University of Civil Engineering and Architecture

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Yunlong Wang Assistant Professor, Institute of Automation, Chinese Academy of Sciences

4 Subsessions

- **Summary report & Awards: NIR Iris Challenge Evaluation in Non-cooperative Environments: Segmentation and Localization (NIR-ISL 2021)**
  ⏱ 4:10pm - 4:35pm, Aug 7

- **1st place: Transfer learning for iris segmentation and localization in NIR-ISL 2021**
  ⏱ 4:35pm - 4:50pm, Aug 7

- **2nd Place: PI-DECODER: Decoder Structure Designed for Precise Iris Segmentation and Localization**
  ⏱ 4:50pm - 5:05pm, Aug 7

- **3rd place: A robust network with boundary attention for NIR-ISL**
  ⏱ 5:05pm - 5:20pm, Aug 7