

THE 5TH IAPR

INTERNATIONAL CONFERENCE ON BIOMETRICS

ICB 2012

29th March – 1st April 2012
New Delhi, India





Message from the General Chairs

It is with great honor and pleasure that we welcome you to the 5th IAPR International Conference on Biometrics (ICB 2012), March 29 – April 1, 2012, New Delhi, India. This IAPR flagship conference is sponsored by the IEEE and hosted by IIIT Delhi. ICB conference series is one of the premier forums for presenting new research findings in the field of biometrics. In 2006, two highly reputed conferences, Audio and Video-based Personal Authentication (AVBPA) series running since 1997 and International Conference on Biometric Authentication (ICBA) series running since 2004 merged to launch the new ICB series, which is now considered one of the best gatherings of biometric researchers. This is not only a platform for presenting foremost biometric research papers, but it gives an opportunity for the best of biometric minds to mingle and share ideas. It is especially exciting to host the 2012 conference in India, the first in the history of this series (and its predecessors). With India's UIDAI project already surpassing all other biometric deployments in the world in both scope and scale, we feel that it is an appropriate time for this meeting to be held in India. We hope that you will enjoy ICB 2012 for its high quality of papers, excellent conference venue and local arrangements, and the vibrant Indian history, culture and cuisine.

We are especially pleased to bring to you a most distinguished set of keynote speakers: Mr. Nandan Nilekani, Chairman of UIDAI, Mr. Ming Hsieh, President of 3M Cogent, and Prof. John Daugman, a pioneer of iris recognition technology. These are three individuals who have made outstanding and long lasting contributions to biometrics in different ways: Mr. Nilekani for his role in biometrics in governance and government service delivery, Mr. Ming Hsieh as a prominent entrepreneur in biometrics, and Prof. John Daugman as an academician and pioneer of iris technology. Mr. Ram Sewak Sharma, Director General of UIDAI has also graciously agreed to give welcome remarks at the opening session. A panel discussion on "UIDAI System, from its concept, design, implementation and current state" will be led by head of technology for UIDAI, Mr. Srikanth Nadhamuni.

We are also pleased to introduce to you four invited tutorials offered by distinguished researchers. The tutorial topics were chosen to emphasize the most mature and widely deployed biometrics technologies and best practices. The tutorial speakers include Prof. Stan Z. Li (face recognition), Prof. Davide Maltoni (fingerprint recognition), Prof. John Daugman (iris recognition), and Prof. James L. Wayman (biometric best practices and applications). We are indeed fortunate to have such a prominent line up of invited keynotes and tutorials.

We are indeed very grateful for the support of a large number of individuals and organizations without which this conference would not have been possible. First and foremost, we are grateful to the very generous support of our esteemed sponsors. 4G Identity Solutions, Broadcom and Validity Sensors, 3M Cogent, Crossmatch and SmartID, IIIT Delhi, Lumidigm, Neurotechnology, Safran Morpho, and Suprema have supported the conference at the Platinum level. CMC, Cognitec and Geodesic have supported the conference at the Gold level and NEC has supported the conference at the Silver level. We appreciate and acknowledge their generous support which enabled us to keep the registration fee affordable and offer a number of best paper and poster awards.

The efforts of conference's local arrangement chairs Prof. Mayank Vatsa and Prof. Richa Singh, both of IIIT Delhi, need special acknowledgement. They handled all the local arrangement details – no small feat – and also got their PhD students and office staff, Mr. Anoop Singh and Mr. Vinod Kumar, involved to ensure a smooth functioning of the conference. Without their dedication, countless hours and boundless energy, this conference would not have been possible. Special thanks go to Prof. Massimo Tistarelli for guiding us throughout the planning process, Prof. Pankaj Jalote, Director of IIIT Delhi, for agreeing to have IIIT Delhi serve as the host organization, and Mr. Rajesh Mashruwala for initially suggesting that the ICB2012 conference be held in India. We are grateful to IAPR TC4 and IEEE Biometrics Council for their support.

Biometrics is a challenging and fascinating subject area in its own right, but it is also very fulfilling to witness its increasing role in addressing societal issues, particularly in emerging economies. We wish the delegates a most enjoyable and memorable conference.

Anil K. Jain
Salil Prabhakar
Jean-Christophe Fondeur
Tieniu Tan
General Chairs for ICB 2012

Message from the Program Chairs

The past decade has witnessed a substantial increase in biometrics research as is evidenced by the large number of scientific publications on this topic. The International Conference on Biometrics (ICB) and its previous versions (e.g., AVBPA and ICBA) have traditionally served as a reputable venue for disseminating the cutting-edge research being conducted in this field. This year has been no exception – a cursory glance of the ICB 2012 program schedule suggests a research agenda that encompasses a broad range of topics from various research groups around the world. This confirms the notion that biometrics is an actively expanding field with tremendous societal benefits.

This year the conference received 240 paper submissions. After a preliminary screening conducted by the program committee chairs, 224 papers were sent to the program committee for review, resulting in a total of 674 reviews. Based on the reviews and recommendations of the reviewers, 82 papers were accepted for presentation at the conference: 36 papers will be presented over 6 oral sessions while the remaining 46 papers will be presented over 2 poster sessions. Further, the poster presenters will have the opportunity to provide a two-minute oral overview of their papers to the audience prior to the poster session.

The accepted papers cover a broad range of topics. Besides advancing the state-of-the-art of traditional biometric modalities such as face, fingerprints and iris, the papers address important problems in template security, biometric fusion, data privacy, performance evaluation, forensic analysis, quality assessment, multispectral recognition, template aging and soft biometrics. The diversity of papers is sure to promote a lively discussion among the delegates of the conference. The paper presentations will be complemented with 4 tutorials, 3 invited talks and a panel discussion on Aadhaar – the unique identification program in India.

We would like to thank the authors of all the papers for submitting their work to this conference. The quality of a technical conference is impacted by the quality of the papers presented. Therefore, we are pleased to present you with these outstanding papers on the topic of biometrics. We are very grateful to all the reviewers who did a thorough job in reviewing papers. Their input was extremely valuable in rendering a final decision on each submitted paper. Further, we are sure that the authors benefited tremendously from the feedback they received through these reviews.

We welcome you to ICB 2012 in New Delhi. We have a very exciting program in store for you. We hope you enjoy the conference and have a memorable time in India. Swagat – Welcome!

Arun Ross
Jaihie Kim
Raymond Veldhuis
Program Chairs for ICB 2012





Program Schedule

Thursday, March 29, 2012	
08:00 – 09:30	Registration Venue: Ballroom (Pre Function Area)
09:30 – 12:30	Morning Tutorials (Parallel Session) Venue: Ballroom Title: <i>Fingerprint Recognition: Basics and Recent Advances</i> Speaker: Davide Maltoni, University of Bologna, Italy Title: <i>Face Recognition: Theories and Applications</i> Speaker: Stan Z. Li, Chinese Academy of Sciences, China
12:30 – 14:00	Lunch (on your own)
14:00 – 17:00	Afternoon Tutorials (Parallel Session) Venue: Ballroom Title: <i>Iris Recognition</i> Speaker: John Daugman, University of Cambridge, UK Title: <i>Biometrics Best Practices and Applications</i> Speaker: James L. Wayman, San Jose State University, USA
Friday, March 30, 2012	
08:00 – 09:00	Registration Venue: Ballroom (Pre Function Area)
08:30 – 10:00	Opening Session Venue: Ballroom Session Chair: Arun Ross (West Virginia University) Opening Comments (08:30 – 08:45) Anil K. Jain, Michigan State University Welcome Note (8:45 – 9:00) Mr. Ram Sevak Sharma, Director General, Unique Identification Authority of India, India Keynote Lecture I (09:00 – 10:00) Title: <i>Biometrics and Inclusion – The Aadhaar Experience</i> Speaker: Mr. Nandan Nilekani, Chairman, Unique Identification Authority of India, India
10:00 – 10:30	Coffee Break Venue: Ballroom (Pre Function Area)
10:30 – 12:30	Oral Session I: Fingerprints and Palmprints Venue: Ballroom Session Chairs: Venu Govindaraju (SUNY, Buffalo) and Zhenan Sun (Chinese Academy of Sciences) Fingerprint Matching Based on Minutiae Phase Spectrum Karthik Nandakumar (Institute for Infocomm Research) Improving Radial Triangulation-based Forensic Palmprint Recognition According to Point Pattern Comparison by Relaxation Ruifang Wang (Universidad Autónoma de Madrid), Daniel Ramos (Universidad Autónoma de Madrid), and Julian Fierrez (Universidad Autónoma de Madrid) Latent Fingerprint Segmentation with Adaptive Total Variation Model Jiangyang Zhang (University of Southern California), Rongjie Lai (University of Southern California), and C. C. Jay Kuo (University of Southern California)

10:30 – 12:30	A Novel Measure of Fingerprint Image Quality Using Principal Component Analysis (PCA) Xunqiang Tao (Chinese Academy of Sciences), Xin Yang (Chinese Academy of Sciences), Yali Zang (Chinese Academy of Sciences), Xiaofei Jia (Chinese Academy of Sciences), and Jie Tian (Chinese Academy of Sciences) On Matching Altered Fingerprints Soweon Yoon (Michigan State University), Qijun Zhao (Michigan State University), and Anil K. Jain (Michigan State University) LivDet 2011 – Fingerprint Liveness Detection Competition 2011 David Yambay (Clarkson University), Luca Ghiani (University of Cagliari), Paolo Denti (University of Cagliari), Gian Luca Marcialis (University of Cagliari), Fabio Roli (University of Cagliari), and Stephanie Schuckers (Clarkson University)
12:30 – 13:30	Conference Lunch Venue: Ballroom (Pre Function Area)
13:30 – 14:30	Poster Spotlight Session I Venue: Ballroom Session Chairs: Kar-Ann Toh (Yonsei University) and Karthik Nandakumar (Institute for Infocomm Research) Palmprint Verification and Identification Using Pyramidal HOG Feature and Fast Tree Based Matching Azadeh Ghandehari (Saveh Branch, Islamic Azad University), Mohammad Anvaripour (Sahand University of Technology of Tabriz), and Sima Soltanpour (Sahand University of Technology of Tabriz) Impact of Common Ophthalmic Disorders on Iris Segmentation G. McConnon (University of Kent), F. Deravi (University of Kent), S. Hoque (University of Kent), K. Sirlantzis (University of Kent), and G. Howells (University of Kent) Evaluation of Fusion Methods for Latent Fingerprint Matchers V. N. Dvornychenko (National Institute of Standards and Technology) A Novel Method for Low-constrained Iris Boundary Localization Carles Fernández (Herta Security), Dídac Pérez (Herta Security), Carlos Segura (Herta Security), and Javier Hernando (Universitat Politècnica de Catalunya) Which 3D Geometric Facial Features Gives Up Your Identity? Lahoucine Ballihi (TELECOM Lille 1), Boulbaba Ben Amor (TELECOM Lille 1), Mohamed Daoudi (TELECOM Lille 1), Anuj Srivastava (Florida State University), and Driss Aboutajdine (Université Mohammed V Agdal) Security EvaBio: An Analysis Tool for the Security Evaluation of Biometric Authentication Systems Mohamad El-Abed (GREYC), Patrick Lacharme (GREYC), and Christophe Rosenberger (GREYC) Biometric Access Control using Near Field Communication and Smart Phones Mohammad Omar Derawi (Gjøvik University College), Heiko Witte (Darmstadt University of Applied Sciences), Simon McCallum (Gjøvik University College), and Patrick Bours (Gjøvik University College) Context-Patches for Difficult Face Recognition Archana Sapkota (University of Colorado at Colorado Springs) and Terrance Boulton (University of Colorado at Colorado Springs) A Joint Factor Analysis Model For handling Mismatched Recording Conditions In Forensic Automatic Speaker Recognition Victor Alonso Moreno (Swiss Federal Institute of Technology Lausanne) and Andrzej Drygajlo (Swiss Federal Institute of Technology Lausanne)



Program Schedule

13:30 – 14:30	<p>Face Liveness Detection Based on Texture and Frequency Analyses Gahyun Kim (Yonsei University), Sungmin Eum (Yonsei University), Jae Kyu Suhr (Hanyang University), Dong Ik Kim (Yonsei University), Kang Ryoung Park (Dongguk University), and Jaihie Kim (Yonsei University)</p> <p>On the Effectiveness and Applicability of Mouse Dynamics Biometric for Static Authentication: A Benchmark Study Chao Shen (Xi'an Jiaotong University), Zhongmin Cai (Xi'an Jiaotong University), Xiaohong Guan (Xi'an Jiaotong University), and Jialin Wang (Xi'an Jiaotong University)</p> <p>Human Identification from at-a-distance Face Images using Sparse Representation of Local Iris Features Ajay Kumar (The Hong Kong Polytechnic University), Tak-Shing Chan (The Hong Kong Polytechnic University), and Chun-Wei Tan (The Hong Kong Polytechnic University)</p> <p>Moving Face Spoofing Detection via 3D Projective Invariants Maria De Marsico (Sapienza Università di Roma), Michele Nappi (Università di Salerno), Daniel Riccio (Università di Salerno), and Jean-Luc Dugelay (Institut EURECOM)</p> <p>Texture based Fingerprint BioHashing: Attacks and Robustness Rima Belguechi (GREYC), Estelle Cherrier (GREYC), and Christophe Rosenberger (GREYC)</p> <p>Heterogeneous Face Image Matching Using Multi-scale Features Sifei Liu (Chinese Academy of Sciences), Dong Yi (Chinese Academy of Sciences), Zhen Lei (Chinese Academy of Sciences), and Stan Z. Li (Chinese Academy of Sciences)</p> <p>Lef3a: Pupil Segmentation Using Viterbi Search Algorithm Emine Krichen (Morpho)</p> <p>Periocular Recognition: Analysis of Performance Degradation Factors Chandrashekhar N. Padole (University of Beira Interior) and Hugo Proenca (University of Beira Interior)</p> <p>Fingerprint Enhancement Using Contextual Iterative Filtering Francesco Turrone (University of Bologna), Raffaele Cappelli (University of 3rd author David Maltoni (University of Bologna)</p> <p>Generalized Fingerprint Minutiae Vicinities Bian Yang (Gjøvik University College) and Christoph Busch (Gjøvik University College)</p> <p>The One-to-Many Multi-Modal Fusion Challenge George W. Quinn (National Institute of Standards and Technology) and Partrick Grother (National Institute of Standards and Technology)</p> <p>Facial Behavior as a Soft Biometric Abhay L. Kashyap (University of Maryland), Sergey Tulyakov (University at Buffalo), and Venu Govindaraju (University at Buffalo)</p> <p>Identification of Multi-Spectral Palmprints Using Energy Compaction by Hybrid Wavelet H.B. Kekre (NMIMS, Mumbai), Tanuja Sarode (TSEC, Mumbai), Rekha Vig (NMIMS, Mumbai), Pranay Arya (NMIMS, Mumbai), Saurabh Bisani (NMIMS, Mumbai), and Aashita Irani (NMIMS, Mumbai)</p> <p>Impact of Out-of-Focus Blur on Face Recognition Performance Based on Modular Transfer Function Fang Hua (Clarkson University), Peter Johnson (Clarkson University), Nadezhda Sazonova (University of Alabama), Paulo Lopez-Meyer (University of Alabama), and Stephanie Schuckers (Clarkson University)</p>
14:30 – 16:00	<p>Poster and Demo Session I Venue: Dynasty Hall</p>
15:30 – 16:00	<p>Coffee Break Venue: Dynasty Lawn</p>

16:00 – 18:00	<p>Oral Session II: Gait, Speaker and Other Biometrics Venue: Ballroom Session Chairs: Jean-Luc Dugelay (EURECOM) and Elham Tabassi (NIST)</p> <p>Marionette Mass-Spring Model for 3D Gait Biometrics Gunawan Ariyanto (University of Southampton) and Mark S. Nixon (University of Southampton)</p> <p>Performance Evaluation of Gait Recognition using the Largest Inertial Sensor-based Gait Database Ngo Thanh Trung (Osaka University), Yasushi Makihara (Osaka University), Hajime Nagahara (Kyushu University), Yasuhiro Mukaigawa (Osaka University), and Yasushi Yagi (Osaka University)</p> <p>Biometric Authentication via Oculomotor Plant Characteristics Oleg V. Komogortsev (Texas State University), Alex Karpov (Texas State University), Larry R. Price (Texas State University), and Cecilia Aragon (University of Washington)</p> <p>Semiautomatic Dental Recognition Using a Graph-Based Segmentation Algorithm and Teeth Shapes Features Elizabeth Bonsaglia Barboza (São Paulo State University), Aparecido Nilceu Marana (São Paulo State University), and Denise Tostes Oliveira (University of São Paulo)</p> <p>Speaker Verification with Long-Term Ageing Data Finnian Kelly (Trinity College Dublin), Andrzej Drygajlo (Swiss Federal Institute of Technology Lausanne), and Naomi Harte (Trinity College Dublin)</p> <p>Speaker Identification using Optimal Lip Biometrics Preeti Singh (Malaviya National Institute of Technology), V. Laxmi (Malaviya National Institute of Technology), and M.S. Gaur (Malaviya National Institute of Technology)</p>
18:00 – 18:30	<p>IAPR TC-4 Meeting Venue: Ballroom</p>
19:00 – 22:00	<p>Welcome Reception Venue: Ballroom</p>





Program Schedule

Saturday, March 31, 2012	
08:00 – 09:00	Registration Venue: Ballroom (Pre Function Area)
09:00 – 10:00	Keynote Lecture II Venue: Ballroom Session Chair: Raymond Veldhuis (University of Twente) Title: <i>Large Scale Biometrics Database Management – Positioning for the Next Step in Social, Political and Economic Transformation</i> Speaker: Mr. Ming Hsieh, President, 3M Cogent, Inc., USA
10:00 – 10:30	Coffee Break Venue: Ballroom (Pre Function Area)
10:30 – 12:30	Oral Session III: Face and Ear Biometrics Venue: Ballroom Session Chairs: Massimo Tistarelli (University of Sassari) and Andrzej Drygajlo (EPFL) <i>Towards Automated Caricature Recognition</i> Brendan F. Klare (Michigan State University), Serhat S. Bucak (Michigan State University), Anil K. Jain (Michigan State University), and Tayfun Akgul (Istanbul Technical University) <i>Learning Compact Representation for Face Image with Tensor Manifold Perspective</i> Songsong Wu (Nanjing University of Science and Technology), Zhisen Wei (Nanjing University of Science and Technology), and Jingyu Yang (Nanjing University of Science and Technology) <i>An Improved Coupled Spectral Regression for Heterogeneous Face Recognition</i> Zhen Lei (Chinese Academy of Sciences), Changtao Zhou (Chinese Academy of Sciences), Dong Yi (Chinese Academy of Sciences), Anil K. Jain (Michigan State University), and Stan Z. Li (Chinese Academy of Sciences) <i>Histograms of Gabor Ordinal Measures for Face Representation and Recognition</i> Zhenhua Chai (Chinese Academy of Sciences), Heydi Méndez-Vázquez (CENATAV), Ran He (Chinese Academy of Sciences), Zhenan Sun (Chinese Academy of Sciences), and Tieniu Tan (Chinese Academy of Sciences) <i>3D Morphable Model Fitting For Low-Resolution Facial Images</i> Pouria Mortazavian (University of Surrey), Josef Kittler (University of Surrey), and William Christmas (University of Surrey) <i>An Efficient Technique for Ear Detection in 3D: Invariant to Rotation and Scale</i> Surya Prakash (IIT Kanpur) and Phalguni Gupta (IIT Kanpur)
12:30 – 13:30	Conference Lunch Venue: Ballroom (Pre Function Area)
13:30 – 15:00	Panel Session: UIDAI System, From Its Concept, Design, Implementation and Current State Venue: Ballroom Panel Leader: Srikanth Nadhamuni, Head of Technology, UIDAI
15:00 – 15:30	Coffee Break Venue: Ballroom (Pre Function Area)
15:30 – 17:30	Oral Session IV: Modeling Features, Templates and Scores Venue: Ballroom Session Chairs: Javier Ortega-Garcia (Universidad Autonoma de Madrid) and Christoph Busch (Gjøvik University College) <i>Estimating Individuality in Feature Point Based Retina Templates</i> J. Jeffers (RMIT University), S. A. Davis (RMIT University), and K. J. Horadam (RMIT University)

15:30 – 17:30	<i>Iris-Biometric Comparators: Exploiting Comparison Scores towards an Optimal Alignment under Gaussian Assumption</i> Christian Rathgeb (University of Salzburg), Andreas Uhl (University of Salzburg), and Peter Wild (University of Salzburg) <i>Extraction of Fractal Dimension for Iris texture</i> R. A. Bobby (IIT Delhi), M. Hanmandlu (IIT Delhi), A. Sharma (Banasthali University), and M. Bindal (Banasthali University) <i>Fingerprint Orientation Modeling by Sparse Coding</i> Shuxin Liu (Zhangzhou Normal University) and Manhua Liu (Shanghai Jiao Tong University) <i>Modeling Biometric Template Update with Ant Colony Optimization</i> Enrico Grosso (University of Sassari), Luca Pulina (University of Sassari), and Massimo Tistarelli (University of Sassari) <i>Head Pose Estimation by Bootstrapping Generalized Discriminant Analysis with SIFT Flow Alignment Criterion</i> Jian-Gang Wang (Institute for Infocomm Research), Wei-Yun Yau (Institute for Infocomm Research), and Eric Sung (Nanyang Technological University)
19:00 – 19:45	Cultural Program: Traditional dances from different parts of India - Kathak, Goomer, Garba, Bhangara, and Fusion of Stick and Dhol Chalam Venue: Ballroom
20:00 – 22:00	Banquet and Award Distribution Venue: Ballroom





Program Schedule

Sunday, April 01, 2012

08:00 – 09:00	Registration Venue: Ballroom (Pre Function Area)
09:00 – 10:00	Keynote Lecture III Venue: Ballroom Session Chair: Jaihie Kim (Yonsei University) Title: Iris Recognition at 20 Years: From Zero to 100 Trillion Iris Comparisons per Day Speaker: Prof. John Daugman, University of Cambridge, UK
10:00 – 10:30	Coffee Break Venue: Ballroom (Pre Function Area)
10:30 – 12:30	Oral Session V: Ocular Biometrics Venue: Ballroom Session Chairs: Stephanie Schuckers (Clarkson University) and Josef Bigun (Halmstad University) Iris-Sensor Authentication using Camera PRNU Fingerprints Andreas Uhl (University of Salzburg) and Yvonne Höller (University of Salzburg) Tensor Decomposition of SIFT Descriptors for Person Identification Xiaomin Liu (Jia Mu Si University) and Peihua Li (Heilongjiang University) Weighted Adaptive Hough and Ellipsopolar Transforms for Real-time Iris Segmentation Andreas Uhl (University of Salzburg) and Peter Wild (University of Salzburg) The Viterbi Algorithm at Different Resolutions for Enhanced Iris Segmentation Guillaume Sutra (Télécom SudParis), Sonia Garcia-Salicetti (Télécom SudParis), and Bernadette Dorizzi (Télécom SudParis) Robust Iris Segmentation Based on Learned Boundary Detectors Haiqing Li (Chinese Academy of Sciences), Zhenan Sun (Chinese Academy of Sciences), and Tieniu Tan (Chinese Academy of Sciences) Matching Highly Non-ideal Ocular Images: An Information Fusion Approach Arun Ross (West Virginia University), Raghavender Jillela (West Virginia University), Jonathon M. Smerka (Carnegie Mellon University), Vishnu Naresh Boddeti (Carnegie Mellon University), B.V.K. Vijaya Kumar (Carnegie Mellon University), Ryan Barnard (Wake Forest University), Xiaofei Hu (Wake Forest University), Paul Pauca (Wake Forest University), and Robert Plemmons (Wake Forest University)
12:30 – 13:30	Conference Lunch Venue: Ballroom
13:30 – 14:30	Poster Spotlight Session II Venue: Ballroom Session Chairs: Ajay Kumar (Hong Kong Polytechnic University) and Julian Fierrez (Universidad Autonoma de Madrid) A Method for Heterogeneous Face Image Synthesis Pengfei Xiong (Chinese Academy of Sciences), Lei Huang (Chinese Academy of Sciences), and Changping Liu (Chinese Academy of Sciences) Iris Recognition under Alcohol Influence: A Preliminary Study Sunpreet S. Arora (IIIT Delhi), Mayank Vatsa (IIIT Delhi), Richa Singh (IIIT Delhi), and Anil K. Jain (Michigan State University) Retrieving Secrets from Iris Fuzzy Commitment Xuebing Zhou (CASED-HDA), Arjan Kuijper (Fraunhofer IGD), and Christoph Busch (CASED-HDA)

13:30 – 14:30	A Biometric-based Covert Warning System Using EEG Fei Su (Beijing University of Posts and Telecommunications), Huangling Zhou (Beijing University of Posts and Telecommunications), Zhiyin Feng (Beijing University of Posts and Telecommunications), and Junshui Ma (Merck Research Laboratories) Nose Tip Detection from 3D Facial Mesh Data Using a Rotationally Invariant Local Shape Descriptor Diep H. Nguyen (Sungkyunkwan University), Jaekeun Na (Sungkyunkwan University), and Juneho Yi (Sungkyunkwan University) Joint Inference of Soft Biometric Features Niyati Chhaya (University of Maryland) and Tim Oates (University of Maryland) Ethnicity Classification based on Fusion of Face and Gait De Zhang (Beihang University), Yunhong Wang (Beihang University), Zhaoxiang Zhang (Beihang University), and Maodi Hu (Beihang University) Discriminant Analysis with Gabor Phase for Robust Face Recognition Jianfei Zhu (Xidian University), Dong Cao (Hohai University), Sifei Liu (Chinese Academy of Sciences), Zhen Lei (Chinese Academy of Sciences), and Stan Z. Li (Chinese Academy of Sciences) A Hierarchical Framework for Image-based Human Age Estimation by Weighted and OHRanked Sparse Representation-based Classification Weixin Li (Beihang University), Yunhong Wang (Beihang University), and Zhaoxiang Zhang (Beihang University) A Face Antispoofing Database with Diverse Attacks Zhiwei Zhang (Chinese Academy of Sciences), Junjie Yan (Chinese Academy of Sciences), Sifei Liu (Chinese Academy of Sciences), Zhen Lei (Chinese Academy of Sciences), Dong Yi (Chinese Academy of Sciences), and Stan Z. Li (Chinese Academy of Sciences) Gabor Filters as Candidate Quality Measure for NFIQ 2.0 Martin Astrup Olsen (Center for Advanced Security Research Darmstadt), Haiyun Xu (University of Twente), and Christoph Busch (Norwegian Information Security Laboratory) 3D Face Recognition: A Robust Multi-matcher Approach to Data Degradations Wael Ben Soltana (Ecole Centrale de Lyon), Mohsen Ardabilian (Ecole Centrale de Lyon), Pierre Lemaire (Ecole Centrale de Lyon), Di Huang (Ecole Centrale de Lyon), Przemyslaw Szeptycki (Ecole Centrale de Lyon), Liming Chen (Ecole Centrale de Lyon), Boulbaba Ben Amor (Université de Lille 1), Hassen Drira (Université de Lille 1), Mohamed Daoudi (Université de Lille 1), Nesli Erdogan (EURECOM), Lionel Daniel (EURECOM), Jean-Luc Dugelay (EURECOM), and Joseph Colineau (THALES-TRT) A Robust Image Feature Extraction Method for Face Recognition Jianjun Qian (Nanjing University of Science and Technology) and Jian Yang (Nanjing University of Science and Technology) The Enhancement of Low Quality Fingerprint Based on Fractional Calculus Mask Xunqiang Tao (Chinese Academy of Sciences), Xin Yang (Chinese Academy of Sciences), Yali Zang (Chinese Academy of Sciences), Xiaofei Jia (Chinese Academy of Sciences), and Jie Tian (Chinese Academy of Sciences) A Generic Computer Platform for Efficient Iris Recognition Chris Ponder (Institute of System Level Integration), Khaled Benkrid (The University of Edinburgh), and Abdsamad Benkrid (University of Portsmouth) Performance Evaluation of Heart Sounds Biometric Systems on an Open Dataset Andrea Spadaccini (University of Catania) and Francesco Beritelli (University of Catania)
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Program Schedule

13:30 – 14:30	<p>Oriented Gradient Maps based Automatic Asymmetric 3D-2D Face Recognition Di Huang (Beihang University), Mohsen Ardabilian (Ecole Centrale de Lyon), Yunhong Wang (Beihang University), and Liming Chen (Ecole Centrale de Lyon)</p> <p>Hand Vein Recognition Based on Multiple Keypoints Sets Yiding Wang (North China University of Technology), Yun Fan (North China University of Technology), Weiping Liao (North China University of Technology), Kefeng Li (University of Central Lancashire), Lik-Kwan Shark (University of Central Lancashire), and Martin R Varley (University of Central Lancashire)</p> <p>Faster Secure Computation for Biometric Identification Using Filtering Julien Bringer (Morpho), Mélanie Favre (Morpho), Hervé Chabanne (Morpho), and Alain Patey (Morpho)</p> <p>Label Diffusion on Graph for Face Identification Pierre Buysens (University of Caen) and Marinette Revenu (University of Caen)</p> <p>Robust 3D Face Recognition in the Presence of Realistic Occlusions Nese Alyüz (Bogaziçi University), Berk Gökberk (University of Twente), Luuk Spreeuwers (University of Twente), Raymond Veldhuis (University of Twente), and Lale Akarun (Bogaziçi University)</p> <p>Iris Liveness Detection Based on Quality Related Features Javier Galbally (Universidad Autonoma de Madrid), Jaime Ortiz-Lopez (Universidad Autonoma de Madrid), Julian Fierrez (Universidad Autonoma de Madrid), and Javier Ortega-Garcia (Universidad Autonoma de Madrid)</p> <p>Significance of Magnitude and Phase Information via VTEO for Humming Based Biometrics Hemant A. Patil (Dhirubhai Ambani Institute of Information and Communication Technology) and Maulik C. Madhavi (Dhirubhai Ambani Institute of Information and Communication Technology)</p>
14:30 – 16:00	<p>Poster and Demo Session II Venue: Dynasty Hall</p>

15:30 – 16:00	<p>Coffee Break Venue: Dynasty Lawn</p>
16:00 – 18:00	<p>Oral Session VI: Template Security and Multimodal Biometrics Venue: Ballroom Session Chairs: Josef Kittler (University of Surrey) and Bernadette Dorizzi (Télécom SudParis)</p> <p>Extracting Sclera Features for Cancelable Identity Verification Kangrok Oh (Yonsei University) and Kar-Ann Toh (Yonsei University)</p> <p>Face Verification Put to Test: A Hill-Climbing Attack Based on the Uphill-Simplex Algorithm Marta Gomez-Barrero (Universidad Autonoma de Madrid), Javier Galbally (Universidad Autonoma de Madrid), Julian Fierrez (Universidad Autonoma de Madrid), and Javier Ortega-Garcia (Universidad Autonoma de Madrid)</p> <p>Criteria Towards Metrics for Benchmarking Template Protection Algorithms Koen Simoons (K. U. Leuven), BianYang (Gjøvik University College), Xuebing Zhou (Hochschule Darmstadt), Filipe Beato (K. U. Leuven), Christoph Busch (Gjøvik University College), Elaine M. Newton (National Institute of Standards and Technology), and Bart Preneel (K. U. Leuven)</p> <p>Combined Face and Gait Recognition using Alpha Matte Preprocessing Martin Hofmann (Technische Universität München), Stephan M. Schmidt (Technische Universität München), A.N. Rajagopalan (Technische Universität München), and Gerhard Rigoll (Technische Universität München)</p> <p>Evaluation of Multimodal Biometric Score Fusion Rules Under Spoof Attacks Zahid Akhtar (University of Cagliari), Giorgio Fumera (University of Cagliari), Gian Luca Marcialis (University of Cagliari), and Fabio Roli (University of Cagliari)</p> <p>Biometric Based Personal Authentication Using Fuzzy Binary Decision Tree Amioy Kumar (IIT Delhi), Madasu Hanmandlu (IIT Delhi), Attindra Das (IIT Delhi), and H.M. Gupta (IIT Delhi)</p>





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