

# **2018 IEEE International Workshop on Information Forensics and Security (WIFS 2018)**

**Hong Kong  
11-13 December 2018**



**IEEE Catalog Number: CFP18WIF-POD  
ISBN: 978-1-5386-6537-4**

**Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP18WIF-POD
ISBN (Print-On-Demand):	978-1-5386-6537-4
ISBN (Online):	978-1-5386-6536-7
ISSN:	2157-4766

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# WIFS 2018

## Program Schedule

Monday, December 10, 2018	
Monday 08:00 – 09:00	<b>Registration</b> Venue: Registration Desk, Reception Area. M1607, Li Ka Shing Tower The Hong Kong Polytechnic University
Monday 09:00 – 12:30 	<b>Morning Tutorial I : Privacy-Aware Smart Metering N/A</b> Presenters: Deniz Gunduz ( <i>Imperial College London, London, UK</i> ) Tobias Oechtering ( <i>KTH Royal Institute of Technology, Stockholm, Sweden</i> ) Venue: Room PQ 703, Mong Man Wai Building  <b>Morning Tutorial III :Role of Adversaries in Deep Learning</b> Presenters: Mayank Vatsa ( <i>IIIT Delhi, India</i> ) Richa Singh ( <i>IIIT Delhi, India</i> ) Venue: WIFS 2018 Conference Room (M1604, Li Ka Shing Tower)
Monday 10:45 – 11:00	<b>Coffee Break</b> Venue: Reception Area (M1607, Li Ka Shing Tower) 
Monday 11:00 – 12:30 	<b>Morning Tutorial I (Contd.) : Privacy-Aware Smart Metering N/A</b> Presenters: Deniz Gunduz ( <i>Imperial College London, London, UK</i> ) Tobias Oechtering ( <i>KTH Royal Institute of Technology, Stockholm, Sweden</i> ) Venue: Room PQ 703, Mong Man Wai Building  <b>Morning Tutorial III (Contd.): Role of Adversaries in Deep Learning N/A</b> Presenters: Mayank Vatsa ( <i>IIIT Delhi, India</i> ), Richa Singh ( <i>IIIT Delhi, India</i> ) Venue: WIFS 2018 Conference Room (M1604, Li Ka Shing Tower)
Monday 12:30 – 14:00	<b>Lunch</b> Venue: PolyU Staff Restaurant (4/F, Communal Building) 
Monday 14:00 – 15:30 	<b>Afternoon Tutorial II :</b> <b>Privacy-Location Privacy: Threats and Opportunities N/A</b> Presenters: Fernando Pérez-González ( <i>University of Vigo, Spain</i> ) Simón Oya ( <i>University of Vigo, Spain</i> ) Venue: WIFS 2018 Conference Room (M1604, Li Ka Shing Tower)  <b>Afternoon Tutorial IV :</b> <b>Biometric Template Protection and Evaluation N/A</b> Presenters: Marta Gomez-Barrero ( <i>Hochschule Darmstadt, Germany</i> ) Venue: Room PQ 703, Mong Man Wai Building
Monday 15:30 – 15:45	<b>Coffee Break</b> Venue: Reception Area (M1607, Li Ka Shing Tower) 



Monday 15:45 – 17:00	 <p><b>Afternoon Tutorial II (Contd.):</b>  <b>Privacy- Location Privacy: Threats and Opportunities N/A</b>  Presenters: Fernando Pérez-González (<i>University of Vigo, Spain</i>),  Simón Oya (<i>University of Vigo, Spain</i>)  Venue: WIFS 2018 Conference Room (M1604, Li Ka Shing Tower)</p> <p><b>Afternoon Tutorial IV (Contd.):</b>  <b>Biometric Template Protection and Evaluation N/A</b>  Presenters: Marta Gomez-Barrero (<i>Hochschule Darmstadt, Germany</i>)  Venue: Room PQ 703, Mong Man Wai Building</p>
<b>Tuesday, December 11, 2018</b>	
Tuesday 08:30 - 09:30	<p><b>Registration</b>  Venue: Registration Desk, Reception Area, M1607</p>
Tuesday 09:00 - 09:20	<p><b>Opening Address - Welcome Session N/A</b>  Opening Address: Alex Wai, Vice President (RD), PolyU  Welcome Address: Conference Chairs  Venue: Conference Room</p>
Tuesday 09:20 - 10:20	<p><b>Keynote Talk: Biometric Identification of Human Individuals: Recent Advances and Future Directions N/A</b>  Speaker: Tieniu Tan (<i>Center for Research on Intelligent Perception and Computing National Laboratory of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences (CAS), Beijing</i>)   Session Chair: Patrizio Campisi (<i>Roma Tre University, Rome, Italy</i>)  Venue: Conference Room</p>
Tuesday 10:20 - 10:50	<p><b>Coffee Break</b>  Venue: Conference Room Lobby</p> 
Tuesday 10:50 - 11:50	<p><b>Oral Session # 1: Audio and Video Forensics</b>  Session Chair: Chang-Tsun Li (<i>University of Warwick, UK</i>)  Venue: Conference Room</p> <p><b>In Ictu Oculi: Exposing AI Created Fake Videos by Detecting Eye Blinking 220</b>  Yuezun Li, Ming-Ching Chang, Siwei Lyu (<i>University at Albany, State University of New York, USA</i>)</p> <p><b>MesoNet: a Compact Facial Video Forgery Detection Network 213</b>  Darius Afchar (<i>école des Ponts Paristech, Marne-la-Vallée, France</i>),  Vincent Nozick (<i>UPEM, France</i>), Junichi Yamagishi (<i>National Institute of Informatics, Tokyo, Japan</i>), Isao Echizen (<i>National Institute of Informatics, Tokyo, Japan</i>)</p> <p><b>Transforming Acoustic Characteristics to Deceive Playback Spoofing Countermeasures of Speaker Verification Systems 49</b>  Fuming Fang (<i>National Institute of Informatics, Japan</i>), Junichi Yamagishi (<i>NII Japan and University of Edinburgh, UK</i>), Isao Echizen (<i>National Institute of Informatics, Japan</i>), Md Sahidullah (<i>Inria, France</i>), Tomi Kinnunen (<i>University of Eastern Finland, Finland</i>)</p>
O1	
O2	
O3	

# WIFS 2018

## Program Schedule

Tuesday, December 11, 2018	
<p>Tuesday 11:50 - 12:30</p>  <p>O1</p> <p>O2</p>	<p><b>Oral Session # 2: Digital Camera Forensics</b>            Session Chair: Chau-Wai Wong (<i>North Carolina State University, USA</i>)            Venue: Conference Room</p> <p><b>An Inception-Based Data-Driven Ensemble Approach to Camera Model Identification 234</b>            Anselmo Ferreira (<i>Shenzhen University, China</i>), Han Chen (<i>Shenzhen University, China</i>), Bin Li (<i>Shenzhen University, China</i>), Jiwu Huang (<i>Shenzhen University, China</i>)</p> <p><b>Countering the Pooled Triangle Test for PRNU-based camera identification 73</b>            Mauro Barni (<i>University of Siena, Siena, Italy</i>)            Mariko Nakano-Miyatake (<i>National Polytechnic Inst. of Mexico, Mexico</i>)            Héctor Santoyo-García (<i>National Polytechnic Insti. of Mexico, Mexico</i>)            Benedetta Tondi (<i>University of Siena, Siena, Italy</i>)</p>
<p>Tuesday 12:30 - 14:00</p>	<p><b>Lunch</b>            Venue: PolyU Staff Restaurant (4/F, Communal Building)</p> <p><b>Editorial Board Meeting (<i>IEEE Trans. Info. Forensics &amp; Security</i>)</b>            Venue (Invited Members Only): PQ 703, Mong Man Wai Building</p>
<p>Tuesday 14:00 - 15:20</p>  <p>O1</p> <p>O2</p> <p>O3</p> <p>O4</p>	<p><b>Oral Session # 3: Data Hiding in Encryption Domain</b>            Session Chair: Mauro Barni (<i>University of Siena, Siena, Italy</i>)            Venue: Conference Room</p> <p><b>EPE-based Huge-Capacity Reversible Data Hiding in Encrypted Images 177</b>            Pauline Puteaux (<i>LIRMM – CNRS, Univ. Montpellier, France</i>) William Puech (<i>LIRMM – CNRS, Univ. Montpellier, France</i>)</p> <p><b>Reversible Data Hiding in Encrypted Images with Two-MSB Prediction 163</b>            Yi Puyang (<i>Anhui University, Shanghai University, China</i>), Zhaoxia Yin (<i>Anhui University, China and Purdue University, USA</i>), Zhenxing Qian (<i>Shanghai University, China</i>)</p> <p><b>Reversible Contrast Mapping based Reversible Data Hiding in Encrypted Images 79</b>            Yingqiang Qiu (<i>Huaqiao University, China</i>), Hangxing Wang (<i>Huaqiao University, China</i>), Zichi Wang (<i>Shanghai University, China</i>), Henxing Qian (<i>Shanghai University, China</i>), Gui Feng (<i>Huaqiao University, China</i>), Xinpeng Zhang (<i>Shanghai University China</i>)</p> <p><b>Camera Attribution Forensic Analyzer in the Encrypted Domain 66</b>            Alberto Pedrouzo-Ulloa (<i>University of Vigo, Spain</i>), Miguel Masciopinto (<i>University of Vigo, Spain</i>), Juan Ramón Troncoso-Pastoriza (<i>École Polytechnique Fédérale de Lausanne, Switzerland</i>), Fernando Pérez-González (<i>University of Vigo, Spain</i>)</p>



Tuesday 15:20 - 15:40	<b>Coffee Break</b> Venue: Reception Area (M1607, Li Ka Shing Tower)
Tuesday 15:40 - 16:40   O1   O2   O3	<b>Oral Session # 4: Watermarking and Data Hiding</b> Session Chair: William Puech ( <i>LIRMM – CNRS, Univ. Montpellier, Montpellier, France</i> ) Venue: Conference Room  <b>Are Deep Neural Networks good for blind image watermarking? 156</b> Vedran Vukotić ( <i>Lamark, France</i> ) Vivien Chappelier ( <i>Lamark, France</i> ) Teddy Furon ( <i>Univ Rennes, Inria, CNRS, IRISA, France</i> )  <b>A Multi-Task Learning CNN for Image Steganalysis 135</b> Xiangyu Yu ( <i>South China University of Technology, China</i> ) Huabin Tan ( <i>South China University of Technology, China</i> ) Hui Liang ( <i>South China University of Technology, China</i> ) Chang-Tsun Li ( <i>Charles Sturt University, Australia</i> ) Guangjun Liao ( <i>Guangdong Police College, China</i> )  <b>Adaptive Steganography in the Noisy Channel with Dual-Syndrome Trellis Codes 93</b> Christy Kin-Cleaves ( <i>Oxford University, UK</i> ), Andrew D. Ker ( <i>Oxford University, UK</i> )
Tuesday 16:40 - 17:40   O1   O2   O3	<b>Oral Session # 5: Data Protection and Access Control</b> Session Chair: Fernando Pérez-González ( <i>University of Vigo, Spain</i> ) Venue: Conference Room  <b>Emotional Bots: Content-based Spammer Detection on Social Media 205</b> Panagiotis Andriotis ( <i>University of the West of England, Bristol, U.K.</i> ) Atsuhiko Takasu ( <i>National Institute of Informatics, Tokyo, Japan</i> )  <b>Protect Your Deep Neural Networks from Piracy 16</b> Mingliang Chen ( <i>University of Maryland, USA</i> ) Min Wu ( <i>University of Maryland, USA</i> )  <b>A Randomized Kernel-Based Secret Image Sharing Scheme 7</b> Akella Ravi Tej ( <i>IIT Roorkee, India</i> ), Rekula Raviteja ( <i>IIT Roorkee, India</i> ), Vinod Pankajakshan ( <i>IIT Roorkee, India</i> )
<b>Wednesday December 12, 2018</b>	
Wednesday 08:30 - 09:30	<b>Registration</b> Venue: Registration Desk, Reception Area (M1607)
Wednesday 09:00 - 10:00	<b>Keynote Talk: Hostile Blockchain Takeovers</b> Speaker: Joseph Bonneau ( <i>New York University, USA</i> ) Venue: Conference Room Session Chair: Allen Au ( <i>The Hong Kong Polytechnic University</i> )

# WIFS 2018

## Program Schedule

Wednesday December 12, 2018	
Wednesday 10:00 - 10:20	<b>Coffee break</b> Venue: Reception Area (M1607, Li Ka Shing Tower)
Wednesday 10:20 - 11:20    O1   O2   O3	<b>Oral Session # 6: Privacy Protection and Enhancement</b> Session Chair: Yi Wang ( <i>Dongguan University of Technology, China</i> ) Venue: Conference Room  <b>Latent Feature Disclosure under Perfect Sample Privacy 23</b> Borzoo Rassouli ( <i>University of Essex, UK</i> ) Fernando Rosas ( <i>Imperial College London, UK</i> ) Deniz Gündüz ( <i>Imperial College London, UK</i> )  <b>Privacy-Preserving Distributed Deep Learning with Privacy Transformations 30</b> Sen-ching S. Cheung ( <i>University of Kentucky, Lexington, KY, USA</i> ) Muhammad Usman Rafique ( <i>University of Kentucky, Lexington, KY, USA</i> ) Wai-tian Tan ( <i>Cisco Systems Inc., San Jose, CA, USA</i> )  <b>A Novel Approach For Data Packing: Using Trapdoor Knapsack (11:00-11:20 AM) 37</b> Majid Nateghizad ( <i>Delft University of Technology, Netherland</i> ) Zekeriya Erkin ( <i>Delft University of Technology, Netherland</i> ) Reginald L. Lagendijk ( <i>Delft University of Technology, Netherland</i> )
Wednesday 11:20 - 12:20    O1   O2	<b>Oral Session # 7: Fingerprint-based Security and Protection</b> Session Chair: Richa Singh ( <i>IIITD, India</i> ) Venue: Conference Room  <b>One-factor Cancellable Scheme for Fingerprint Template Protection: Extended Feature Vector (EFV) Hashing 170</b> Ming Jie Lee ( <i>Monash University Malaysia, Malaysia</i> ) Zhe Jin ( <i>Monash University Malaysia, Malaysia</i> ) Andrew Beng Jin Teoh ( <i>Yonsei University, South Korea</i> )  <b>Database Binning and Retrieval in Multi-Fingerprint Identification Systems 106</b> P. Drozdowski ( <i>Biometrics and Internet Security Research Group, Hochschule Darmstadt, Germany and NTNU, Norway</i> ) D. Fischer ( <i>Biometrics and Internet Security Research Group, Hochschule Darmstadt, Germany</i> ) C. Rathgeb ( <i>Biometrics and Internet Security Research Group, Hochschule Darmstadt, Germany</i> ) C. Schielz ( <i>Bundeskriminalamt (BKA), Wiesbaden, Germany</i> ) C. Busch ( <i>Biometrics and Internet Security Research Group, Hochschule Darmstadt, Germany</i> )



O3	<b>Fingerprint Presentation Attack Detection Using A Novel Multi-Spectral Capture Device and Patch-Based Convolutional Neural Networks 58</b> Mohamed E. Hussein ( <i>Information Sciences Institute, CA, USA and Alexandria University, Alexandria, Egypt</i> ), Leonidas Spinoulas ( <i>Information Sciences Institute, USC, USA</i> ), Fei Xiong ( <i>Information Sciences Institute</i> ), Wael Abd-Almageed ( <i>Information Sciences Institute, USC, USA</i> )
Wednesday 12:20 - 13:20	<b>Lunch</b> Venue: PolyU Staff Restaurant (4/F, Communal Building)
Wednesday 13:10 - 13:30	<b>Boarding Bus for Social Gathering</b>
Wednesday 15:30 - 18:30	<b>Social Gathering/Meeting at Ocean Park (See <i>Details</i> for Options)</b>



# WIFS 2018

## Program Schedule

Wednesday December 12, 2018

Tuesday 18:30 - 21:20

**Banquet Dinner**



**WIFS 2018 Awards**



**Banquet Dinner**



**Venue:** Neptune's Restaurant (**Ocean Park**)

*Social Gathering: Multiple Locations*

WIFS 2018 Best Paper Awards

WIFS 2018 Best Student Paper Awards



WIFS 2019 Introduction



Wednesday 21:15 - 21:30



**Boarding Bus for the *Return* to Conference Venue**



Thursday, December 13, 2018	
Thursday 08:30 - 09:30	<b>Registration</b> Venue: Registration Desk, Reception Area (M1607)
Thursday 09:00 - 10:00 	<b>Panel Session</b> Panel Session Chair: Mauro Barni ( <i>University of Siena, Siena, Italy</i> ) Venue: Conference Room  <b>Key Research Problems in Information Forensics and Security for the next Five Years</b> Panelist: Patrizio Campisi ( <i>Roma Tre University, Roma, Italy</i> ) Fernando Pérez-González ( <i>University of Vigo, Vigo, Spain</i> ) Teddy Furon ( <i>Univ Rennes, Inria, CNRS, IRISA, France</i> ) Tobias Oechtering ( <i>KTH Royal Institute of Technology, Stockholm, Sweden</i> ) Deniz Gunduz ( <i>Imperial College London, London, UK</i> )
Thursday 10:00 - 10:12 	<b>IEEE T-IFS Papers Poster Spotlights (6 Posters)</b> Session Chair: Rafael F. Schaefer ( <i>Technische Universität München, Germany</i> ) Venue: Conference Room
P1	<b>Improving PRNU Compression Through Preprocessing Quantization and Coding, IEEE T-IFS, 2019 N/A</b> Luca Bondi ( <i>Politecnico di Milano, Italy</i> ), Paolo Bestagini ( <i>Politecnico di Milano, Italy</i> ), Fernando Perez-González ( <i>University of Vigo, Spain</i> ), Stefano Tubaro ( <i>Politecnico di Milano, Italy</i> )
P2	<b>Slope Authentication at the Physical Layer, IEEE T-IFS, 2018 N/A</b> Ning Xie ( <i>Shenzhen University, China</i> ), Changsheng Chen ( <i>Shenzhen University, China</i> )
P3	<b>Factors Affecting ENF Capture in Audio, IEEE T-IFS, 2018 N/A</b> Adi Haji-Ahmad ( <i>University of Maryland, College Park, USA</i> ) Chau-Wai Wong ( <i>University of Maryland, College Park, USA</i> ) Steven Gambino ( <i>Maryland, College Park, USA</i> ) Qiang Zhu ( <i>University of Maryland, College Park, USA</i> ) Miao Yu ( <i>Maryland, College Park, USA</i> ), Min Wu ( <i>University of Maryland, College Park, USA</i> )
P4	<b>Large-Scale JPEG Image Steganalysis Using Hybrid Deep-Learning Framework, IEEE T-IFS 2018 N/A</b> Jishen Zeng ( <i>Shenzhen University, China</i> ), Shunquan Tan ( <i>Shenzhen University, China</i> ), Bin Li ( <i>Shenzhen University, China</i> ), Jiwu Huang ( <i>Shenzhen University, China</i> )
P5	<b>Network Traffic Fingerprinting Based on Approximated Kernel Two-Sample Test, IEEE T-IFS, 2017 N/A</b> Jan Kohout ( <i>Czech Technical University in Prague, Czech Republic</i> ) Tomáš Pevný ( <i>Czech Technical University in Prague, Czech Republic</i> )

# WIFS 2018

## Program Schedule

Thursday, December 13, 2018	
P6	<b>Multi-Scale Difference Map Fusion for Tamper Localization using Binary Ranking Hashing, <i>IEEE T-IFS</i>, 2017 N/A</b> Cai-Ping Yan ( <i>University of Macau, Macau, China</i> ) Chi-Man Pun ( <i>University of Macau, Macau, China</i> )
Thursday 10:12 – 10:40	<b>TIFS Poster Session and Coffee break</b> <b>Poster Session (6 Posters)</b> Venue: Reception Area (M1607, Li Ka Shing Tower)
Thursday 10:40 – 11:40	<b>Oral Session # 8 : Compression and Authentication</b> Session Chair: Iuliia Tkachenko ( <i>University Lyon, UJM-Saint-Etienne, France</i> ) Venue: New Conference Room TU 201 
O1	<b>JPEG Implementation Forensics Based on Eigen-Algorithms 142</b> Nicoló Bonettini ( <i>Politecnico di Milano, Italy</i> ), Luca Bondi ( <i>Politecnico di Milano, Italy</i> ), Paolo Bestagini ( <i>Politecnico di Milano, Italy</i> ), Stefano Tubaro ( <i>Politecnico di Milano, Italy</i> )
O2	<b>Exposing Image Resizing utilizing Welch Power Spectral Density Analysis for Double Compressed JPEG Images 100</b> Sidhant Sahu ( <i>NIT Rourkela, India</i> ), Manish Okade ( <i>NIT Rourkela, India</i> )
O3	<b>Enhanced Geometric Reflection Models for Paper Surface Based Authentication 241</b> Runze Liu ( <i>North Carolina State University, USA</i> ), Chau-Wai Wong ( <i>North Carolina State University, USA</i> ), Min Wu ( <i>University of Maryland, College Park, USA</i> )
Thursday 11:40 – 12:40	<b>Oral Session # 9 : Pattern Analysis and Forensics</b> Session Chair: Bin Li ( <i>Shenzhen University, China</i> ) Venue: New Conference Room TU 201 
O1	<b>Revealing the processing history of pitch-shifted voice using CNNs 149</b> Lihua Wang ( <i>Sun Yat-sen University, Guangzhou, China</i> ), Huixin Liang ( <i>Sun Yat-sen University, Guangzhou, China</i> ), Xiaodan Lin ( <i>Sun Yat-sen University, Guangzhou, China</i> ), Xiangui Kang ( <i>Sun Yat-sen University, Guangzhou, China</i> )
O2	<b>Error Analysis of Forensic ENF Matching 184</b> Guang Hua ( <i>Wuhan University, China</i> )
O3	<b>Exploitation of Redundancy for Pattern Estimation of Copy-Sensitive Two Level QR Code 1</b> Iuliia Tkachenko ( <i>University Lyon, UJM-Saint-Etienne, France</i> ) Christophe Destruel ( <i>IGO, France</i> )



Thursday, December 13, 2018	
<p>Thursday 12:40 – 14:00</p> 	<p><b>Lunch</b> Venue: PolyU Staff Restaurant (4/F, Communal Building)</p> <p><b>Meeting: IEEE SPS Technical Committee (Info. Forensics &amp; Security)</b> Venue (Invited Members Only): PQ 703, Mong Man Wai Building</p>
<p>Thursday 14:00 – 15:20</p>  <p>O1</p> <p>O2</p> <p>O3</p> <p>O4</p>	<p><b>Oral Session # 10 : Physical Layer Security</b> Session Chair: Tobias Oechtering (<i>KTH Royal Institute of Technology, Stockholm, Sweden</i>) Venue: Conference Room TU 201</p> <p><b>The Deterministic and Correlated Random Public-Confidential Capacity Regions of the Arbitrarily Varying Wiretap Channel 227</b> Ahmed S. Mansour (<i>Technische Universität München, Germany</i>) Rafael F. Schaefer (<i>Technische Universität München, Germany</i>) Holger Boche (<i>Technische Universität München, Germany</i>)</p> <p><b>Adaptive Channel Estimation in Side Channel Attacks 191</b> Shan Jin (<i>Texas A &amp; M University, USA</i>) Riccardo Bettati (<i>Texas A &amp; M University, USA</i>)</p> <p><b>Performance Evaluation of Secure Communication Systems on Turing Machines 86</b> Holger Boche (<i>Technische Universität München, Germany</i>) Rafael F. Schaefer (<i>Technische Universität München, Germany</i>) H. Vincent Poor (<i>Princeton University, New Jersey, USA</i>)</p> <p><b>Community-based Anomaly Detection 43</b> Martin Kopp (<i>Cisco Systems, Inc. and Czech Technical University, Prague, Czech Republic</i>), Martin Grill (<i>Cisco Systems, Inc.</i>), Jan Koutník (<i>Cisco Systems, Inc. and Czech Technical University, Prague, Czech Republic</i>)</p>
Thursday 15:20 – 15:40	Coffee break, Venue: New Conference Room TU 201 Lobby
<p>Thursday 15:40 – 17:00</p>  <p>O1</p>	<p><b>Oral Session # 11 : Biometrics Identification</b> Session Chair: Andrew Beng Jin Teoh (<i>Yonsei University, South Korea</i>) Venue: New Conference Room TU 201</p> <p><b>Gender Effect on Face Recognition for a Large Longitudinal Database 198</b> Caroline Werther (<i>University of North Carolina Wilmington, North Carolina, USA</i>), Morgan Ferguson (<i>Elon University, North Carolina, USA</i>), Kevin Park (<i>Emory University, Atlanta, USA</i>), Troy Kling (<i>University of North Carolina Wilmington, North Carolina, USA</i>), Cuixian Chen (<i>University of North Carolina Wilmington, North Carolina, USA</i>), Yishi Wang (<i>University of North Carolina Wilmington, North Carolina, USA</i>)</p>

# WIFS 2018

## Program Schedule and Maps

### Thursday, December 13, 2018

O2	<p><b>Finger-vein Recognition using Deep Fully Convolutional Neural Semantic Segmentation Networks: The Impact of Training Data 127</b> Ehsaneddin Jalilian (<i>University of Salzburg, Austria</i>), Andreas Uhl (<i>University of Salzburg, Austria</i>)</p>
O3	<p><b>Age Estimation via Fusion of Depthwise Separable Convolutional Neural Networks 119</b> Kuan-Hsien Liu (<i>National Taichung University of Science and Technology, Taiwan</i>), Hsin-Hua Liu (<i>National Taiwan University, Taiwan</i>), Pak Ki Chan (<i>National Chung Hsing University, Taiwan</i>), Tsung-Jung Liu (<i>National Chung Hsing University, Taiwan</i>), Soo-Chang Pei (<i>National Taiwan University, Taiwan</i>)</p>
O4	<p><b>Generalized Joint Sparse Representation for Multimodal Biometric Fusion of Heterogeneous Features 113</b> Rudi Primorac (<i>The University of Western Australia, Australia</i>), Roberto Togneri (<i>The University of Western Australia, Australia</i>), Mohammed Bennamoun (<i>The University of Western Australia, Australia</i>), Ferdous Sohel (<i>Murdoch University, Australia</i>)</p>

### Map for Social Gathering Venue: Ocean Park

(use online version to zoom and plan for the gathering on 12th December)

