



The Sixth International Conference on
Image Processing Theory,
Tools and Applications

December 12-15, 2016, Oulu, Finland
www.ipta-conference.com/ipta16



Conference Program



The sixth International Conference on
Image Processing Theory, Tools and Applications
December 12-15, 2016
Oulu, Finland



UNIVERSITY OF OULU



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Monday 12 December 2016

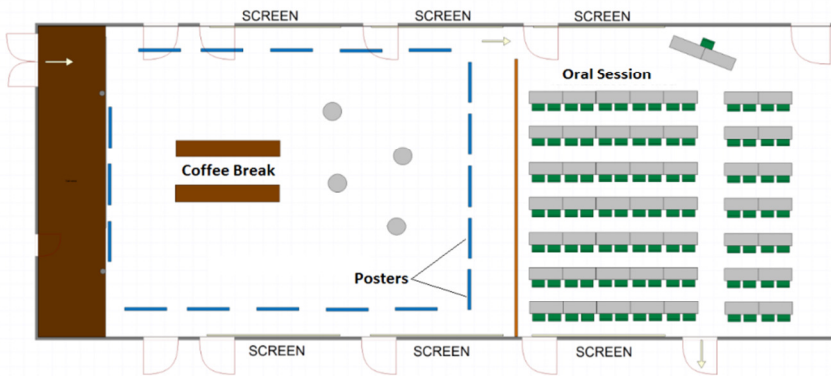
Location: University of Oulu, Class Room TS 101



<p>9:00--10:00</p>	<p><u>Tutorial 1</u></p> <p>From Active Appearance Models and Mnemonic Descent to 3D Morphable Models: A brief history of statistical deformable models with examples in Menpo</p> <p><i>Dr. Stefanos Zafeiriou, Imperial College London, London, U.K</i></p>
<p>10:00 -- 10:30</p>	<p>Coffee Break</p>
<p>10:30 -- 12:00</p>	<p><u>Tutorial 1 (Continues)</u></p> <p>From Active Appearance Models and Mnemonic Descent to 3D Morphable Models: A brief history of statistical deformable models with examples in Menpo</p> <p><i>Dr. Stefanos Zafeiriou, Imperial College London, London, U.K</i></p>
<p>12:00 -- 13:00</p>	<p>Lunch: Restaurant Kastari @ University of Oulu</p>
<p>13:00 -- 14:30</p>	<p><u>Tutorial 2</u></p> <p>Visual Object Tracking</p> <p><i>Prof. Jiri Matas, Czech Technical University, Prague</i></p>
<p>14:30--15:00</p>	<p>DEMOS + Coffee Break</p>
<p>15:00--16:00</p>	<p><u>Tutorial 2 (Continues)</u></p> <p>Visual Object Tracking</p> <p><i>Prof. Jiri Matas, Czech Technical University, Prague</i></p>

Tuesday 13 December 2016

Location: Hotel Lasaretti



08:00 – 16:00	<u>Registration</u>	
08:45 -- 09:00	<u>Opening</u> Matti Pietikäinen, IPTA2016 General Chair Abdenour Hadid, IPTA2016 Program Chair	
09:00 -- 10:00	<u>Keynote Talk #1</u> Nonlocal image filtering in image and video restoration Speaker: <i>Prof. Karen Egiazarian, Tampere University of Technology (Finland)</i>	Chair: Prof. Janne Heikkilä
10:00 -- 10:30	Coffee Break	
10:30 -- 12:00	<u>Oral session: Machine Learning</u> <ul style="list-style-type: none"> Local feature hierarchy for face recognition across pose and illumination <i>Xiaoyue Jiang*, Dong Zhang, Xiaoyi Feng</i> Hyperspectral Image Analysis using Deep Learning - a Review <i>Henrik Petersson, David Gustafsson*, David Bergström</i> Score Thresholding for Accurate Instance Classification in Multiple Instance Learning <i>Marc-André Carbonneau*, Eric Granger, Ghyslain Gagnon</i> On Semantic Image Segmentation Using Deep Convolutional Neural Network with Shortcuts and Easy Class Extension <i>Chunlai Wang*, Lukas Mauch, Ze Guo, Bin Yang</i> Extracting Region of Interest for Palmprint by Convolutional Neural Networks <i>Xianjie Bao, Zhenhua Guo*</i> Fusion System Based on Belief Functions Theory and Approximated Belief Functions for Tree Species Recognition <i>Didier Coquin*, Rihab Ben Ameer, Lionel Valet</i> 	Chairs: Karen Egiazarian, Éric Granger
12:00 -- 13:00	Lunch	

13:00 -- 14:30

Poster Session #1

Chairs: Khalifa Djemal, William Puech

- [P#1: Adaptive Dynamic Time Warping for Recognition of Natural Gestures](#)
Hajar Hiyadi, Fakhr-Eddine Ababsa, Christophe Montagne, El Houssine Bouyakhf, Fakhita Regragui*
- [P#2: Automatic detection of cervical cells in Pap-smear images using polar transform and k-means segmentation](#)
Mihai Neghina, Christoph Rasche, Mihai Ciuc, Alina Sultana, Ciprian Tiganesteanu*
- [P#3: Automated Segmentation of RPE Layer for the Detection of Age Macular Degeneration Using OCT Images](#)
Samra Naz, Aneeqa Ahmed, Usman Akram, Shoab Ahmed Khan*
- [P#4 : Multiple Description Coding Based on Enhanced X-tree](#)
*Canhui Cai, Jing Chen, Huanqiang Zeng**
- [P#5: Advanced Low Cost Clustering System](#)
Giuseppe Spampinato, Arcangelo Ranieri Bruna, Salvatore Curti, Viviana D'Alto*
- [P#6 : Color Correction in Image Stitching Using Histogram Specification and Global Mapping](#)
Qi-Chong Tian, Laurent D. Cohen*
- [P#7: Fast HEVC CU/PU Mode Decision Based on ANN and Texture Analysis](#)
Shuaihu Zhou, Zuochang Ye, Yan Wang*
- [P#8: A Robust Face Anti-spoofing Approach Using Partial Convolutional Neural Network](#)
Lei Li, Xiaoyi Feng, Zinelabidine Boulkenafet, Zhaoqiang Xia, Mingming Li, Abdenour Hadid*
- [P#9: No-reference Quality Assessment for Contrast-distorted Image](#)
Jun Wu, Zhaoqiang Xia, Yifeng Ren, Huifang Li*
- [P#10: Structure-Based Image inpainting](#)
Adib Akl, Edgard Saad, Charles Yaacoub*
- [P#11: Detection and Spatial Analysis of Hepatic Steatosis in Histopathology Images using Sparse Linear Models](#)
*Nazre Batool**
- [P#12: MCMC based Sampling Technique for Robust Multi-Model Fitting and Visual Data Segmentation](#)
Alireza Sadri, Ruwan Tennakoon, Reza Hoseinnezhad, Alireza Bab-Hadiashar*
- [P#13: Using Web Images as Additional Training Resource for the Discriminative Generalized Hough Transform](#)
Alexander Mader, Hauke Schramm, Carsten Meyer*
- [P#14: Stain separation in digital bright field histopathology](#)
*Laura Astola**
- [P#15: Segmentation of retinal vessels in adaptive optics images for assessment of vasculitis](#)
Marthe Lagarrigue-Charbonnier, Florence Rossant, Isabelle Bloch, Marie-Hélène Errera, Michel Paques*
- [P#16: On the Use of Image Quality Measures for Image Restoration](#)
Fouad Boudjenouia, Karim Abed-Meraim, Aladine Chetouani, Rachid Jennane*
- [P#17: Bit-Stream-Based Scrambling for Regions of Interest in H.264/AVC Videos With Drift Reduction](#)
Andreas Unterweger, Jan De Cock, Andreas Uhl*
- [P#18 :High-Capacity Data Hiding in Encrypted Images using MSB Prediction](#)
Pauline Puteaux, Dave Trinel, William Puech*

14:30--15:00

Coffee Break

15:00--16:30

Oral session: Advances in Medical Imaging

Chairs: Rachid Jennane, Su Ruan

- [Diffusion Weighted Imaging of Prostate Cancer: Prediction of Cancer using Texture Features from Parametric Maps of the Monoexponential and Kurtosis functions](#)
*Ileana Montoya Perez**, Jussi Toivonen, Parisa Mohavedi, Harri Merisaari, Marko pesola, Pekka Taimen, Peter J. Boström, Aida Kiviniemi, Hannu J. Aronen, Tapio Pahikkala, Ivan Jambor
- [Automatic Modeling and Classification of Vitreomacular Traction Pathology Stages](#)
*Agnieszka Stankiewicz**, Tomasz Marciniak Adam Dabrowski, Marcin Stopa Piotr Rakowicz, Elżbieta Marciniak,
- [Automatic monitoring system for the detection and evaluation of the evolution of hemangiomas](#)
*Catalina Neghina**, Marta Zamfir, Mihai Ciuc, Alina Sultana, Maria Popescu
- [Evaluation of feature sensitivity to training data inaccuracy in detection of retinal lesions](#)
*Lauri Laaksonen, Antti Hannuksela, Ela Claridge, Pauli Fält, Markku Hauta-Kasari, Hannu Uusitalo, Lasse Lensu**
- [Incorporating Human Knowledge in Automated Celiac Disease Diagnosis](#)
*Michael Gadermayr**, Hubert Kogler, Maximilian Karla, Andreas Vécsei, Andreas Uhl, Dorit Merhof
- [Classification of mammographic microcalcification clusters using a combination of topological and location modelling](#)
*Oluwaseun Ashiru**, Reyer Zwiggelaar

19:00 – 21:00

Conference Reception @ Oulu City Hall



Wednesday 14 December 2016

Location: Hotel Lasaretti

08:30--16:00	<u>Registration</u>	
09:00--10:00	<u>Keynote Talk #2</u> Deep Learning Networks for Computer Vision and Pattern Recognition Speaker: <i>Prof. Rama Chellappa, University of Maryland, College Park</i>	Chair: Prof. Matti Pietikäinen
10:00--10:30	Coffee Break	
10:30--12:00	<u>Oral session: Biometrics and Forensics</u> <ul style="list-style-type: none"> Improved Interpolation Kernels for Super resolution Algorithms <i>Pejman Rasti*, Olga Orlova, Gert Tamberg,; Cagri Ozcinar, Kamal Nasrollahi, Thomas Moeslund, Gholamreza Anbarjafari</i> On the use of skin texture features for gender recognition: an experimental evaluation <i>Francesco Bianconi*, Fabrizio Smeraldi, Maryam Abdollahyan, Perry Xiao</i> Phylogeny of JPEG images by ancestor estimation using missing markers on image pairs <i>Noé Le Philippe*, William Puech, Christophe Fiorio</i> Resource-Efficient Latent Fingerprint Age Estimation for Adhoc Crime Scene Forensics: Quality Assessment of Flat Bed Scans and Statistical Features <i>Ronny Merkel*, Jana Dittmann, Claus Vielhauer</i> Investigation of Adaptive Local Threshold Segmentation in Context of 3D-Handwriting Forensics <i>Michael Kalbitz*, Tobias Scheidat, Claus Vielhauer</i> Face spoofing detection with image quality regression <i>Haoliang Li*, Shiqi Wang, Alex Kot</i> 	Chairs: Rama Chellappa & Vili Kellokumpu
12:00--13:00	Lunch	
13:00--14:30	<u>Poster session #2</u> <ul style="list-style-type: none"> P#19: De-Identifying People in Videos using Neural Art <i>Karla Brkic*, Ivan Sikiric, Tomislav Hrkac, Zoran Kalafatic</i> P#20: Efficient BSIF-based Near-Infrared Iris Recognition <i>Christian Rathgeb*, Florian Struck, Christoph Busch</i> P#21: De-Convolutional Auto-Encoder for Enhancement of Fingerprint Samples <i>Patrick Schuch*, Simon Schulz, Christoph Busch,</i> P#22: Multi-Biometric Template Protection - A Security Analysis of Binarized Statistical Features for Bloom Filters on Smartphones <i>Martin Stokkenes*, Raghavendra Ramachandra, Morten Sigaard, Kiran Raja, Christoph Busch, Marta Gómez-Barrero</i> 	Chairs: Abdenour Hadid, Zhaoqiang Xia

- [P#23: An Accurate Eye Localization Approach For Smart Embedded System](#)
Zhaoqiang Xia, Wenhao Zhang, Fang Tan, Xiaoyi Feng, Abdenour Hadid*
- [P#24: Face Presentation Attack Detection Across Spectrum using Time-Frequency Descriptors of Maximal Response in Laplacian Scale-Space](#)
Raghavendra Ramachandra, Kiran Raja, Sebastien Marcel, Christoph Busch*
- [P#25: Head Measurements from 3D Point Clouds](#)
Isabel Patiño Mejía, Andreas Zell*
- [P#26: Quality Dependent Multimodal Fusion of Face and Iris Biometrics](#)
Nefissa Khiari Hili, Christophe Montagne, Sylvie Lelandais, Kamel Hamrouni*
- [P#27: Fake Face Detection Based on Radiometric Distorsions](#)
Taiamiti Edmunds, Alice Caplier*
- [P#28: Thermal Super-Pixels for Bimodal Stress Recognition](#)
Ramin Irani, Kamal Nashrollahi, Abhinav Dhall, Thomas Moeslund, Tom Gedeon*
- [P#29: An Automated Method for Realistic Face Simulation and Facial Landmark Annotation and its Application to Active Appearance Models](#)
Marcin Kopaczka, Calo Hensel, Dorit Merhof*
- [P#30: On Pain Assessment from Facial Videos Using Spatio-Temporal Local Descriptors](#)
Ruijing Yang, Miguel Bordallo López, Elhocine Boutellaa, Shujun Tong, Jinye Peng, Xiaoyi Feng, Abdenour Hadid*
- [P#31: Feature covariance for human action recognition](#)
Alexandre Perez, Hedi Tabia, David Declercq, Alain Zanotti*
- [P#32: OUHANDS database for hand detection and pose recognition](#)
Matti Matilainen, Pekka Sangi, Jukka Holappa, Olli Silvén*
- [P#33: Initiating GrabCut by Color Difference for Automatic Foreground Extraction of Passport Imagery](#)
Adriá Sangüesa, Nicolai Jørgensen, Christian A. Larsen, Kamal Nasrollahi, Thomas B. Moeslund*
- [P#34: Towards Gaze-based Video Annotation](#)
Mohamed Soliman, Hamed R.-Tavakoli, Jorma Laaksonen*
- [P#35: An effective histogram-based approach to JPEG-100 forensics](#)
Anh Thu Phan Ho, Kai Wang, François Cayre*
- [P#36: Towards Skin Image Mosaicing](#)
Khuram Faraz, Walter Blondel, Marine Amouroux, Christian Daul*

14:30--15:00

Coffee Break

15:00--16:30

Oral session: Advances in Medical Imaging

Chairs: Louahdi Khoudour, Miguel Bordallo

- [Reconstruction of retinal spectra from RGB data using a RBF network](#)
*Uyen Nguyen, Lauri Laaksonen, Hannu Uusitalo, Lasse Lensu**
- [Combining Deep Learning and Hand-Crafted Features for Skin Lesion Classification](#)
Tomas Majtner, Sule Yildirim-Yayilgan, Jon Yngve Hardeberg*
- [Low-rank and Sparse Matrix Decomposition based on \$S_{1/2}\$ and \$L_{1/2}\$ Regularizations in Dynamic MRI](#)
Xu-Xin Lin, LiangYong Xia, Yong Liang, Hai-Hui Huang, Hua Chai, Kuok-Fan Chan*
- [Characterization of Hematologic Malignancies based on Discrete Orthogonal Moments](#)
Rodrigo Nava, Germán González, Jan Kybic, Boris Escalante-Ramírez*
- [Enhancement of micro-channels within the human mastoid bone based on local structure tensor analysis](#)
Olivier Cros, Anders Eklund, Michael Gaihede, Hans Knutsson,*
- [Comparison of 2D and 3D Region-based Deformable Models and Random Walker Methods for PET Segmentation](#)
Kévin Gosse, Stéphanie Jehan Besson, Francois Lecellier, Su Ruan*

19:00--21:00

Social Dinner @ Lapland Hotels



Thursday 15 December 2016, 9-16:30

Location: Hotel Lasaretti

08:30--16:00	<u>Registration</u>	
09:00--10:00	<u>Keynote Talk #3</u> Automatic Face Analysis Speaker: <i>Prof. Maja Pantic, Imperial College London, University of Twente</i>	Chair: Prof. Matti Pietikäinen
10:00--10:30	Coffee Break	
10:30--12:00	<u>Oral session: Object detection and Tracking</u> <ul style="list-style-type: none"> • How to reach top accuracy for a visual pedestrian warning system from a car? <i>Floris De Smedt, Steven Puttemans*, Toon Goedemé</i> • Automated visual fruit detection for harvest estimation and robotic harvesting <i>Steven Puttemans*, Yasmin Vanbrabant, Laurent Tits, Toon Goedemé</i> • Automatic detection, tracking and counting of birds in marine video content <i>Roeland T'Jampens, Francisco Hernández, Florian Vandecasteele, Steven Verstockt*</i> • Fast Growing Hough Forest as a Stable Model for Object Detection <i>Antoine Tran*, Antoine Manzanera</i> • Pedestrian Detection using HOG, LUV and Optical Flow as Features with AdaBoost as Classifier <i>Rabia Rauf*, Ahmad R. Shahid, Sheikh Ziauddin, Asad Ali Safi</i> • Fast Chinese Character Detection from Complex Scenes <i>Xiaoyue Jiang*, Jie Lian, Zhaoqiang Xia, Xiaoyi Feng, Abdenour Hadid</i> 	Chairs: Maja Pantic, Xiaopeng Hong
12:00--13:00	Lunch	
13:00--14:30	<u>Poster session #3</u> <ul style="list-style-type: none"> • P#37: Intensity Normalization of Sidescan Sonar Imagery <i>MS Al-Rawi*, Adrián Galdrán, Xin Yuan, Martina Eckert, José-Fernán Martínez, Fredrik Elmgren, Baran Cürüklü, Jonathan Rodriguez, Joaquim Bastos, Marc Pinto</i> • P#38: An Analysis of 3D Point Cloud Reconstruction from Light Field Images <i>Cristian Perra*, Francesca Murgia, Daniele Giusto</i> • P#39: Towards Spectral Prediction of 2.5D Prints for Soft-Proofing Applications <i>Théo Phan Van Song*, Christine Andraud, María V. Ortiz-Segovia</i> • P#40: A Vector Quantization Based k-NN Approach for Large-Scale Image Classification <i>Ezgi Can Ozan*, Ekaterina Riabchenko, Serkan Kiranyaz, Moncef Gabbouj</i> • P#41: Square to Hexagonal Lattice Conversion Based on One-Dimensional Interpolation <i>Xiangguo Li*, Bryan Gardiner, Sonya A. Coleman</i> 	Chairs: Xiaoyue Jiang, Hichem Maaref

- [P#42: Camera Communication Deblurring: a Semiblind Spatial Fractionally-Spaced Adaptive Equalizer with Flexible Filter Support Design](#)
*Stefano Pergoloni**, Mauro Biagi, Stefania Colonnese, Roberto Cusani, Gaetano Scarano
- [P#43: Microaneurysm Detection in Retinal Images Using an Ensemble Classifier](#)
*Mohamed Habib**, Roshan Welikala, Andreas Hoppe, Christopher Owen, Alicja Rudnicka, Sarah Barman,
- [P#44: Acquiring Multispectral Light Transport Using Multi-Primary DLP Projector](#)
*Kayano Maeda, Takahiro Okabe**
- [P#45: Improving curve skeletons of tubular volumes](#)
*Florent Grélard**, Fabien Baldacci, Anne Vialard, Jean-Philippe Domenger
- [P#46: Median based pixel selection for partial image encryption](#)
*Anish Goel**, Kaustubh Chaudhari
- [P#47: A Perceptual-based Rate Control for HEVC](#)
*Aisheng Yang, Huanqiang Zeng**, Lin Ma, Jing Chen, Canhui Cai, Kai-Kuang Ma
- [P#48: A Multidimensional Scaling Optimization and Fusion Approach For the Unsupervised Change Detection Problem in Remote Sensing Images](#)
*Redha Touati**, Max Mignotte
- [P#49: Graphical stochastic models for tracking applications with variational message passing inference](#)
*Felix Trusheim**, Alexandru Condurache, Alfred Mertins
- [P#50: Two Dimensional Translation Detection by Comprehensively Calculating Three Cross-correlations](#)
*Wei-Jun Chen**
- [P#51: Performance Evaluation of a Statistical and a Neural Network Model for Nonrigid Shape-Based Registration](#)
*Alexandra Psarrou, Anastassia Angelopoulou**, Markos Mentzelopoulos, José García-Rodríguez
- [P#52: MedianStruck for Long-term Tracking Applications](#)
*Florian Baumann**, Enes Dayancges, Josep Aulinas, Matthias Zobel
- [P#53: Multi-modal Subspace Learning with Dropout regularization for Cross-modal Recognition and Retrieval](#)
*Guanqun Cao**, Muhammad Adeel Waris, Alexandros Iosifidis, Moncef Gabbouj
- [P#54: Optimized Fast Walsh-Hadamard Transform on OpenCL-GPU and OpenCL-CPU](#)
*Pedro Pereira**, Patricio Domingues, Nuno Rodrigues, Sergio Faria, Gabriel Falcao
- [P#55: Hyperspectral Face Recognition using 3D Discrete Wavelet Transform](#)
*Aman Ghasemzadeh**, Hasan Demirel

14:30--15:00

Coffee Break

15:00--16:30	<p>Oral Session : Best Reviewed Papers Chairs : Jenny Benois-Pineau, Marc-André Carbonneau</p> <ul style="list-style-type: none">• <u>Unsupervised Deep Hashing for Large-scale Visual Search</u> <i>Zhaoqiang Xia*, Xiaoyi Feng, Jinye Peng, Abdenour Hadid</i>• <u>Single image super-resolution reconstruction in presence of mixed Poisson-Gaussian noise</u> <i>Buda Bajic*, Joakim Lindblad, Natasa Sladoje</i>• <u>Fast feature matching for detailed point cloud generation</u> <i>Daniel Berjón*, Rafael Pagés, Francisco Morán</i>• <u>CNN Transfer Learning for the Automated Diagnosis of Celiac Disease</u> <i>Georg Wimmer*, Andreas Vécsei, Andreas Uhl</i>• <u>Prototype-based Class-Specific Nonlinear Subspace Learning for Large-Scale Face Verification</u> <i>Alexandros Iosifidis*, Moncef Gabbouj</i>• <u>RealSense = Real Heart Rate: Illumination Invariant Heart Rate Estimation from Videos</u> <i>Jie Chen*, Zhuoqing Chang, Qiang Qiu, Xiaobai Li, Guillermo Sapiro, Alex Bronstein, Matti Pietikäinen</i>
16:30--17:00	<p>Awards & closing Chair: Matti Pietikäinen</p>



Notes

- The tutorials on **Monday 12** December will be held at the classroom TS101 at University of Oulu (**NOT at the conference Venue!!!**). Please see directions at the IPTA2016 website.
 - The main conference will be held at Hotel / Conference Centre Lasaretti (downtown!!)
- **Oral presentation:** 15 minutes (**10-12 minutes** for presentation and **3-5 minutes** for questions-answers). The session chairs are advised to stop the presenters after 15 minutes!!
- **Posters:** The poster stand size will be around 1470 mm X 1470 mm. Format A0 (Vertical, portrait) will fit fine. A0 paper size = 841 mm by 1189 mm (or 33.1 in × 46.8 in) ☺
- The **dinner** will be held at **Lapland Hotels** (at a walking distance from the conference venue).
 - There will be a **best reviewed paper session** on Thursday 15 December **15:00 -- 16:30**
 - The best paper awards will be announced on Thursday 15 December at **16:30**

Program at glance

	Monday 12 Dec (University of Oulu – TS101)	Tuesday 13 Dec (Hotel Lasaretti)	Wednesday 14 Dec (Hotel Lasaretti)	Thursday 15 Dec (Hotel Lasaretti)
08:30 –		<u>Registration Open</u>	<u>Registration Open</u>	<u>Registration Open</u>
09:00 – 10:00	<u>Tutorial 1</u>	<u>Keynote Talk 1</u>	<u>Keynote Talk 2</u>	<u>Keynote Talk 3</u>
10:00 – 10.30	Coffee Break	Coffee Break	Coffee Break	Coffee Break
10:30 – 12:00	<u>Tutorial 1</u>	<u>Oral Session</u>	<u>Oral Session</u>	<u>Oral Session</u>
12:00 – 13:00	Lunch	Lunch	Lunch	Lunch
13:00 – 14:30	<u>Tutorial 2</u>	<u>Poster Session</u>	<u>Poster Session</u>	<u>Poster Session</u>
14:30 – 15:00	Demos + Coffee Break	Coffee Break	Coffee Break	Coffee Break
15:00 – 16:30	<u>Tutorial 2</u>	<u>Oral Session</u>	<u>Oral Session</u>	<u>Oral Session</u>
19:00 – 21:00		<u>Reception</u>	<u>Dinner</u>	