

Real-Time Image and Video Processing

Conference Chairs: **Nasser Kehtarnavaz**, The Univ. of Texas at Dallas (United States)
Matthias F. Carlsohn, Computer Vision and Image Communication at Bremen (Germany)

Programme Committee: **Mohamed Akil**, Ecole Supérieure d'Ingénieurs en Electronique et Electrotechnique (France); **Naseer Al-Jawad**, The Univ. of Buckingham (United Kingdom); **Guillermo Botella**, Univ. Complutense de Madrid (Spain); Ahmed Bouridane, Northumbria Univ. (United Kingdom); **E. Roy Davies**, Univ. of London (United Kingdom); **Touradj Ebrahimi**, Ecole Polytechnique Fédérale de Lausanne (Switzerland); **Eran Anusha Edirisinghe**, Loughborough Univ. (United Kingdom); **Barak Fishbain**, Technion-Israel Institute of Technology (Israel); **Johannes Fürtler**, AIT Austrian Institute of Technology GmbH (Austria); **Christos Grecos**, Univ. of the West of Scotland (United Kingdom); **Herbert Hufnagl**, Festo AG (Germany); **Reinhard Koch**, Christian-Albrechts-Univ. zu Kiel (Germany); **Antonio Núñez Ordóñez**, Univ. de Las Palmas de Gran Canaria (Spain); **Antonio J. Plaza**, Univ. de Extremadura (Spain); **Jose M. Cardoso Pereira**, Instituto de Investigação Científica Tropical (Portugal); **Volodymyr Ponomaryov**, Instituto Politécnico Nacional (Mexico); **Luis Salgado**, Univ. Politécnica de Madrid (Spain); **Jorge Santos**, European Commission (Belgium); **Pedro Santos**, Fraunhofer IGD (Germany); **Sergio Saponara**, Univ. di Pisa (Italy); **Athanassios N. Skodras**, Univ. of Patras (Greece); **Bogdan Smolka**, Silesian Univ. of Technology (Poland); **Stephan C. Stalkerich**, EADS Deutschland GmbH (Germany); **Lennart Wietzke**, Raytrix GmbH (Germany)

Posters

Wednesday 6 April 2016
5:45 PM - 7:15 PM

Conference attendees are invited to attend the Photonics Europe poster session on Wednesday 17.45 to 19.15. Posters will be on display after 10.00 Wednesday morning in the Conference Centre. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions at <http://spie.org/x34963.xml>.

A novel algorithm for face recognition based on sparse representation and artificial neural network

Paper 9897-17

Author(s): Yanqing Qi, Liejun Wang, Zhenhong Jia, Xinjiang Univ. (China)

Distance and speed measurements from monocular images and MEMS inclinometers

Paper 9897-18

Author(s): Aleksey Makarov, Guowei Tao, Bhaskar Choubey, Univ. of Oxford (United Kingdom)

A real-time implementation method of second-order DP algorithm based on FPGA

Paper 9897-19

Author(s): Chenggang Sun, Shuo Wang, Yiqun Zhang, China Aerospace Science & Industry Corp. (China)

Parallel multilayer perceptron neural network used for hyperspectral image classification

Paper 9897-20

Author(s): Beatriz P. Garcia-Salgado, Volodymyr I. Ponomaryov, Marco A. Robles-Gonzales, Instituto Politécnico Nacional (Mexico)

Swarming visual sensor network for real-time multiple object tracking

Paper 9897-21

Author(s): Yuri Pavlovich Baranov, ITMO Univ. (Russian Federation), Ural Optical and Mechanical Plant (Russian Federation), JSC AstroSoft Development (Russian Federation); Sergey N. Yarishev, ITMO Univ. (Russian Federation); Roman Medvedev, Hochschule Aalen (Germany)

Analysis and segmentation of images in case of solving problems of detecting and tracing objects on real-time video

Paper 9897-22

Author(s): Dmitriy Fedorenko, Kseniia Ezhova, Anton Chuhlamov, ITMO Univ. (Russian Federation)

Automatic joint synovitis location estimation in ultrasound images

Paper 9897-23

Author(s): Karolina Nurzynska, Bogdan Smolka, Silesian Univ. of Technology (Poland)

Optimized adaptation algorithm for HEVC/H.265 dynamic adaptive streaming over HTTP using variable segment duration

Paper 9897-24

Author(s): Iheanyi C. Ironi, Qi Wang, Univ. of the West of Scotland (United Kingdom); Christos Grecos, Sohar Univ. (Oman)

Automatic detection and classification of obstacles with applications in autonomous mobile robots

Paper 9897-25

Author(s): Volodymyr I. Ponomaryov, Dario Rosas-Miranda, Instituto Politécnico Nacional (Mexico)

Real-time framework for tensor-based image enhancement and object classification

Paper 9897-26

Author(s): Boguslaw Cyganek, AGH Univ. of Science and Technology (Poland); Bogdan Smolka, Silesian Univ. of Technology (Poland)

SQUARE Brussels Meeting Centre
Brussels, Belgium
4 - 7 April 2016



Development of the software for images segmentation and objects detecting on video

Paper 9897-27

Author(s): Kseniia Ezhova, Anton Chuhlamov, Dmitriy Fedorenko, ITMO Univ. (Russian Federation)

Experimental continuous terahertz wave nondestructive testing for aerospace composite materials

Paper 9897-28

Author(s): Tielin Lu, Hui Yuan, Jingshui Zhang, Beijing Institute of Technology (China); CunLin Zhang, Capital Normal Univ. (China); Yuejin Zhao, Beijing Institute of Technology (China)

Real-time and low-cost embedded platform for car's surrounding vision system

Paper 9897-29

Author(s): Sergio Saponara, Univ. di Pisa (Italy); Emilio Franchi, RICO S.r.L. (Italy)

Static hand gesture recognition based on finger root-center-angle and length weighted Mahalanobis distance

Paper 9897-30

Author(s): Xinghao Chen, Chenbo Shi, Bo Liu, Tsinghua Univ. (China)

A computationally efficient denoising and hole-filling method for depth image enhancement

Paper 9897-31

Author(s): Soulan Liu, Changzhou University (China); Chen Chen, Nasser Kehtarnavaz, University of Texas at Dallas (United States)

Thursday 7 April

Hot Topics III

Thursday 7 April 2016

8:45 AM - 10:20 AM

Location: Gold Hall

Photonics Europe 2016: Hot Topics Session III

For details, please see page 10-13 in the printed programme or visit <http://spie.org/x12297.xml>

Coffee Break 10:20 AM - 10:50 AM

Session 1:

Applications of Real-Time Image Processing

Session Chair: **Guillermo Botella**, Univ. Complutense de Madrid (Spain)
Thursday 7 April 2016
10:50 AM - 12:40 PM

Real-time FPGA-based radar imaging for smart mobility surveillance systems (*Invited Paper*)

Paper 9897-1

Time: 10:50 AM - 11:20 AM

Author(s): Sergio Saponara, Bruno Neri, Univ. di Pisa (Italy)

3D real-time visualization of blood flow in cerebral aneurysms by light field particle image velocimetry

Paper 9897-2

Time: 11:20 AM - 11:40 AM

Author(s): Matthias F. Carlsohn, Computer Vision and Image Communication (Germany); André Kemmling, Universitätsklinikum Schleswig-Holstein (Germany); Arne Petersen, Lennart Wietzke, Raytrix GmbH (Germany)

Application of the local similarity filter for the suppression of multiplicative noise in medical ultrasound images

Paper 9897-3

Time: 11:40 AM - 12:00 PM

Author(s): Damian Kusnik, Silesian Univ. of Technology (Poland); Boguslaw Cyganek, AGH Univ. of Science and Technology (Poland); Bogdan Smolka, Silesian Univ. of Technology (Poland)

Memory efficient and constant time 2D recursive spatial averaging filter for embedded implementations

Paper 9897-4

Time: 12:00 PM - 12:20 PM

Author(s): Qifeng Gan, Lama Seoud, Housseem Ben Tahar, DIAGNOS Inc. (Canada); J.M. Pierre Langlois, Ecole Polytechnique de Montréal (Canada)

Real-time optical flow estimation on a GPU for a skied-steered mobile robot

Paper 9897-5

Time: 12:20 PM - 12:40 PM

Author(s): Vladimir V. Kniaz, GosNIIAS (Russian Federation)

Lunch Break 12:40 PM - 1:50 PM

Session 2: **Real-Time Imaging Implementations**

Session Chair: **Sergio Saponara**, Univ. di Pisa (Italy)
Thursday 7 April 2016
1:50 PM - 3:10 PM

Design of a 3D-IC multiresolution digital pixel sensor

Paper 9897-6

Time: 1:50 PM - 2:10 PM

Author(s): Dominique Ginjac, LE2I UMR 6306, CNRS, Arts et Métiers, Univ. Bourgogne Franche-Comté (France)

Parallel implementation of a hyperspectral data geometry-based estimation of number of endmembers algorithm

Paper 9897-7

Time: 2:10 PM - 2:30 PM

Author(s): Sergio Bernabé García, Univ. Complutense de Madrid (Spain); Gabriel Martín Hernández, Instituto de Telecomunicações (Portugal); Guillermo Botella, Manuel Prieto-Matías, Univ. Complutense de Madrid (Spain); Antonio Plaza Miguel, Univ. de Extremadura (Spain)

FPGA implementation of glass-free stereo vision

Paper 9897-8

Time: 2:30 PM - 2:50 PM

Author(s): Weidong Tang, Xiaolin Yan, TCL Corp. (China)

A novel fast median filter algorithm without sorting

Paper 9897-9

Time: 2:50 PM - 3:10 PM

Author(s): Weiping Yang, Zhilong Zhang, Xinping Lu, National Univ. of Defense Technology (China)

Coffee Break 3:10 PM - 3:40 PM

Session 3: **Real-Time Video Processing**

Session Chair: **Bogdan Smolka**, Silesian Univ. of Technology (Poland)
Thursday 7 April 2016
3:40 PM - 6:00 PM

4K-based intra- and interprediction techniques for HEVC

Paper 9897-10

Time: 3:40 PM - 4:00 PM

Author(s): Guillermo Fernandez, Alberto del Barrio, Guillermo Botella, Carlos García, Manuel Prieto-Matías, Univ. Complutense de Madrid (Spain)

In-network adaptation of SHVC video in software-defined networks

Paper 9897-11

Time: 4:00 PM - 4:20 PM

Author(s): Olatunde Awobuluyi, James M. Nightingale, Qi Wang, Jose Maria Alcaraz-Calero, Univ. of the West of Scotland (United Kingdom); Christos Grecos, Sohar Univ. (Oman)

The QoE implications of ultrahigh definition video adaptation strategies

Paper 9897-12

Time: 4:20 PM - 4:40 PM

Author(s): James M. Nightingale, Olatunde Awobuluyi, Qi Wang, Jose Maria Alcaraz-Calero, Christos Grecos, Univ. of the West of Scotland (United Kingdom)

Real-time multicamera video acquisition and processing platform for ADAS

Paper 9897-13

Time: 4:40 PM - 5:00 PM

Author(s): Sergio Saponara, Univ. di Pisa (Italy)

Ghost removing for HDR real-time video stream generation

Paper 9897-14

Time: 5:00 PM - 5:20 PM

Author(s): Julien Dubois, Barthélemy Heyrman, Dominique Ginhaç, LE2I UMR 6306, CNRS, Arts et Métiers, Univ. Bourgogne Franche-Comté (France)

Architecture of web services in the enhancement of real-time 3D video virtualization in cloud environment

Paper 9897-15

Time: 5:20 PM - 5:40 PM

Author(s): Adedayo A. Bada, Jose Maria Alcaraz-Calero, Qi Wang, Christos Grecos, Univ. of the West of Scotland (United Kingdom)

Contour-based object orientation estimation

Paper 9897-16

Time: 5:40 PM - 6:00 PM

Author(s): Boris A. Alpatov, Pavel V. Babayan, Ryazan State Radio Engineering Univ. (Russian Federation)