

PROCEEDINGS OF SPIE

[SPIDigitalLibrary.org/conference-proceedings-of-spie](https://spiedigitallibrary.org/conference-proceedings-of-spie)

Front Matter: Volume 10420

, "Front Matter: Volume 10420," Proc. SPIE 10420, Ninth International Conference on Digital Image Processing (ICDIP 2017), 1042001 (21 July 2017); doi: 10.1117/12.2285445

SPIE.

Event: Ninth International Conference on Digital Image Processing (ICDIP 2017), 2017, Hong Kong, China

PROCEEDINGS OF SPIE

Ninth International Conference on Digital Image Processing (ICDIP 2017)

**Charles M. Falco
Xudong Jiang**
Editors

**19–22 May 2017
Hong Kong, China**

Sponsored by
International Association of Computer Science and Information Technology (Singapore)

Co-sponsored by
Sichuan Province Computer Federation (China)
Southwest Jiaotong University (China)

Published by
SPIE

Volume 10420
Part One of Two Parts

Proceedings of SPIE 0277-786X, V. 10420

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

Ninth International Conference on Digital Image Processing (ICDIP 2017), edited by Charles M. Falco, Xudong Jiang
Proc. of SPIE Vol. 10420, 1042001 · © 2017 SPIE · CCC code: 0277-786X/17/\$18 · doi: 10.1117/12.2285445

Proc. of SPIE Vol. 10420 1042001-1

The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIDigitalLibrary.org.

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from these proceedings:

Author(s), "Title of Paper," in *Ninth International Conference on Digital Image Processing (ICDIP 2017)*, edited by Charles M. Falco, Xudong Jiang, Proceedings of SPIE Vol. 10420 (SPIE, Bellingham, WA, 2017) Seven-digit Article CID Number.

ISSN: 0277-786X
ISSN: 1996-756X (electronic)

ISBN: 9781510613041
ISBN: 9781510613058 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA
Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445
SPIE.org

Copyright © 2017, Society of Photo-Optical Instrumentation Engineers.

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 0277-786X/17/\$18.00.

Printed in the United States of America.

Publication of record for individual papers is online in the SPIE Digital Library.

SPIE. DIGITAL LIBRARY
SPIDigitalLibrary.org

Paper Numbering: *Proceedings of SPIE* follow an e-First publication model. A unique citation identifier (CID) number is assigned to each article at the time of publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online and print versions of the publication. SPIE uses a seven-digit CID article numbering system structured as follows:

- The first five digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.

Contents

xiii	<i>Authors</i>
xix	<i>Conference Committee</i>
xxv	<i>Introduction</i>

Part One

SESSION 1	FACE RECOGNITION
10420 02	Age estimation of facial image based on convolution neural network [10420-143]
10420 03	Real-time driver fatigue detection based on face alignment [10420-222]
10420 04	Adaptive non-local smoothing-based Weberface for illumination-insensitive face recognition [10420-27]
10420 05	Research of facial feature extraction based on MMC [10420-269]
SESSION 2	PATTERN RECOGNITION
10420 06	Identification of the condition of crops based on geospatial data embedded in graph databases [10420-126]
10420 07	The application supports the process of identifying the diseases that occur on the leaves of sugar beets [10420-128]
10420 08	Emotion recognition based on multiple order features using fractional Fourier transform [10420-9]
10420 09	Cross-view gait recognition using joint Bayesian [10420-11]
10420 0A	Color flag recognition based on HOG and color features in complex scene [10420-220]
10420 0B	A technique to identify some typical radio frequency interference using support vector machine [10420-219]
10420 0C	Identification of geometric faces in hand-sketched 3D objects containing curved lines [10420-57]
10420 0D	Deep features for efficient multi-biometric recognition with face and ear images [10420-107]

- 10420 OE **The location and recognition of anti-counterfeiting code image with complex background** [10420-265]
- 10420 OF **Continuous Chinese sign language recognition with CNN-LSTM** [10420-92]
- 10420 OG **CNNs flag recognition preprocessing scheme based on gray scale stretching and local binary pattern** [10420-115]
- 10420 OH **Indoor navigation by image recognition** [10420-38]
- 10420 OI **Action recognition using multi-scale histograms of oriented gradients based depth motion trail images** [10420-26]
- 10420 OJ **Fine-grained object recognition via pose alignment and part based representation** [10420-119]

SESSION 3 TARGET DETECTION AND TRACKING

- 10420 OK **Multi-object tracking based on two-layer occlusion handling** [10420-43]
- 10420 OL **Multi-object tracking based on formation stability** [10420-206]
- 10420 OM **Research on target tracking algorithm based on spatio-temporal context** [10420-191]
- 10420 ON **Real-time target tracking and locating system for UAV** [10420-73]
- 10420 OO **Optimization of wavelet threshold denoising based on edge detection** [10420-234]
- 10420 OP **Ceramic disc surface defect detection based on multi-features** [10420-235]
- 10420 OQ **Rapid pedestrian detection algorithm based on deformable part model** [10420-58]
- 10420 OR **Object detection via eye tracking and fringe restraint** [10420-239]
- 10420 OS **A surface defect detection method based on multi-feature fusion** [10420-245]
- 10420 OT **A cascade method for TFT-LCD defect detection** [10420-246]
- 10420 OU **A new method of real-time detection of changes in periodic data stream** [10420-108]
- 10420 OV **Real-time door detection for indoor autonomous vehicle** [10420-77]
- 10420 OW **Joint rotation invariant feature for vehicle detection in aerial images** [10420-54]
- 10420 OX **Infrared small target detection based on target-background separation via local MCA sparse representation** [10420-162]
- 10420 OY **Vessels 6-DOF pose measurement based on key points tracking via binocular camera** [10420-250]
- 10420 OZ **Forward collision warning based on kernelized correlation filters** [10420-229]

- 10420 10 **An image edge detection based on the orientation response mechanisms of an integrate-and-fire neurons model** [10420-263]
- 10420 11 **Micro motion jamming identification based on random pulse repetition interval compressed sensing radar** [10420-161]
- 10420 12 **Accurate car plate detection via car face landmark localization** [10420-184]
- 10420 13 **Vehicle target detection method based on the average optical flow** [10420-255]
- 10420 14 **Moving target detection method based on improved Gaussian mixture model** [10420-257]
- 10420 15 **A novel design for real-time structured light calibration and 3D reconstruction based on dual semicircular planar target and rotating laser** [10420-51]
- 10420 16 **Visual saliency detection using local patches contrast** [10420-241]
- 10420 17 **Dim point target enhancement and detection based on improved NL-means in complex background** [10420-178]
- 10420 18 **Salient detection based on improved graph models** [10420-153]
- 10420 19 **A study on the relationship between urban roads and car fuel consumption based on the ST-matching algorithm** [10420-163]
- 10420 1A **Study on detection system of precision casting cracks based on image processing** [10420-195]
- 10420 1B **Change detection in SAR images using structure similarity and parametric kernel graph cuts** [10420-225]

SESSION 4 FEATURE EXTRACTION AND MATCHING

- 10420 1C **An improved ASIFT algorithm for indoor panorama image matching** [10420-71]
- 10420 1D **A dual-adaptive support-based stereo matching algorithm** [10420-218]
- 10420 1E **A blur-invariant local feature for motion blurred image matching** [10420-118]
- 10420 1F **SKL algorithm based fabric image matching and retrieval** [10420-270]
- 10420 1G **Unsupervised texture feature classification based on cuckoo search and relief algorithm** [10420-32]
- 10420 1H **An improved measurement method for large aviation part based on spatial constraint calibration and compression extraction** [10420-83]
- 10420 1I **A novel approach for image feature description based on dual gradient orientation histogram** [10420-91]
- 10420 1J **Bag-of-visual-words based feature extraction for SAR target classification** [10420-116]

- 10420 1K **A visual perceptual descriptor with depth feature for image retrieval** [10420-233]
- 10420 1L **Biometrics encryption combining palmprint with two-layer error correction codes** [10420-93]

SESSION 5 IMAGE TRANSFORMATION AND ANALYSIS

- 10420 1M **A new optimal seam method for seamless image stitching** [10420-132]
- 10420 1N **Relative phase asynchrony and long-range correlation of long-term solar magnetic activity** [10420-197]
- 10420 1O **An image-space parallel convolution filtering algorithm based on shadow map** [10420-129]
- 10420 1P **Optimized fast spectral sampling for adaptive Fourier ptychographic microscopy** [10420-28]
- 10420 1Q **Automatic inspection apparatus based on high-speed image analysis: a new characterization technique for particle flow analysis** [10420-226]
- 10420 1R **Fast algorithm based on iterative generalized inverse for image deblurring** [10420-109]
- 10420 1S **Locating and decoding barcodes in fuzzy images captured by smart phones** [10420-113]
- 10420 1T **Image annotation based on positive-negative instances learning** [10420-152]
- 10420 1U **Image deblocking using joint Gaussian mixture model and anchored neighborhood regression priors** [10420-86]
- 10420 1V **Restoration of single image based on kernel estimation with L1-regularization method** [10420-214]
- 10420 1W **Image annotation by deep neural networks with attention shaping** [10420-136]
- 10420 1X **Image retrieval based on multi-instance saliency model** [10420-182]
- 10420 1Y **Single image dedusting by non-overlap stitching** [10420-262]
- 10420 1Z **Rotation invariant deep binary hashing for fast image retrieval** [10420-106]
- 10420 20 **A novel fusion method of 3D point cloud and 2D images for 3D environment reconstruction** [10420-89]
- 10420 21 **A multi-focus color image fusion algorithm based on an adaptive SF-PCNN in NSCT domain** [10420-203]
- 10420 22 **A weighted h_0 shearlet-based method for image deblurring** [10420-149]
- 10420 23 **New grayscale morphological operators on hypergraph** [10420-84]

10420 24 **The infrared image simulation of the tank under different movement states** [10420-237]

SESSION 6 IMAGE SEGMENTATION

10420 25 **Adaptive filtering based on LAB transform for FCM color image segmentation** [10420-231]

10420 26 **A multiscale Markov random field model in wavelet domain for image segmentation**
[10420-185]

10420 27 **Image transition region extraction and thresholding with nonlocal spatial feature**
[10420-101]

10420 28 **A novel unsupervised segmentation method for overlapping cervical cell images**
[10420-75]

10420 29 **A deep convolutional feature based learning layer-specific edges method for segmenting
OCT image** [10420-258]

10420 2A **Fluid region segmentation in OCT images based on convolution neural network** [10420-259]

10420 2B **A BandMax and spectral angle mapper based algorithm for white blood cell segmentation**
[10420-210]

10420 2C **A Gaussian process and derivative spectral-based algorithm for red blood cell
segmentation** [10420-209]

10420 2D **Fully convolutional networks with double-label for esophageal cancer image
segmentation by self-transfer learning** [10420-213]

10420 2E **A new method for non-linear distortion correction of Chinese vehicle license plate**
[10420-135]

10420 2F **Improved dynamic weighted FCM for image segmentation using post-segmentation**
[10420-33]

10420 2G **Pulmonary parenchyma segmentation in thin CT image sequences with spectral clustering
and geodesic active contour model based on similarity** [10420-196]

Part Two

SESSION 7 IMAGE ENHANCEMENT AND DENOISING

10420 2H **Micro-seismic image denoising based on bilateral filtering and cross-correlation**
[10420-130]

10420 2I **Image de-noising based on mathematical morphology and multi-objective particle swarm
optimization** [10420-30]

- 10420 2J **Multiplicative noise removal through fractional order tv-based model and fast numerical schemes for its approximation** [10420-169]
- 10420 2K **Fuzzy entropy thresholding and multi-scale morphological approach for microscopic image enhancement** [10420-243]
- 10420 2L **Fast mutual-information-based contrast enhancement** [10420-56]
- 10420 2M **Nonlinear retinal image enhancement for vessel detection** [10420-35]
- 10420 2N **Haze image enhancement based on space fractional-order partial differential equation** [10420-139]
- 10420 2O **Superpixel-based depth map enhancement and hole filling for view interpolation** [10420-19]
- 10420 2P **Effects of empty bins on image upscaling in capsule endoscopy** [10420-45]
- 10420 2Q **Enhancement of low light level images with regression methods** [10420-10]

SESSION 8 IMAGE CLASSIFICATION

- 10420 2R **Deconvolution single shot multibox detector for supermarket commodity detection and classification** [10420-131]
- 10420 2S **Neural classification of the selected family of butterflies** [10420-114]
- 10420 2T **Yarn-dyed fabric defect classification based on convolutional neural network** [10420-202]
- 10420 2U **Classifying images using restricted Boltzmann machines and convolutional neural networks** [10420-211]
- 10420 2V **CNN for breaking text-based CAPTCHA with noise** [10420-133]
- 10420 2W **Text image authenticating algorithm based on MD5-Hash function and Henon map** [10420-41]
- 10420 2X **A transparency channel involved color separation algorithm for glass printing** [10420-87]
- 10420 2Y **A method of minimum volume simplex analysis constrained unmixing for hyperspectral image** [10420-61]
- 10420 2Z **New segmentation-based tone mapping algorithm for high dynamic range image** [10420-215]
- 10420 30 **Semi-supervised classification of multi-spectral images based on density-selected samples** [10420-8]
- 10420 31 **Classification of dried vegetables using computer image analysis and artificial neural networks** [10420-123]

SESSION 9 IMAGE RECONSTRUCTION AND IMAGING TECHNOLOGY

- 10420 32 **The application research of microwave nondestructive testing and imaging based on ω -k algorithm** [10420-266]
- 10420 33 **Compressive imaging based on clustering sub-dictionary learning and gradient histogram preservation** [10420-121]
- 10420 34 **A brain MRI bias field correction method created in the Gaussian multi-scale space** [10420-20]
- 10420 36 **Radar correlated imaging for extended target by the combination of negative exponential restraint and total variation** [10420-105]
- 10420 37 **Multi-radar super-resolution imaging based compressed sensing** [10420-172]
- 10420 38 **3D reconstruction from non-uniform point clouds via local hierarchical clustering** [10420-4]
- 10420 39 **Depth image super-resolution reconstruction based on filter fusion** [10420-55]
- 10420 3A **Image inpainting and super-resolution using non-local recursive deep convolutional network with skip connections** [10420-251]
- 10420 3B **Super-resolution reconstruction for sequential license plate images** [10420-46]

SESSION 10 REMOTE SENSING IMAGE AND MAPPING TECHNOLOGY

- 10420 3C **A novel algorithm based on wavelet transform for ship target detection in optical remote sensing images** [10420-88]
- 10420 3D **Deep feature extraction and combination for remote sensing image classification based on pre-trained CNN models** [10420-142]
- 10420 3E **CNN based aircraft dynamic monitoring through remote sensing images** [10420-134]
- 10420 3F **A novel remote sensing image classification algorithm based on multi-feature optimization and TWSVM** [10420-212]
- 10420 3G **Ji'nan land surface temperature inversion and spatial distribution research based on remote sensing image** [10420-240]
- 10420 3H **The application of unmanned aerial vehicle remote sensing for monitoring secondary geological disasters after earthquakes** [10420-174]
- 10420 3I **Classification of high-resolution multispectral satellite remote sensing images using extended morphological attribute profiles and independent component analysis** [10420-155]
- 10420 3J **Classification of high-resolution remote sensing images based on multi-scale superposition** [10420-224]

SESSION 11 DIGITAL WATERMARKING TECHNOLOGY AND APPLICATION

- 10420 3K **A text zero-watermarking method based on keyword dense interval** [10420-2]
- 10420 3L **A high capacity reversible watermarking scheme for relational databases based on mapping difference expansion** [10420-3]
- 10420 3M **DWT/DCT watermarking techniques with chaotic map for video authentication** [10420-102]
- 10420 3N **Optimization of reliable watermarking algorithm for copyright protection by DD-PCA** [10420-85]
- 10420 3O **Digital image watermarking for printed and scanned documents** [10420-90]
- 10420 3P **Color image watermarking against fog effects** [10420-24]

SESSION 12 VIDEO PROCESSING TECHNOLOGY

- 10420 3Q **Target detection and tracking in infrared video** [10420-156]
- 10420 3R **Heterogeneous CPU-GPU moving targets detection for UAV video** [10420-6]
- 10420 3S **A novel no-reference objective stereoscopic video quality assessment method based on visual saliency analysis** [10420-158]
- 10420 3T **An efficient video dehazing algorithm based on spectral clustering** [10420-221]

SESSION 13 MEDICAL IMAGE CLASSIFICATION AND PROCESSING

- 10420 3U **An efficient abnormal cervical cell detection system based on multi-instance extreme learning machine** [10420-74]
- 10420 3V **Automated detection of age-related macular degeneration in OCT images using multiple instance learning** [10420-260]
- 10420 3W **A multivariate shape quantification approach for sickle red blood cell in patient-specific microscopy image data** [10420-34]
- 10420 3X **Iris features-based heart disease diagnosis by computer vision** [10420-201]
- 10420 3Y **Automatic specular reflections removal for endoscopic images** [10420-268]
- 10420 3Z **A MR image sparse reconstruction method based on compressed sensing** [10420-236]
- 10420 40 **HEp-2 cell image classification method based on very deep convolutional networks with small datasets** [10420-216]
- 10420 41 **A thyroid nodule classification method based on TI-RADS** [10420-63]

- 10420 42 **Classification of MR brain images by combination of multi-CNNs for AD diagnosis**
[10420-166]
- 10420 43 **Dynamic re-weighted total variation technique and statistic iterative reconstruction method for x-ray CT metal artifact reduction** [10420-39]

SESSION 14 IMAGE PROCESSING METHODS AND TECHNIQUES

- 10420 44 **An approach to measure the catenary geometry on high-speed railways based on infrared image processing** [10420-49]
- 10420 45 **Signature of position angles histograms for 3D object recognition** [10420-17]
- 10420 46 **Sparse hyperspectral unmixing combined $L_{1/2}$ norm and reweighted total variation regularization** [10420-242]
- 10420 47 **Depth estimation from multi-scale SLIC superpixels using non-parametric learning**
[10420-47]
- 10420 48 **Comparative performance evaluation of transform coding in image pre-processing**
[10420-165]
- 10420 49 **Dedicated computer system AOTK for image processing and analysis of horse navicular bone** [10420-122]
- 10420 4A **Dynamic simulation of stroke trajectories in Chinese calligraphy based on writing momentum** [10420-228]
- 10420 4B **An approach of characterizing the degree of spatial color mixture** [10420-264]
- 10420 4C **Accelerating physical rainbow model with CUDA** [10420-157]
- 10420 4D **Integrated test system of infrared and laser data based on USB 3.0** [10420-78]
- 10420 4E **Flow-guided sketch and accentuated-tone adjusting for pencil drawing generation**
[10420-267]
- 10420 4F **Real time ray tracing based on shader** [10420-198]
- 10420 4G **Image understanding using geometric context** [10420-103]
- 10420 4H **Neural analysis of bovine ovaries ultrasound images in the identification process of the corpus luteum** [10420-127]
- 10420 4I **Tolerant memoization on local image processing** [10420-183]
- 10420 4J **Multi-instance learning based on instance consistency for image retrieval** [10420-15]

SESSION 15 SIGNAL ANALYSIS AND PROCESSING

- 10420 4K **Ambiguity resolving based on cosine property of phase differences for 3D source localization with uniform circular array** [10420-181]
- 10420 4L **Field programmable analog array based on current differencing transconductance amplifiers and its application to high-order filter** [10420-238]
- 10420 4M **Groundwater micro-dynamic extraction and its response to seismic activity based on EMD** [10420-23]
- 10420 4N **Study on interrupted-sampling repeater jamming performance based on intra-pulse frequency coded signal** [10420-159]
- 10420 4O **A study of ionospheric grid modification technique for BDS/GPS receiver** [10420-177]
- 10420 4P **Reweighted minimization algorithm for signal restoration** [10420-112]

SESSION 16 INFORMATION THEORY AND APPLIED TECHNOLOGY

- 10420 4Q **The comparison of A* algorithm and steepest descent method for path planning** [10420-173]
- 10420 4R **An improved sine cosine algorithm based on levy flight** [10420-232]
- 10420 4S **Gait COP trajectory of left side hip dislocation and scoliotic patient using ankle-foot orthoses** [10420-22]
- 10420 4T **A trunk ranging system based on binocular stereo vision** [10420-82]
- 10420 4V **Weakly supervised semantic segmentation using fore-background priors** [10420-104]
- 10420 4W **Analysis of post-earthquake reconstruction for Wenchuan earthquake based on nighttime light data from DMSP/OLS** [10420-145]
- 10420 4X **Visualizing ecological sensitivity assessment of Huangnan, in the Three-river Region, China, based on GIS** [10420-217]
- 10420 4Y **Robust estimation of errors-in-variables models using M-estimators** [10420-254]
- 10420 4Z **Ontology-based knowledge representation for resolution of semantic heterogeneity in GIS** [10420-208]

Authors

Numbers in the index correspond to the last two digits of the seven-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first five digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Alrikabi, Redha, 4S
Amornraksa, Thumrongrat, 3O, 3P
Amrani, Moussa, 0D, 1J, 3D
An, Shunlin, 1A
An, Wei, 0X
Aoki, Terumasa, 1E
Bai, Lianfa, 18
Bao, Jia-qj, 1I
Boniecki, P., 06, 07, 2S, 3I
Cai, Huiying, 45
Cao, Gang, 2L
Cao, Hui, 1V
Cao, Jianzhong, 2Z
Cao, Yang, 4W
Cao, Yichen, 1F
Cao, Zhiguo, 38
Chai, Enhui, 0Q
Chaib, Souleyman, 1J, 3D
Chen, Chih-Yen, 1Q
Chen, Fei, 1W
Chen, Hao, 2I
Chen, Jun, 15
Chen, Maolin, 1G
Chen, Mingsheng, 34
Chen, Qin, 4I
Chen, S. Y., 30
Chen, Shengyong, 1M
Chen, Shuxian, 0J
Chen, Sining, 1P, 3C
Chen, Wen, 2J
Chen, Xiaoyu, 09
Chen, Xin, 4K
Chen, Xingxing, 4M
Cheng, Bin, 0U
Cheng, Danni, 42
Cheng, Xu, 1M
Cheng, Yu, 26
Chiu, Man-Yau, 12
Choi, Io Teng, 0H
Chong, Albert K., 4S
Chotikawanid, Piyanart, 3P
Chou, Wusheng, 20
Chu, Miao, 4B
CK, Niveditha, 48
Cui, Wei, 0Y
Czechlowski, M., 4H
Dai, Chenyu, 2U
Dai, Lai, 1Z
Dai, Peng, 26
Dai, Qi, 3Z
Deng, Linhua, 1N
Deng, Wupeng, 1S
Deng, Zihui, 3Q
Deng, Zhongliang, 0O, 25, 4R
Dong, Amei, 2T
Dong, Deping, 1F
Dong, Jiwen, 1L
Dong, Qing-xian, 24
Dou, Liyun, 2I
Dou, Yong, 1W
Du, Xinyu, 26
Du, Yan-ping, 16
Duan, Weiwei, 2Z
El-Sayed, Ahmed M., 0C
Fan, L. L., 30
Fan, Meng, 1U
Farzmaadi, Mojtaba, 4I
Feng, Guang, 1L
Feng, Yachun, 15
Feng, Zhiquan, 2O
Fojud, A., 06, 49
Fu, Han, 1C
Fu, Hao, 0X
Fu, Huiquan, 0N, 3R, 4D
Fu, Jianliang, 42
Fu, Jun'e, 3H
Fu, Tianyu, 29, 2A
Gao, Long, 40
Gao, Peng, 1H
Gao, Wenjie, 3J
Gao, Xiang, 24
Gao, Yuan, 3Y
Gong, Qian, 0A, 0G
Góma, K., 06, 07, 2S, 3I, 49, 4H
Gu, Guohua, 33
Gu, Lihua, 32
Gu, Yanfeng, 3D
Gui, JiangHeng, 4F
Guo, Cuiping, 4Y
Guo, Huinan, 2Z
Guo, Luo, 4X
Guo, Quanshi, 2H
Guo, Xifeng, 40
Han, Jialing, 4Z
Han, Jing, 18
Han, Ping, 0E
Han, Ying, 1M
Han, Yuqi, 3R

Han, Zheng, 4V
 Hao, Kun, 0A, 0G
 Hao, Yingming, 45
 He, Haizhen, 4L
 He, Jin, 39
 He, Kangjian, 21
 He, Nana, 2G
 He, Xiaofan, 0P
 He, Xiaohai, 1U
 He, Ying, 39
 He, Zhihao, 0V
 Hong, Ka Wo, 0H
 Hou, Xiyue, 2B, 2C
 Hsieh, Chi-Wen, 1Q
 Hu, Jiwei, 1S, 1T
 Hu, Wei, 4E
 Hu, Xiaohui, 3E
 Hu, Y. J., 13, 14
 Hu, Y. Meng, 4Q
 Hu, Zhenhua, 4L
 Hu, Zhenyu, 2E
 Huang, Bo, 1P, 3C
 Huang, Fan, 21
 Huang, Huimin, 2Z
 Huang, Sheng, 15
 Huang, Sining, 1R, 4P
 Huang, Tingting, 3C
 Huang, Xianglin, 2L
 Hwang, Chi-Hung, 1Q
 Idziaszek, P., 06, 07, 4H
 Jaśkowski, B. M., 4H
 Ji, Zhengnan, 0Y
 Jia, Zhenyuan, 1H
 Jiang, Aiwen, 1Z
 Jiang, Feng, 1J
 Jiang, Xinwei, 2Q
 Jiang, Xudong, 2M
 Jiang, Yan, 2O
 Jiang, Yifeng, 3K, 3L, 47
 Jie, F. R., 13, 14
 Jin, Chi, 1W
 Jin, Peiquan, 1X
 Jing, Junfeng, 2T
 Jing, X., 30
 Kan, Guangyuan, 3H
 Kan, Jiangming, 4T
 Kang, Bo, 4M
 Kang, Hongjuan, 0M
 Khan, Mushfaq Ahmad, 2J
 Koszela, K., 06, 07, 2S, 31, 49, 4H
 Lam, Kin-Man, 12
 Lan, Jinhui, 2Y
 Lan, Zhiguang, 1H
 Lei, Tianjie, 3H
 Lei, Xiaohui, 4W
 Lei, Zhibin, 12
 Leng, Jinsong, 22
 Leong, Chi Chong, 0H
 Li, Aimin, 2F
 Li, Baiping, 0M
 Li, Chao, 09
 Li, Dawei, 0B, 0W
 Li, Dejian, 2R
 Li, Gang, 4R
 Li, Hailiang, 12
 Li, Hengjian, 1L
 Li, Hua, 1O
 Li, Jian, 2R
 Li, Kuan, 28, 3U
 Li, Kun, 2F
 Li, Li, 3X
 Li, Lin, 3H
 Li, Man, 22
 Li, Maowen, 0N, 3R, 4D
 Li, Meina, 4O
 Li, Min, 4F
 Li, Ming, 43
 Li, Mingtao, 0B, 0W
 Li, Ning, 0O, 25, 4R
 Li, Peng, 1V
 Li, Pengfei, 2T
 Li, Qingli, 2B, 2C
 Li, Ruibo, 38
 Li, Ruirui, 4E
 Li, Weihai, 0K, 0L
 Li, Xiang, 11
 Li, Xianri, 4M
 Li, Yan, 46
 Li, Yuexiang, 2K
 Liang, Bin, 39
 Liang, Gangming, 23
 Liang, Guoyuan, 15
 Liao, Dongping, 11
 Lin, Chang-Qing, 17
 Lin, Chun-Fu, 1Q
 Ling, Juan, 3G
 Liu, Cheng-Lin, 2Q
 Liu, Chuancai, 4G
 Liu, Deyin, 08
 Liu, Dong, 29, 2A
 Liu, Guangjie, 3J
 Liu, Hongying, 2B, 2C
 Liu, Jianming, 0J, 1Z
 Liu, JiYing, 37
 Liu, Jun, 0Z
 Liu, Kaixuan, 2V
 Liu, Manhua, 42
 Liu, Miaofeng, 3A
 Liu, Mingshan, 19
 Liu, Qiang, 3U, 4O
 Liu, Quan, 0E, 1S, 1T
 Liu, Wei, 1H
 Liu, Xiaoming, 29, 2A, 3V
 Liu, Xuelin, 4O
 Liu, Yicheng, 2I
 Liu, Ying, 4Z
 Liu, Yuan, 4A
 Liu, Zhen, 11, 4K, 4N
 Liu, Zhiqiang, 3F
 Long, Yunli, 0X

Lou, Ping, 0E, 1S, 1T
 Lu, Guanghua, 36
 Lu, Guoliang, 0U
 Lu, Hai-ming, 16
 Lu, Mengchi, 40
 Lu, Rongrong, 45
 Luan, Mengkai, 39
 Łukomski, M., 31
 Luo, Rong, 4I
 Luo, Rongming, 4L
 Lv, Ping-Yue, 17
 Lv, Shaohu, 1W
 Lv, Wei, 0Y
 Lyu, Chen, 0U
 Ma, Changyu, 43
 Ma, Fang, 1W
 Ma, Guojian, 1F
 Ma, J. Y., 13, 14
 Ma, Ren'an, 2H
 Ma, Xiaoxue, 2W
 Mao, Xing-peng, 1I
 Meng, Xia, 4X
 Meng, Xiaodong, 02
 Menon, Vignesh V., 48
 Milburn, Peter, 4S
 Min, Xin, 09
 Mioduszevska, N., 07
 Mo, Zhuoya, 0T
 Mu, Cheng-po, 24
 Mueller, W., 06, 2S, 31, 49
 Narayanan, Gayathri, 48
 NB, Harikrishnan, 48
 Nguchu, Benedictor A., 3X
 Ni, Hongxia, 10
 Ni, Jing, 0E
 Nie, Binling, 2R
 Nie, Rencan, 2I
 Okoń, P., 06, 07, 2S, 31, 49, 4H
 Omara, Ibrahim, 0D, 1J
 Pan, Chunhong, 2Q
 Pan, Fei, 0R
 Pang, Zhiguo, 3H
 Panyavaraporn, Jantana, 3M
 Peng, Bo, 4I
 Peng, Chengtao, 43
 Peng, Junhuan, 4Y
 Peng, Ming-song, 24
 Piekarska-Boniecka, H., 2S, 49
 Pu, Jinchuan, 0Z
 Pun, Chi-Man, 0H
 Qi, Lin, 08, 0I
 Qi, Shengxiang, 32
 Qian, Tingting, 36
 Qiang, Yan, 2G
 Qiao, Tiantian, 1R, 4P
 Qin, Mingxin, 34
 Qin, Zhengrui, 1K
 Qing, Ke, 2V
 Qing, Linbo, 1U
 Qing, Yin, 3K, 3L, 47
 Qiu, Bensheng, 43
 Qiu, Jian, 1L
 Qiu, Minghui, 28, 3U
 Qu, Zhiyi, 0A, 0G
 Ren, Bo, 08
 Ren, Jian, 32
 Ren, W. Long, 4Q
 Rudowicz-Nawrocka, J., 07
 Rukundo, Olivier, 2P
 Shen, Linlin, 2K
 Shen, Rui, 4N
 Shi, Shaokun, 05
 Shi, Zhenghao, 1V
 Song, Xiaofang, 3T
 Sui, Jinping, 11, 4N
 Sui, Xiubao, 33
 Sui, Xudong, 3E
 Sun, Guomin, 22
 Sun, Nan, 3Z
 Sun, Qianlai, 1A
 Sun, Rongqing, 1F
 Sun, Shouqian, 09, 2R
 Sun, Weiwei, 3V
 Sun, Yicheng, 33
 Sun, Zhen, 2B
 Sun, Zhiyi, 1A
 Tan, Ke, 3Y
 Tang, Haokui, 2O
 Tang, Linbo, 0N, 3R, 4D
 Tang, Qinrong, 05
 Tao, Huanhuan, 03
 Tao, Limin, 0Y
 Thongkor, Kharittha, 3O
 Tian, Huawei, 2L
 Tian, Shaohui, 4B
 Tie, Yun, 0I
 Tong, Li, 0R
 Tong, Qiang, 1E
 Ullah, Asmat, 2J
 Wahdan, A. A., 0C
 Wan, Shouhong, 1X, 4J
 Wan, Youchuan, 1G
 Wang, Bin, 3Y
 Wang, Can, 15
 Wang, Dongyang, 20
 Wang, Guanxi, 0I
 Wang, Hao, 4I
 Wang, Hu, 4Q
 Wang, Huanhuan, 3N
 Wang, Jianbiao, 2C
 Wang, Jie, 4M
 Wang, Jinliang, 3J
 Wang, Jun, 2X
 Wang, Junping, 23
 Wang, Lianfeng, 1B
 Wang, Lianlian, 36
 Wang, Limin, 4Z
 Wang, Mingwei, 1G
 Wang, Rui, 19
 Wang, Shengchun, 26

Wang, Shuhong, 4K
 Wang, Tianyang, 1K
 Wang, Wei, 0P
 Wang, Xiaohong, 2M
 Wang, Xing, 1P
 Wang, Xingyong, 3H
 Wang, Ya-Lei, 2D
 Wang, Yan-guo, 44
 Wang, Yaping, 42
 Wang, Yifeng, 02
 Wang, Yin, 1A
 Wang, Yinan, 2X
 Wang, Ying, 2W
 Wang, Yiting, 2B, 2C
 Wang, Yongbin, 2L
 Wang, Yuanbo, 32
 Wang, Yuanchao, 0B, 0W
 Wang, Yuanyu, 1Y
 Wang, Yuntao, 15
 Wei, Jinqiao, 2W
 Wei, Xizhang, 11, 4K, 4N
 Wen, Lei, 4L
 Wen, Peizhi, 0S
 Weng, Chun-Jen, 1Q
 Wojcieszak, D., 31
 Wu, Dan, 26
 Wu, Hongtao, 2Y
 Wu, Huiling, 0K
 Wu, Kangheng, 12
 Wu, Qiong, 1C
 Wu, Tao, 27
 Wu, Wei, 10
 Wu, Xiaojun, 0S, 0T
 Wu, Xinyu, 15
 Wu, Yao, 23
 Wu, Yu, 1C, 3I
 Wu, Zhize, 4J
 Xiao, Gang, 0D
 Xiao, Han, 4Z
 Xiao, Yang, 38
 Xiao, Zhitao, 4V
 Xie, Donghai, 1C, 3I
 Xie, Zhao-xia, 16
 Xing, Zhong, 3B
 Xiong, Huijiang, 0S
 Xiong, Shuhua, 1U
 Xu, Dan, 2I
 Xu, Hui, 32
 Xu, Jian-Ming, 2D
 Xu, Liang, 0L
 Xu, Mengjia, 3W
 Xu, Sanmei, 0M
 Xu, Shucheng, 25
 Xu, Tao, 2O
 Xu, Tingfa, 1P, 3C
 Xu, Tongde, 2U
 Xu, Wei, 2E
 Xue, Di-Xiu, 2D
 Xue, Donglin, 05
 Xue, Jiale, 1M
 Xue, Wendan, 2N
 Xue, Yingying, 2B, 2C
 Xun, Yanqin, 19
 Yan, Bin, 0R
 Yan, Gangfeng, 2X
 Yan, Li, 1X
 Yan, Zifei, 0D
 Yang, Fan, 1H, 3K, 3L, 47
 Yang, Guang, 20
 Yang, Huamin, 1O
 Yang, Jiaqi, 38
 Yang, Jie, 2Q
 Yang, Jinzhu, 3W
 Yang, Jun, 39
 Yang, Jungang, 0X
 Yang, Junjie, 27
 Yang, Lei, 4E
 Yang, Mei, 1B
 Yang, Mingxiang, 4W
 Yang, Shuman, 1A
 Yang, Su, 0F
 Yang, Xiaohui, 2O
 Yang, Xinyan, 3S
 Yang, Yan, 41
 Yang, Zhou, 29, 2A, 3V
 Yang, Zi-jing, 16
 Yao, Hongxun, 3D
 Yao, Min, 04
 Yao, Qinfen, 33
 Yao, Yi, 3T
 Yao, Zao, 3T
 Ye, Fan, 37
 Ye, Long, 3S
 Ye, Yao, 3B
 Ye, Yongkai, 28
 Ye, Zhiwei, 1G
 Yi, Songsong, 0T
 Yi, Zhaoxiang, 1B
 Yin, Bangjie, 4J
 Yin, Fang, 20
 Yin, Jianping, 28, 3U, 40
 Youssif, Aliaa A. A., 0C
 Yu, Chunlei, 3R
 Yu, Lifang, 2L
 Yu, Mingjun, 4V
 Yu, Zhiyang, 0S, 0T
 Yuan, Gang, 43
 Yuan, Jian, 4Q
 Yuan, Lihuan, 3U
 Yue, Ge, 3B
 Yue, Lihua, 1X, 4J
 Zaborowicz, M., 07, 2S, 31, 49, 4H
 Zeng, Yiliang, 2Y
 Zeng, Ying, 0R
 Zhang, Chao, 0N, 3R, 4D
 Zhang, Cheng, 43
 Zhang, Erhua, 2H
 Zhang, Guiying, 03
 Zhang, Hanming, 0R
 Zhang, Hao, 4Q

Zhang, Jinfang, 3E
 Zhang, Jing, 4W
 Zhang, Jinsen, 4C
 Zhang, Jinyuan, 0O
 Zhang, Jizhou, 1P
 Zhang, Kai, 1T
 Zhang, Lei, 4O
 Zhang, Limin, 27
 Zhang, Maojun, 2E
 Zhang, Miao, 4J
 Zhang, Min, 1Y
 Zhang, Qin, 3S
 Zhang, Rong, 2D, 2V
 Zhang, Rui-heng, 24
 Zhang, Wenbo, 19
 Zhang, Xiaochun, 4G
 Zhang, Xiaolei, 3H
 Zhang, Xiaolong, 2G
 Zhang, Xin, 1V
 Zhang, Xiongmei, 1B
 Zhang, Xueqin, 1F
 Zhang, Yang, 1H
 Zhang, Yazhen, 3H
 Zhang, Yi, 18
 Zhang, Yifan, 1Y
 Zhang, Yiming, 18, 18
 Zhang, Yin, 1D
 Zhang, Yun, 1D
 Zhang, Zhiyuan, 1H
 Zhao, Bao Jun, 4D
 Zhao, Fan, 3T
 Zhao, Fengqun, 2N
 Zhao, Haiyang, 1H
 Zhao, Hong, 3W
 Zhao, Huilan, 2G
 Zhao, Jianping, 1O
 Zhao, Jiufen, 05
 Zhao, Juanjuan, 2G
 Zhao, Lili, 28, 3U
 Zhao, Meng, 1M
 Zhao, Minghua, 1V
 Zhao, Qirui, 2E
 Zhao, Wei, 3S
 Zhao, Xixuan, 4T
 Zhao, Yinshuai, 45
 Zhao, Yong, 03, 0Z
 Zhao, Yuan-Yuan, 2D
 Zhao, Zhijun, 2U
 Zheng, Changwen, 4C
 Zheng, Haihong, 02
 Zheng, Jianhua, 0B, 0W
 Zheng, Kexin, 1W
 Zheng, Lijuan, 3I
 Zheng, Xiangwei, 0U
 Zheng, Yahui, 23
 Zhi, Min, 0Q
 Zhong, Ruofei, 1C, 3I
 Zhong, Yuning, 0P
 Zhou, Dongming, 21
 Zhou, Jiancan, 2K
 Zhou, Jiting, 3N
 Zhou, Lili, 21
 Zhou, Mei, 2B, 2C
 Zhou, Yi, 03
 Zhou, Yuan, 19
 Zhou, Zuofeng, 2Z
 Zhu, Changming, 04
 Zhu, Feng, 45
 Zhu, Jihong, 3Q
 Zhu, Jubo, 37
 Zhu, Ligu, 3F
 Zhu, Ming, 0V
 Zhu, Qing, 0F, 4A
 Zhu, Yuesheng, 3K, 3L, 47
 Zou, Jinlin, 2Y, 2Y
 Zuo, Wangmeng, 0D

Conference Committee

International Advisory Committee

Changhuei Yang, California Institute of Technology (United States)
Chin-Chen Chang, Feng Chia University of Hong Kong (Hong Kong)
Ngan King Ng, The Chinese University of Hong Kong (Hong Kong)

Conference Chairs

Charles M. Falco, College of Optical Sciences, The University of Arizona (United States)
Xudong Jiang, Nanyang Technological University (Singapore)

Program Committee Chairs

Jamshid Dehmeshki, Kingston University (United Kingdom)
Konstantin Romyantsev, Southern Federal University (Russian Federation)
Yan Yang, Southwest Jiaotong University (China)
Qingli Li, East China Normal University (China)
Ismail Rakip Karas, Karabük University (Turkey)

Publicity Chair

Krzysztof Koszela, Poznan University of Life Sciences (Poland)

Publication Chair

Yi Xie, Wuhan University (China)

Technical Committee

Yuri Rzhanov, University of New Hampshire (United States)
Liming Zhang, University of Macau (Macau)
Jinfeng Yang, Civil Aviation University of China (China)
Yong-Sheng Chen, National Chiao Tung University (Taiwan)
Tarek Sobh, University of Bridgeport (United States)
Mueller Wojciech, Poznan University of Life Sciences (Poland)
Srikanta Murthy K., PES School of Engineering (India)
Radosław Jan Kozłowski, Poznan University of Life Sciences (Poland)
Gniewko Niedbała, Poznan University of Life Sciences (Poland)
Bicheng Li, Information Engineering University (China)
Lixiong Liu, Beijing Institute of Technology (China)
Fulin Su, Harbin Institute of Technology (China)

Zhi Liu, Shanghai University (China)
Bin Tang, University of Electronic Science and Technology of China (China)
Xiaoyong Lei, Beihang University (China)
En-Bing Lin, Central Michigan University (United States)
Huimin Ma, Tsinghua University (China)
Juncheng Li, Hunan University of Humanities, Science, and Technology (China)
Mingzhe Liu, Chengdu University of Technology (China)
Muhammad Naufal Bin Mansor, Universiti Malaysia Perlis (Malaysia)
George A. Papakostas, Eastern Macedonia and Thrace Institute of Technology (Greece)
Zhang Zhi Jia, Shenyang University of Technology (China)
Tianqiang Peng, Henan Institute of Engineering (China)
Tieling Chen, University of South Carolina Aiken (United States)
Hong Lu, Nanjing Institute of Technology (China)
Florence Cloppet, Université Paris Descartes (France)
Momina Moetesum, Bahria University (Pakistan)
Imran Siddiqi, Bahria University (Pakistan)
Bin Yan, National Digital Switching System Engineering and Technological Research Center (China)
Wu Xi, Xihua University (China)
Wu-Hsiung Chen, Pano Leader Company, Ltd. (Taiwan)
Sergey Kravtsov, Southern Federal University (Russian Federation)
Konstantin Romyantsev, Southern Federal University (Russian Federation)
Sherif Welsen, University of Nottingham Ningbo (China)
Ningyu Zhang, Shandong Jianzhu University (China)
Shouhong Wan, University of Science and Technology of China (China)
Chunning Meng, China Maritime Police Academy (China)
Jenq-Neng Hwang, The University of Washington (United States)
Hua-Tsung Chen, National Chiao Tung University (Taiwan)
Ahmed A. Abd El-Latif, Menoufia University (Egypt)
Mark Richard Pickering, The University of New South Wales, (Australia)
Hongping Li, Ocean University of China (China)
Huiqin Jiang, Zhengzhou University (China)
Tao Wu, Lingnan Normal University (China)
Kathiravan Srinivasan, National Ilan University (Taiwan)
Liu Zhen, National University of Defense Technology (China)
Yigang Zhou, Harbin Institute of Technology (China)
Xibin Jia, Beijing University of Technology (China)
Fengqi Li, Dalian University of Technology (China)
Wenbing Tao, Huazhong University of Science and Technology (China)
Nicole Vincent, Université Paris Descartes (France)

Ahmed Nashat, Fayoum University (Egypt)
Zhihua Xie, Jiangxi Science and Technology Normal University (China)
Kuo-Liang Chung, National Taiwan University of Science and Technology (Taiwan)
G. Balakrishnan, Indra Ganesan College of Engineering (India)
Peng Wang, Tsinghua University (China)
Juan Li, Beijing Jiaotong University (China)
Jing Hu, Chengdu University of Information and Technology (China)
Hung Nguyen, Japan Advanced Institute of Science and Technology (Japan)
Yangming He, Jiangxi University of Traditional Chinese Medicine (China)
Bing Li, State Key Laboratory of Complex Electromagnetic Environmental Effects on Electronics and Information Systems (China)
Fei Xia, Shanghai University of Electronic Power (China)
Lifeng Zhang, North China Electric Power University (China)
Dongming Zhou, Yunnan University (China)
Junzhou Zou, East China University of Science and Technology (China)
Wenchao Cui, China Three Gorges University (China)
Hong Zhang, Armstrong State University (United States)
Suyu Wang, Beijing University of Technology (China)
Shuai Lu, Jilin University (China)
Dongmei Fu, University of Science and Technology Beijing (China)
Yangming He, Jiangxi University of Traditional Chinese Medicine (China)
Peiyuan Guo, Beijing Technology and Business University (China)
Albert Chong, University of Southern Queensland (Australia)
Yebin Liu, Tsinghua University (China)
Lizhuang Ma, Shanghai Jiao Tong University (China)
Hongtao Xie, Chinese Academy of Sciences (China)
Tao Lei, Chinese Academy of Sciences (China)
Wen He, Chengdu Medical College (China)
Chi-Man Pun, University of Macau (China)
Zhen Liu, Ningbo University (China)
Guowang Jin, Zhengzhou Institute of Surveying and Mapping (China)
Hu Zheng, National University of Defense Technology (China)
Xiangyang Hao, Information Engineering University (China)
Maciej Zaborowicz, Poznan University of Life Sciences (Poland)
Yusnaidi Md Yusof, Universiti Teknologi Malaysia (Malaysia)
Kefiloe Maboe, University of South Africa (South Africa)
Kin Hong Wong, The Chinese University of Hong Kong (Hong Kong)
Ruofei Zhong, Capital Normal University (China)
Kaixia Wei, Nanjing Xiaozhuang University (China)
Zhenzhou Wang, Chinese Academy of Sciences (China)

Zhongjun Zhang, Beijing Normal University (China)
Yongqi Sun, Beijing Jiaotong University (China)
Yan-Guo Wang, China Academy of Railway Sciences (China)
Wangmeng Zuo, Harbin Institute of Technology (China)
Manhua Liu, Shanghai Jiao Tong University (China)
Fan Zhao, Xi'an University of Technology (China)
Zhenghao Shi, Xi'an University of Technology (China)
Linbo Qing, Sichuan University (China)
Changwen Zheng, University of Chinese Academy of Sciences (China)
Wen-Jye Shyr, National Changhua University of Education (Taiwan)
Terumasa Aoki, Tohoku University (Japan)
Long Ye, Communication University of China (China)
Xing-Peng Mao, Harbin Institute of Technology (China)
Jiwei Hu, Wuhan University of Technology (China)
Xinyu Du, China Academy of Railway Sciences (China)
Mingtao Li, Chinese Academy of Sciences (China)
Jiangming Kan, Beijing Forestry University (China)
Hongping Zhou, Hefei University of Technology (China)
Guoliang Lu, Shandong University (China)
Linlin Shen, Shenzhen University (China)
Weihai Li, University of Science and Technology of China (China)
Lihua Yue, University of Science and Technology of China (China)
Yun Zhang, Kunming University of Science and Technology (China)
Wenhui Lang, Hefei University of Technology (China)
Yuesheng Zhu, Peking University (China)
Lisheng Wang, Shanghai Jiao Tong University (China)
Zhitao Xiao, Tianjin Polytechnic University (China)
Yun Tie, Zhengzhou University (China)
Tianyang Wang, Southern Illinois University Carbondale (United States)
Zhengrui Qin, Northwest Missouri State University (United States)
Rencan Nie, Yunnan University (China)
Yuanyu Wang, Taiyuan University of Technology (China)
Bing Xiao, Shaanxi Normal University (China)
K. Ravindra, Malla Reddy Institute of Technology and Science (India)
Yan Qiang, Taiyuan University of Technology (China)
Anusha Achuthan, Universiti Sains Malaysia (Malaysia)
Jiangping Hu, University of Electronic Science and Technology (China)
Umair Ali Khan, Fraunhofer Institute for Integrated Circuits (Germany)
Guoyuan Liang, Chinese Academy of Sciences (China)
Wei-Ping Zheng, South China Normal University (China)
Bingwei He, Fuzhou University (China)
Guang Yang, Beihang University (China)
Zhaoxia Xie, Beijing Institute of Graphic Communication (China)
Ying Liu, Xi'an University of Posts and Telecommunication (China)
Meichun Yan, Hohai University (China)

Hengjian Li, University of Jinan (China)
Hongzhi Wu, Shandong Institute for Development Strategy of Science
and Technology (China)
Ying Wang, Qingdao University (China)

Introduction

We had the great honor of organizing the Ninth International Conference on Digital Image Processing (ICDIP 2017). It was truly a great pleasure for us to greet more than 180 participants from many different countries. We firmly believe that ICDIP will become an important international event in the field of digital image processing.

The Ninth International Conference on Digital Image Processing (ICDIP 2017) was sponsored by the International Association of Computer Science and Information Technology, and co-sponsored by Sichuan Province Computer Federation, Southwest Jiaotong University.

The objective of this conference was to provide a platform for the participants to report and review innovative ideas and up-to-date progress and developments, and discuss novel approaches to application in the digital image processing field. It is sincerely hoped that the research and development in digital image processing will be improved, and the international cooperation sharing the common interest will be enhanced.

On behalf of the other co-chairs, and the Organization Committee, we would like to express our heartfelt thanks for our sponsors and cooperating organizers for all they have done for ICDIP 2017. Thanks also to all the authors for their contributions to the proceedings, to all of the participants and friends for their interest and efforts in helping us to make it possible, to the Program Technical Committee for their effective work and valuable advice, especially the Conference Secretary and to the editors at SPIE for their efforts and outstanding service in preparing and publishing the proceedings.

Xudong Jiang

