2016 IEEE International Conference on Image Processing (ICIP 2016)

Phoenix, Arizona, USA
25-28 September 2016

Pages 1-628

IEEE Catalog Number: CFP16CIP-POD
ISBN: 978-1-4673-9962-3

Copyright © 2016 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:	CFP16CIP-POD
ISBN (Print-On-Demand):	978-1-4673-9962-3
ISBN (Online):	978-1-4673-9961-6

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
Web: www.proceedings.com

TABLE OF CONTENTS

MA.L1: DEPTH-AWARE VISUAL PROCESSING I

MA.L1.1: SEMANTIC CONTEXT AND DEPTH-AWARE OBJECT PROPOSAL GENERATION 1
Haoyang Zhang, Xuming He, Fatih Porikli, National ICT Australia (NICTA), Australian National University (ANU), Australia; Laurent Kneip, Australian National University, Australia

MA.L1.2: HIGHLIGHTING OBJECTS OF INTEREST IN AN IMAGE BY INTEGRATING SALIENCY AND DEPTH 6
Subhayan Mukherjee, Irene Cheng, Anup Basu, University of Alberta, Canada

MA.L1.3: MOVING OBJECT SEGMENTATION USING DEPTH AND OPTICAL FLOW IN CAR DRIVING SEQUENCES 11
Jiun-Yu Kao, University of Southern California, United States; Dong Tian, Hassan Mansour, Anthony Vetro, Mitsubishi Electric Research Laboratories, United States; Antonio Ortega, University of Southern California, United States

MA.L1.4: EFFICIENT ACTION RECOGNITION FROM COMPRESSED DEPTH MAPS 16
Jie Miao, Xiaoyi Jia, South China University of Technology, China; Reji Mathew, The University of New South Wales, Australia; Xiangmin Xu, South China University of Technology, China; David Taubman, The University of New South Wales, Australia; Chunmei Qing, South China University of Technology, China

MA.L1.5: DEPTH OF FIELD GUIDED REFLECTION REMOVAL 21
Renjie Wan, Boxin Shi, Ah Hwee Tan, Alex Kot, Nanyang Technological University, Singapore

MA.L1.6: A COMPARISON OF FOOD PORTION SIZE ESTIMATION USING GEOMETRIC MODELS AND DEPTH IMAGES 26
Shaobo Fang, Fengqing Zhu, Chufan Jiang, Song Zhang, Purdue University, United States; Carol Boushey, University of Hawaii Cancer Center, United States; Edward Delp, Purdue University, United States

MA.L2: FEATURE EXTRACTION I

MA.L2.1: EFFICIENT KEYPOINT DETECTION AND DESCRIPTION USING FILTER KERNEL DECOMPOSITION IN SCALE SPACE 31
Ryo Okutani, Kenjiro Sugimoto, Sei-ichiro Kamata, Waseda University, Japan

MA.L2.2: TOWARDS MULTI-SCALE FEATURE DETECTION REPEATABLE OVER INTENSITY AND DEPTH IMAGES 36
Hatem A. Rashwan, Sylvie Chambon, Pierre Gurdjos, Géraldine Morin, Vincent Charvillat, Université de Toulouse, France

MA.L2.3: ON THE GENERALITY OF NEURAL IMAGE FEATURES 41
Ragav Venkatesan, Vijetha Gatupalli, Baoxin Li, Arizona State University, United States

MA.L2.4: IMAGE FEATURE EXTRACTION BASED ON SPECTRAL GRAPH INFORMATION 46
Jieqi Kang, Shan Lu, Weibo Gong, Patrick Kelly, University of Massachusetts, Amherst, United States

MA.L2.5: VISUAL LOCATION SEARCH USING SYMMELETS 51
Chong-Po Liao, Jun-Wei Hsieh, Hui-Fen Chiang, Yun Tsao, National Taiwan Ocean University, Taiwan

MA.L2.6: NUCLEAR-NORM REGULARIZED NEIGHBORHOOD PRESERVING PROJECTION 56
Zhao Zhang, Fanzhang Li, Soochow University, China; Mingbo Zhao, City University of Hong Kong, Hong Kong SAR of China; Li Zhang, Soochow University, China; Shuicheng Yan, National University of Singapore, Singapore

MA.L3: SS: IMAGE COMPRESSION GRAND CHALLENGE

MA.L3.2: JPEG ON STEROIDS : COMMON OPTIMIZATION TECHNIQUES FOR JPEG IMAGE COMPRESSION 61
Thomas Richter, University of Stuttgart, Germany

MA.L3.3: FLIF: FREE LOSSLESS IMAGE FORMAT BASED ON MANIAC COMPRESSION 66
Jon Sneyers, Cloudinary, Belgium; Pieter Wuille, Blockstream, Switzerland

MA.L3.4: HEVC STILL IMAGE CODING AND HIGH EFFICIENCY IMAGE FILE FORMAT 71
Jani Lainema, Miska M. Hannuksela, Vinod K. Malamal Vadakital, Emre B. Aksu, Nokia Technologies, Finland

MA.L3.5: DAALA: A PERCEPTUALLY-DRIVEN STILL PICTURE CODEC 76
Jean-Marc Valin, Nathan Egge, Thomas Daede, Timothy Terriberry, Christopher Montgomery, Xiph.Org, Mozilla, Canada

MA.L4: IMAGE QUALITY ASSESSMENT I

MA.L4.1: SCREEN CONTENT IMAGE QUALITY ASSESSMENT USING EDGE MODEL 81
Zhangkai Ni, Huaqiao University, China; Lin Ma, Huawei Noah's Ark Lab, Hong Kong SAR of China; Huanqiang Zeng, Canhui Cai, Huaqiao University, China; Kai-Kuang Ma, Nanyang Technological University, Singapore

MA.L4.2: NO-REFERENCE PERCEPTUAL SHARPNESS ASSESSMENT FOR ULTRA-HIGH-DEFINITION IMAGES 86
Woojae Kim, Haksub Kim, Heeseok Oh, Jongyoo Kim, Sanghoon Lee, Yonsei University, Republic of Korea

MA.L4.3: THE INFLUENCE OF SHORT-TERM MEMORY IN SUBJECTIVE IMAGE QUALITY ASSESSMENT 91
Steven Le Moan, Marius Pedersen, Ivar Farup, Jana Blahová, The Norwegian University of Science and Technology, Norway

MA.L4.4: VISUAL ATTENTION GUIDED QUALITY ASSESSMENT OF TONE-MAPPED IMAGES USING SCENE STATISTICS 96
Debarati Kundu, Brian Evans, University of Texas at Austin, United States

MA.L4.5: IMAGE UTILITY ESTIMATION USING DIFFERENCE-OF-GAUSSIAN SCALE SPACE 101
Edward Scott, Sheila Hemami, Northeastern University, United States

MA.L4.6: NEAR-THRESHOLD PERCEPTUAL DISTORTION PREDICTION BASED ON OPTIMAL STRUCTURE CLASSIFICATION 106
Yucheng Liu, Jan Allebach, Purdue University, United States

MA.L5: MEDICAL IMAGE ANALYSIS

MA.L5.1: A DEEP SYMMETRY CONVNET FOR STROKE LESION SEGMENTATION 111
Yanran Wang, Aggelos K. Katsaggelos, Xue Wang, Todd B Parrish, Northwestern University, United States

MA.L5.2: A NOVEL AUTOMATIC SEGMENTATION OF HEALTHY AND DISEASED RETINAL LAYERS FROM OCT SCANS 116
Ahmed ElTanboly, Marwa Ismail, Andy Switala, Mona Mahmoud, Ahmed Soliman, Thomas Neyer, Agustina Palacio, Amir Hadayer, University of Louisville, United States; Magdi El-Azab, Mansoura University, Egypt; Shlomit Schaal, Ayman El-Baz, University of Louisville, United States

MA.L5.3: IMAGE-BASED CAD SYSTEM FOR ACCURATE IDENTIFICATION OF LUNG INJURY 121
Ahmed Soliman, Fahmi Khalifa, Ahmed Shaffie, Ni Liu, Neal Dunlap, Brian Wang, Adel Elmaghraby, Georgy Gimel'farb, Ayman El-Baz, University of Louisville, United States

MA.L5.4: ALZHEIMER'S DISEASE DIAGNOSTICS BY ADAPTATION OF 3D CONVOLUTIONAL NETWORK 126
Ehsan Hosseini-Asl, Robert Keynton, Ayman El-Baz, University of Louisville, United States

MA.L5.5: ON-LINE LEARNING DYNAMIC MODELS FOR NERVE DETECTION IN ULTRASOUND VIDEOS 131
Oussama Hadjerci, Université d'Orléans, France; Adel Hafiane, INSA Centre Val de Loire, France; Pierre Vieyres, Université d'Orléans, France; Donatello Conte, Pascal Makris, Université de Francois Rabelais, France; Alain Delbos, Clinique Medipole Garonne, France

MA.L5.6: A NEW NON-INVASIVE APPROACH FOR EARLY CLASSIFICATION OF RENAL REJECTION TYPES USING DIFFUSION-WEIGHTED MRI 136
Mohamed Shehata, Fahmi Khalifa, Elizabeth Hollis, Ahmed Soliman, Ehsan Hosseini-Asl, University of Louisville, United States; Mohamed Abou El-Ghar, Mansoura University, United States; Maryam El-Baz, Amy Dwyer, Ayman El-Baz, Robert Keynton, University of Louisville, United States

MA.L6: VISUAL FORENSICS

MA.L6.1: FROM IMPRESSIONISM TO EXPRESSIONISM: AUTOMATICALLY IDENTIFYING VAN GOGH'S PAINTINGS 141
Guilherme Folego, Otavio Gomes, Anderson Rocha, University of Campinas, Brazil

MA.L6.2: SIMULTANEOUS FORGERY IDENTIFICATION AND LOCALIZATION IN PAINTINGS USING ADVANCED CORRELATION FILTERS 146
Paul Buchana, Irina Cazan, Manuel Diaz-Granados, Felix Juefei-Xu, Marios Savvides, Carnegie Mellon University, United States

MA.L6.3: COMPUTATIONALLY EFFICIENT DEMOSAICING FILTER ESTIMATION FOR FORENSIC CAMERA MODEL IDENTIFICATION 151
Xinwei Zhao, Matthew C. Stamm, Drexel University, United States

MA.L6.4: PRNU BASED SOURCE ATTRIBUTION WITH A COLLECTION OF SEAM-CARVED IMAGES 156
Samet Taspinar, Manoranjan Mohanty, New York University, Abu Dhabi, United States; Nasir Memon, New York University, United States

MA.L6.5: COVERAGE – A NOVEL DATABASE FOR COPY-MOVE FORGERY DETECTION 161
Bihan Wen, University of Illinois at Urbana-Champaign, United States; Ye Zhu, Jilin University, China; Ramanathan Subramanian, University of Illinois at Urbana-Champaign, Singapore; Tian-Tsong Ng, Institute for Infocomm Research, Singapore; Xuanjing Shen, Jilin University, China; Stefan Winkler, University of Illinois at Urbana-Champaign, Singapore

MA.L6.6: FORENSIC DETECTION OF INVERSE TONE MAPPING IN HDR IMAGES 166
Wei Fan, Giuseppe Valenzise, LTCI, CNRS, Télécom ParisTech, Université Paris-Saclay, France; Francesco Banterle, Visual Computing Lab, ISTI-CNR, Italy; Frédéric Dufaux, LTCI, CNRS, Télécom ParisTech, Université Paris-Saclay, France

MA.L7: VIDEO ANALYSIS AND UNDERSTANDING I

MA.L7.1: KEYPOINT TRAJECTORY CODING ON COMPACT DESCRIPTOR FOR VIDEO ANALYSIS 171
Dong Tian, Huifang Sun, Anthony Vetro, Mitsubishi Electric Research Laboratories, United States

MA.L7.2: REAL-TIME VIDEO SUMMARIZATION ON MOBILE 176
Smit Marvaniya, Mogilipaka Damoder, Viswanath Gopalakrishnan, Kiran Nanjunda Iyer, Kapil Soni, Samsung R&D Institute, Bangalore, India

MA.L7.3: PATCH SIMILARITY BASED EDGE-PRESERVING BACKGROUND ESTIMATION FOR SINGLE FRAME INFRARED SMALL TARGET DETECTION 181
Kun Bai, Yuehuan Wang, Qiong Song, Huazhong University of Science and Technology, China

MA.L7.4: ONLINE MULTI-TASK LEARNING FOR SEMANTIC CONCEPT DETECTION IN VIDEO 186
Foteini Markatopoulou, Vasileios Mezaris, Centre for Research and Technology Hellas, Greece; Ioannis Patras, Queen Mary University of London, United Kingdom

MA.L7.5: EMBEDDED SPARSE CODING FOR SUMMARIZING MULTI-VIEW VIDEOS 191
Rameswar Panda, University of California, Riverside, United States; Abir Das, University of Massachusetts, Lowell, United States; Amit K. Roy-Chowdhury, University of California, Riverside, United States

MA.L7.6: FEATURELESS: BYPASSING FEATURE EXTRACTION IN ACTION CATEGORIZATION 196
Silvia-Laura Pintea, Pascal Mettes, University of Amsterdam, Netherlands; Jan van Gemert, Delft University of Technology, Netherlands; Arnold Smeulders, University of Amsterdam, Netherlands

MA.L8: INDEXING & RETRIEVAL

MA.L8.1: PRESERVING LOCAL SPATIAL INFORMATION IN IMAGE SIMILARITY USING TENSOR AGGREGATION OF LOCAL FEATURES 201
David Picard, ETIS ENSEA/Université de Cergy-Pontoise/CNRS, France

MA.L8.2: ASYMMETRIC DISTANCE FOR SPHERICAL HASHING 206
Zhenyu Weng, Wenbin Yao, Ziqiang Sun, Yuesheng Zhu, Communication and Information Security Lab, Institute of Big Data Technologies, Shenzhen Graduate School, Peking University, China

MA.L8.3: LEARNING WEIGHTED HASHING ON LOCAL STRUCTURED DATA ..... N/A
Yun Qiang Li, Yu Fei Zha, Huan Yu Li, Sheng Jie Zhang, Tao Ku, Yuan Yang, Institute of Aeronautics and Astronautics Engineering, Air Force Engineering University, China

MA.L8.4: SLIDE: SALIENCY GUIDED IMAGE DICTIONARY AND IMAGE SIMILARITY EVALUATION 216
Rituparna Sarkar, Scott T. Acton, University of Virginia, United States

MA.L8.5: IMAGE AND TAG RETRIEVAL BY LEVERAGING IMAGE-GROUP LINKS WITH MULTI-DOMAIN GRAPH EMBEDDING 221
Kazuki Fukui, Akifumi Okuno, Hidetoshi Shimodaira, Osaka University, Japan

MA.L8.6: A NEW TOPOLOGICAL DESCRIPTOR FOR CONTEXTUAL FEATURE INDEXING 226
Nicolas Piché, Farida Cheriet, Francois Guibault, Ecole Polytechnique de Montreal, Canada

MA.L9: CLASSIFICATION I

MA.L9.1: CONTENT-ADAPTIVE PYRAMID REPRESENTATION FOR 3D OBJECT CLASSIFICATION 231
Tsampikos Kounalakis, Nikolaos Boulgouris, Brunel University London, United Kingdom; Georgios Triantafyllidis, Aalborg University, Denmark

MA.L9.2: GAZE LATENT SUPPORT VECTOR MACHINE FOR IMAGE CLASSIFICATION 236
Xin Wang, Nicolas Thome, Matthieu Cord, university of paris 6, France

MA.L9.3: CLASSIFICATION WITH MIXTURES OF CURVED MAHALANOBIS METRICS 241
Frank Nielsen, Boris Muzellec, Ecole Polytechnique, France; Richard Nock, Data61, Australia

MA.L9.4: RANDOM FEATURE MAPS VIA A LAYERED RANDOM PROJECTION (LARP) FRAMEWORK FOR OBJECT CLASSIFICATION 246
Audrey Chung, Mohammad Javad Shafiee, Alexander Wong, University of Waterloo, Canada

MA.L9.5: MANIFOLD CONVEX HULL (MACH): SATISFYING A NEED FOR SPD 251
Kun Zhao, Arnold Wiliem, Shaokang Chen, Brian C. Lovell, The University of Queensland, Australia

MA.L9.6: HYPERSPECTRAL IMAGE CLASSIFICATION VIA KERNEL EXTREME LEARNING MACHINE USING LOCAL RECEPTIVE FIELDS 256
Qi Lv, Xin Niu, Yong Dou, Yueqing Wang, Jiaqing Xu, Jie Zhou, National University of Defense Technology, China

MA.P1: TRACKING I

MA.P1.1: VARIABLE RATE ADAPTIVE COLOR-BASED PARTICLE FILTER TRACKING 1679
Deniz Kumlu, Bilge Gunsel, Istanbul Technical University, Turkey

MA.P1.2: SPATIAL WINDOWING FOR CORRELATION FILTER BASED VISUAL TRACKING 1684
Erhan Gundogdu, ASELSAN, Turkey; A. Aydin Alatan, Middle East Technical University, Turkey

MA.P1.3: ROBUST VISUAL TRACKING USING CORRELATION RESPONSE MAP 1689
Hao Sheng, Kai Lv, Jiahui Chen, Wei Li, Beihang University, China

MA.P1.4: INSTANCE SIGNIFICANCE GUIDED MULTIPLE INSTANCE BOOSTING FOR ROBUST VISUAL TRACKING 1694
Jinwu Liu, Yao Lu, Tianfei Zhou, Beijing Institute of Technology, China

MA.P1.5: IMPROVING AN OBJECT TRACKER FOR INFRARED FLYING BIRD TRACKING 1699
Ying Huang, Hong Zheng, Beihang University, China; Hao Yang, China Academy of Civil Aviation Science and Technology, China

MA.P1.6: A UNIVERSAL UPDATE-PACING FRAMEWORK FOR VISUAL TRACKING 1704
Zexi Hu, Yuefang Gao, Dong Wang, Xuhong Tian, South China Agricultural University, China

MA.P1.7: JOINT LEARNING HASH CODES AND DISTANCE METRIC FOR VISUAL TRACKING 1709
Luning Liu, Huchuan Lu, Dalian University of Technology, China; Xue Mei, Toyota Research Institute of North America, United States

MA.P1.8: PART-BASED MULTI-GRAPH RANKING FOR VISUAL TRACKING 1714
Jingjing Wang, Chi Fei, Liansheng Zhuang, Nenghai Yu, University of Science and Technology of China, China

MA.P1.9: DENSE-HOG-BASED 3D FACE TRACKING FOR INFANT PAIN MONITORING 1719
Ronald W.J.J. Saeijs, Eindhoven University of Technology, Netherlands; Walther E. Tjon a Ten, Maxima Medical Center Veldhoven, Netherlands; Peter H.N. de With, Eindhoven University of Technology, Netherlands

MA.P1.10: SALIENCY PRIOR CONTEXT MODEL FOR VISUAL TRACKING 1724
Cong Ma, Zhenjiang Miao, Beijing Jiaotong University, China; Xiao-Ping Zhang, Ryerson University, Canada

MA.P2: COMPUTATIONAL IMAGING I

MA.P2.1: IMAGING THROUGH SCATTERING MEDIA WITH INTENSITY MODULATED INCOHERENT SOURCES 1729
Yifu Hu, Xin Jin, Kaiyun Wei, Qionghai Dai, Tsinghua University, China

MA.P2.2: ROBOMIRROR: SIMULATING A MIRROR WITH A ROBOTIC CAMERA 1734
Yuqi Zhang, Nkiruka Uzuegbunam, Wanxin Xu, Sen-ching Samson Cheung, University of Kentucky, United States

MA.P2.3: GHOST-FREE DUAL-EXPOSURE HDR FOR DYNAMIC SCENES 1739
Fahd Bouzaraa, Ibrahim Halfaoui, Technische Universität München, Germany; Onay Urfalioglu, Huawei European Research Center Germany, Germany

MA.P2.4: INTRINSIC DECOMPOSITION FOR STEREOSCOPIC IMAGES 1744
Dehua Xie, Shuaicheng Liu, University of Electronic Science and Technology of China, China; Kaimo Lin, National University of Singapore, Singapore; Shuyuan Zhu, Bing Zeng, University of Electronic Science and Technology of China, China

MA.P2.5: HAND-HELD LOW-LIGHT PHOTOGRAPHY WITH EXPOSURE BRACKETING 1749
Arun M, Rajagopalan A. N., Indian Institute of Technology Madras, India

MA.P2.6: DIRECT MODEL-BASED TOMOGRAPHIC RECONSTRUCTION OF THE COMPLEX REFRACTIVE INDEX 1754
Kadri Aditya Mohan, Purdue University, United States; Xianghui Xiao, Argonne National Laboratory, United States; Charles A. Bouman, Purdue University, United States

MA.P2.7: TOMOGRAPHIC RECONSTRUCTION FROM PROJECTIONS WITH UNKNOWN VIEW ANGLES EXPLOITING MOMENT-BASED RELATIONSHIPS 1759
Eeshan Malhotra, Ajit Rajwade, Indian Institute of Technology Bombay, India

MA.P2.8: VARIABLE SPLITTING TECHNIQUES FOR DISCRETE TOMOGRAPHY 1764
Ahmet Tuysuzoglu, Siemens Healthcare, United States; Yuehaw Khoo, Princeton University, United States; W. Clem Karl, Boston University, United States

MA.P2.9: DYNAMIC MRI RECONSTRUCTION USING LOW RANK PLUS SPARSE TENSOR DECOMPOSITION 1769
Shahrooz Faghih Roohi, National University of Singapore, Singapore; Dornoosh Zonoobi, University of Alberta, Canada; Ashraf A. Kassim, National University of Singapore, Singapore; Jacob Jaremko, University of Alberta, Canada

MA.P2.10: VARIATIONAL EM APPROACH FOR HIGH RESOLUTION HYPER-SPECTRAL IMAGING BASED ON PROBABILISTIC MATRIX FACTORIZATION 1774
Baihong Lin, Xiaoming Tao, Linhao Dong, Jianhua Lu, Tsinghua University, China

MA.P3: FAST ALGORITHMS AND IMPLEMENTATIONS

MA.P3.1: FAST MULTIDIMENSIONAL IMAGE PROCESSING WITH OPENCL 1779
Daniel Oliveira Dantas, Helton Danilo Passos Leal, Davy Oliveira Barros Sousa, Universidade Federal de Sergipe, Brazil

MA.P3.2: AN IMPROVED GPGPU-ACCELERATED PARALLELIZATION FOR ROTATION INVARIANT THINNING ALGORITHM ..... N/A
Weiguang Yang, Qi Jia, Hui Liu, Yihao Wu, He Guo, Dalian University of Technology, School of Software Technology, China

MA.P3.3: FAST BINARY EMBEDDING VIA CIRCULANT DOWNSAMPLED MATRIX 1789
Sung-Hsien Hsieh, Chun-Shien Lu, Academia Sinica, Taiwan; Soo-Chang Pei, National Taiwan University, Taiwan

MA.P3.4: HARDWARE-FRIENDLY UNIVERSAL DEMOSAICK USING NON-ITERATIVE MAP RECONSTRUCTION 1794
Hasib Siddiqui, Kalin Atanassov, Sergio Goma, Qualcomm Technologies, Inc., United States

MA.P3.5: LINEAR TIME SYMMETRIC AXIS SEARCH BASED ON PALINDROME DETECTION 1799
Shaoheng Liang, Jiansheng Chen, Zhengqin Li, Gaocheng Bai, Tsinghua University, China

MA.P3.6: FAST AND LOW-COMPLEXITY REINFORCEMENT LEARNING FOR DELAY-SENSITIVE ENERGY HARVESTING WIRELESS VISUAL SENSING SYSTEMS 1804
Niloofar Toorchi, Jacob Chakareski, University of Alabama, United States; Nicholas Mastronarde, State University of New York at Buffalo, United States

MA.P3.7: THE HEXAGONAL FAST FOURIER TRANSFORM 1809
James Birdsong, University of Florida, United States; Nicholas Rummelt, Air Force Research Laboratory, United States

MA.P3.8: FAST PATCH-WISE IMAGE RETARGETING 1813
Yichi Zhang, King Ngi Ngan, The Chinese University of Hong Kong, Hong Kong SAR of China

MA.P3.9: FAST VOLUME SEAM CARVING WITH MULTI-PASS DYNAMIC PROGRAMMING 1818
Ryosuke Furuta, The University of Tokyo, Japan; Ikuko Tsubaki, Tokyo University of Technology, Japan; Toshihiko Yamasaki, The University of Tokyo, Japan

MA.P3.10: FAST BILATERAL FILTERING OF VECTOR-VALUED IMAGES 1823
Sanjay Ghosh, Kunal Chaudhury, Indian Institute of Science, India

MA.P4: SPARSITY BASED PROCESSING I

MA.P4.1: SIASM: SPARSITY-BASED IMAGE ALIGNMENT AND STITCHING METHOD FOR ROBUST IMAGE MOSAICKING 1828
Yuelong Li, Vishal Monga, Pennsylvania State University, United States

MA.P4.2: BOUNDARY HANDLING FOR CONVOLUTIONAL SPARSE REPRESENTATIONS 1833
Brendt Wohlberg, Los Alamos National Laboratory, United States

MA.P4.4: VOLUME MEASUREMENT BASED TENSOR COMPLETION 1838
Jianchun Xie, Jian Yang, Ying Tai, Jianjun Qian, Nanjing University of Science and Technology, China

MA.P4.5: NONNEGATIVE MATRIX FACTORIZATION WITH ENDMEMBER SPARSE GRAPH LEARNING FOR HYPERSPECTRAL UNMIXING 1843
Bin Qian, Nanjing University of Science and Technology, China; Jun Zhou, Lei Tong, Griffith University, Australia; Xiaobo Shen, Nanjing University of Science and Technology, China; Fan Liu, Hohai University, China

MA.P4.6: STRUCTURED DISCRIMINATIVE NONNEGATIVE MATRIX FACTORIZATION FOR HYPERSPECTRAL UNMIXING 1848
Xue Li, Nanjing University of Science and Technology, China; Jun Zhou, Lei Tong, Xun Yu, Griffith University, Australia; Jianhui Guo, Chunxia Zhao, Nanjing University of Science and Technology, China

MA.P4.7: M-ESTIMATE ROBUST PCA FOR SEISMIC NOISE ATTENUATION 1853
Hojjat Akhondi-Asl, James Nelson, University College London, United Kingdom

MA.P4.8: ACCELERATED DYNAMIC MRI USING STRUCTURED LOW RANK MATRIX COMPLETION 1858
Arvind Balachandrasekaran, Greg Ongie, Mathews Jacob, University of Iowa, United States

MA.P5: STATISTICAL MODELS AND LEARNING I

MA.P5.1: JOINT PROBABILITY ESTIMATION OF ATTRIBUTE CHAIN FOR ZERO-SHOT LEARNING 1863
Lingfeng Qiao, Hongya Tuo, Zheng Fang, Peng Feng, Zhongliang Jing, Shanghai Jiao Tong University, China

MA.P5.2: AUTO-CONTEXT MODELING USING MULTIPLE KERNEL LEARNING 1868
Huan Song, Arizona State University, United States; Jayaraman J. Thiagarajan, Lawrence Livermore National Laboratory, United States; Karthikeyan Natesan Ramamurthy, IBM Thomas J. Watson Research Center, United States; Andreas Spanias, Arizona State University, United States

MA.P5.3: NILC: A TWO LEVEL LEARNING ALGORITHM WITH OPERATOR SELECTION 1873
Igor S. Montagner, Nina S.T. Hirata, Roberto Hirata Jr, University of São Paulo, Brazil; Stéphane Canu, INSA de Rouen, France

MA.P5.4: ROBUST LAPLACIAN MATRIX LEARNING FOR SMOOTH GRAPH SIGNALS..... 1878
Junhui Hou, Lap-Pui Chau, Ying He, Nanyang Technological University, Singapore; Huanqiang Zeng, Huaqiao University, China

MA.P5.5: SCATTERING CONVOLUTIONAL HIDDEN MARKOV TREES 1883
Jean-Baptiste Regli, James Nelson, University College London, United Kingdom

MA.P5.6: LABEL CONSISTENT RECURSIVE LEAST SQUARES DICTIONARY 1888
LEARNING FOR IMAGE CLASSIFICATION
Sergio Matiz, Kenneth E. Barner, University of Delaware, United States

MA.P5.7: BAYESIAN LOGISTIC REGRESSION WITH SPARSE GENERAL 1893
REPRESENTATION PRIOR FOR MULTISPECTRAL IMAGE CLASSIFICATION
Juan Gabriel Serra, Pablo Ruiz, Rafael Molina, University of Granada, Spain; Aggelos K. Katsaggelos, Northwestern University, United States

MA.P5.8: HYPERSPECTRAL IMAGE CLASSIFICATION WITH SUPPORT VECTOR 1898
MACHINES ON KERNEL DISTRIBUTION EMBEDDINGS
Gianni Franchi, Jesus Angulo, MINES ParisTech, PSL-Research University, France; Dino Sejdinovic, University of Oxford, United Kingdom

MA.P6: DEEP LEARNING BASED VISUAL PROCESSING I

MA.P6.1: RECURSIVE REDUCTION NET FOR LARGE-SCALE HIGH-DIMENSIONAL 1903
DATA
Tsung-Wei Ke, Tyng-Luh Liu, IIS, Academia Sinica, Taiwan

MA.P6.2: MUTUAL EXCLUSIVITY LOSS FOR SEMI-SUPERVISED DEEP LEARNING 1908
Mehdi Sajjadi, Mehran Javanmardi, Tolga Tasdizen, University of Utah, United States

MA.P6.3: DIRECT INFERENCE ON COMPRESSIVE MEASUREMENTS USING 1913
CONVOLUTIONAL NEURAL NETWORKS
Suhas Lohit, Kuldeep Kulkarni, Pavan Turaga, Arizona State University, United States

MA.P6.4: CONVOLUTIONAL SPARSE CODING CLASSIFICATION MODEL FOR IMAGE 1918
CLASSIFICATION
Boheng Chen, Jie Li, Biyun Ma, Gang Wei, South China University of Technology, China

MA.P6.5: CNN-AWARE BINARY MAP FOR GENERAL SEMANTIC SEGMENTATION 1923
Mahdyar Ravanbakhsh, Genova University, Italy; Hossein Mousavi, Istituto Italiano di Tecnologia, Italy; Moin Nabi, Trento university, Italy; Mohammad Rastegari, Allen Institute for Artificial Intelligence, United States; Carlo Regazzoni, Genova University, Italy

MA.P6.6: WORD RECOGNITION WITH DEEP CONDITIONAL RANDOM FIELDS .....N/A
Gang Chen, SUNY at Buffalo, United States; Yawei Li, University of Electronic Science and Technology of China, China; Sargur Srihari, SUNY at Buffalo, United States

MA.P6.7: HIERARCHICAL PART DETECTION WITH DEEP NEURAL NETWORKS..... 1933
Esteve Cervantes, Long Long Yu, Wide Eyes Technologies, Spain; Andrew D. Bagdanov, Marc Masana, Joost van de Weijer, Computer Vision Center Barcelona, Spain

MA.P6.8: COARSE-TO-FINE HUMAN PARSING WITH FAST R-CNN AND .....N/A
OVER-SEGMENT RETRIEVAL
Feng Wang, Zhi Li, Qingshan Liu, Nanjing University of Information Science and Technology, China

MA.P6.9: MEMBRANE SEGMENTATION VIA ACTIVE LEARNING WITH DEEP 1943
NETWORKS
Utkarsh Gaur, Matthew Kourakis, Erin Newman-Smith, William Smith, B. S. Manjunath, University of California, Santa Barbara, United States

MA.P6.10: TARGET RETRIEVAL IN LARGE-SCALE AND HIGH-RESOLUTION SYNTHETIC APERTURE RADAR IMAGERY BASED ON DEEP LEARNING AND MULTI-SCALE SALIENCY ..... N/A
Song Tu, National University of Defense Technology, China; Junbo Liao, Beijing University of Posts and Telecommunications, China; Yi Su, National University of Defense Technology, China

MA.P7: RESTORATION

MA.P7.1: SINGLE IMAGE RESTORATION USING SCENE AMBIENT LIGHT DIFFERENTIAL 1953
Yan-Tsung Peng, Pamela Cosman, University of California, San Diego, United States

MA.P7.2: MULTIPLE DEGREE TOTAL VARIATION (MDTV) REGULARIZATION FOR IMAGE RESTORATION 1958
Yue Hu, Xin Lu, Harbin Institute of Technology, China; Mathews Jacob, University of Iowa, United States

MA.P7.3: RESTORATION OF A POISSONIAN-GAUSSIAN COLOR MOVING-IMAGE SEQUENCE WITH VIRTUAL MULTIPLEX IMAGING AND SUPER-RESOLUTION DEBLURRING 1963
Takashi Komatsu, Sougo Kondou, Takahiro Saito, Kanagawa University, Japan

MA.P7.4: A PULL-PUSH METHOD FOR FAST NON-LOCAL MEANS FILTERING 1968
John Isidoro, Peyman Milanfar, Google Inc., United States

MA.P7.5: LOW-FREQUENCY IMAGE NOISE REMOVAL USING WHITE NOISE FILTER ..... N/A
Meisam Rakhshanfar, Maria. A. Amer, Concordia University, Canada

MA.P7.6: SPECKLE NOISE REDUCTION VIA PHASE-AWARE CLUSTERING-BASED NON-LOCAL SIMULTANEOUS SPARSE CODING 1978
Jinze Yu, The University of Tokyo, Japan

MA.P7.7: POLARIZATION-BASED SPECULARITY REMOVAL METHOD WITH GLOBAL ENERGY MINIMIZATION 1983
Fan Wang, Samia Ainouz, Institut National des Sciences Appliquées de Rouen, France; Caroline Petitjean, Université de Rouen, France; Abdelaziz Bensrhair, Institut National des Sciences Appliquées de Rouen, France

MA.P7.8: A NOVEL MULTI-SCALE LRMR METHOD FOR HYPERSPECTRAL IMAGES RESTORATION 1988
Yidan Teng, Ye Zhang, Chunli Ti, Harbin Institute of Technology, China

MA.P7.9: UNDERWATER IMAGE RESTORATION BASED ON MINIMUM INFORMATION LOSS PRINCIPLE AND OPTICAL PROPERTIES OF UNDERWATER IMAGING 1993
Chongyi Li, Jichang Guo, Tianjin University, China; Shanji Chen, Qinghai Nationalities University, China; Yibin Tang, Hohai University, China; Yanwei Pang, Jian Wang, Tianjin University, China

MA.P7.10: UNDERWATER IMAGE DESCATTERING AND QUALITY ASSESSMENT 1998
Huimin Lu, Kyushu Institute of Technology, Japan; Yujie Li, Yangzhou University, China; Xing Xu, University of Electronic Science and Technology of China, China; Li He, Qualcomm R&D Center, United States; Yun Li, Yangzhou University, China; Donald Dansereau, Queensland University of Technology, Australia; Seiichi Serikawa, Kyushu Institute of Technology, Japan

MA.P8: MOTION FOR CODING

MA.P8.1: SUB-PARTITION REUSE FOR FAST OPTIMAL MOTION ESTIMATION IN HEVC SUCCESSIVE ELIMINATION ALGORITHMS 2003
Luc Trudeau, Stéphane Coulombe, Christian Desrosiers, École de technologie supérieure, Université du Québec, Canada

MA.P8.2: IMPROVED HIGHER ORDER MOTION COMPENSATION IN HEVC WITH BLOCK-TO-BLOCK TRANSLATIONAL SHIFT COMPENSATION 2008
Cordula Heithausen, Max Blaeser, Mathias Wien, Jens-Rainer Ohm, RWTH Aachen University, Germany

MA.P8.3: A PRE-ANALYSIS ALGORITHM FOR FAST MOTION ESTIMATION IN HEVC 2013
Gabriel Cebrián Márquez, José Luis Martínez Martínez, Pedro Ángel Cuenca Castillo, University of Castilla-La Mancha, Spain

MA.P8.4: QUARTER LCU BASED INTEGER MOTION ESTIMATION ALGORITHM FOR HEVC 2018
Qinwei Jiang, Leilei Huang, Yibo Fan, Xiaoyang Zeng, Fudan University, China

MA.P8.5: MODE-DEPENDENT PIXEL-WISE MOTION REFINEMENT FOR HEVC 2022
Lei Zhao, Jian Zhang, Siwei Ma, Wen Gao, Peking University, China

MA.P8.6: FISHEYE VIDEO CODING USING ELASTIC MOTION COMPENSATED REFERENCE FRAMES 2027
Ashek Ahmmed, Tampere University of Technology, Finland; Miska M. Hannuksela, Nokia Technologies, Finland; Moncef Gabbouj, Tampere University of Technology, Finland

MA.P8.7: A DYNAMIC MOTION VECTOR REFERENCING SCHEME FOR VIDEO CODING 2032
Jingning Han, Yaowu Xu, James Bankoski, Google Inc., United States

MA.P8.8: OPTIMIZING BLOCK-CODED MOTION PARAMETERS WITH BLOCK-PARTITION GRAPHS 2037
Sean Young, Reji Mathew, David Taubman, University of New South Wales, Australia

MP.L1: DEPTH-AWARE VISUAL PROCESSING II

MP.L1.1: ORB-SLAM MAP INITIALIZATION IMPROVEMENT USING DEPTH 261
Satoshi Fujimoto, Zhencheng Hu, Kumamoto University, Japan; Roland Chapuis, Romuald Aufrère, Institut Pascal, France

MP.L1.2: FAST HUMAN DETECTION IN RGB-D IMAGES BASED ON COLOR-DEPTH JOINT FEATURE LEARNING 266
Zhan Hu, Haizhou Ai, Tsinghua University, China; Haibing Ren, Yimin Zhang, Intel Corporation, China

MP.L1.3: A REFINEMENT FRAMEWORK FOR BACKGROUND SUBTRACTION BASED ON COLOR AND DEPTH DATA 271
Zhengfa Liang, Xiaolong Liu, Hengzhu Liu, Wei Chen, National University of Defense Technology, China

MP.L1.4: DEPTH-BASED LOCAL FEATURE SELECTION FOR MOBILE VISUAL SEARCH 276
Zhaoliang Liu, Ling-Yu Duan, Jie Chen, Tiejun Huang, Peking University, China

MP.L1.5: VIDEO OBJECT SEGMENTATION BY MULTI-SCALE PYRAMIDAL MULTI-DIMENSIONAL LSTM WITH GENERATED DEPTH CONTEXT 281
Qiurui Wang, Chun Yuan, Tsinghua University, China

MP.L1.6: ANOMALY DETECTION VIA 3D-HOF AND FAST DOUBLE SPARSE REPRESENTATION 286
Ziping Zhu, Jingjing Wang, Nenghai Yu, CAS Key Laboratory of Electromagnetic Space Information, University of Science and Technology of China, China

MP.L2: FEATURE EXTRACTION II

MP.L2.1: AUTOMATIC THRESHOLDING OF SIFT DESCRIPTORS 291
Matthew Kirchner, Naval Air Warfare Center Weapons Division, United States

MP.L2.2: ACCELERATED LOCAL FEATURE EXTRACTION IN A REUSE SCHEME FOR EFFICIENT ACTION RECOGNITION 296
Jia-Lin Chen, Zhi-Yi Lin, Yi-Chen Wan, Liang-Gee Chen, National Taiwan University, Taiwan

MP.L2.3: DENSE GRADIENT-BASED FEATURES (DEGRAF) FOR COMPUTATIONALLY EFFICIENT AND INVARIANT FEATURE EXTRACTION IN REAL-TIME APPLICATIONS 300
Ioannis Katramados, Cosmonio Ltd / Cranfield University, United Kingdom; Toby P Breckon, Durham University, United Kingdom

MP.L2.4: MODELING THE IMPACT OF KEYPOINT DETECTION ERRORS ON LOCAL DESCRIPTOR SIMILARITY 305
Andre Araujo, Haricharan Lakshman, Roland Angst, Bernd Girod, Stanford University, United States

MP.L2.5: DUDE (DUALITY DESCRIPTOR): A ROBUST DESCRIPTOR FOR DISPARATE IMAGES USING LINE SEGMENT DUALITY 310
Youngwook Kwon, University of California, Berkeley, United States; Hyojin Kim, Goran Konjevod, Lawrence Livermore National Laboratory, United States; Sara McMains, University of California, Berkeley, United States

MP.L2.6: COORDINATE SELECTION FOR AFFINE INVARIANT FEATURE DESCRIPTION 315
Christopher Bulla, Jens-Rainer Ohm, Rheinisch-Westfälische Technische Hochschule Aachen, Germany

MP.L3: SS: MOBILE OCULAR BIOMETRIC RECOGNITION CHALLENGE

MP.L3.1: ICIP 2016 COMPETITION ON MOBILE OCULAR BIOMETRIC RECOGNITION 320
Ajita Rattani, Reza Derakhshani, University of Missouri-Kansas City, United States; Sashi K. Saripalle, Vikas Gottemukkula, EyeVerify, Inc., United States

MP.L3.2: LEARNING DEEPLY COUPLED AUTOENCODERS FOR SMARTPHONE BASED ROBUST PERIOCULAR VERIFICATION 325
Raghavendra Ramachandra, Christoph Busch, NTNU, Norway

MP.L3.3: COLLABORATIVE REPRESENTATION OF DEEP SPARSE FILTERED FEATURES FOR ROBUST VERIFICATION OF SMARTPHONE PERIOCULAR IMAGES 330
Kiran B. Raja, R Raghavendra, Christoph Busch, NTNU, Norway

MP.L3.4: ISURE: USER AUTHENTICATION IN MOBILE DEVICES USING OCULAR BIOMETRICS IN VISIBLE SPECTRUM 335
Karan Ahuja, Abhishek Bose, Indian Institute of Information Technology Guwahati, India; Seema Nagar, Kuntal Dey, IBM Research India, India; Ferdous Barbhuiya, Indian Institute of Information Technology Guwahati, India

MP.L3.5: MOBILE OCULAR BIOMETRICS IN VISIBLE SPECTRUM USING LOCAL IMAGE DESCRIPTORS: A PRELIMINARY STUDY 340
Zahid Akhtar, Christian Micheloni, Gian Luca Foresti, University of Udine, Italy

MP.L4: SS:PERSONALIZED AND IMMERSIVE MEDIA

MP.L4.1: USER EXPERIENCE IN IMMERSIVE TV - A RESEARCH AGENDA 345
Astrid Oehme, Hanns-Peter Horn, Maximilian Wieser, HFC Human-Factors-Consult GmbH, Germany; Wolfgang Waizenegger, Fraunhofer Heinrich Hertz Institute, Germany; Anil Fernando, University of Surrey, United Kingdom

MP.L4.2: ROBUST CALIBRATION OF BROADCAST CAMERAS BASED ON ELLIPSE AND LINE CONTOURS 350
Simone Croci, Nikolce Stefanoski, Aljoscha Smolic, Disney Research, ETH Zurich, Switzerland

MP.L4.3: REAL-TIME AVATAR ANIMATION WITH DYNAMIC FACE TEXTURING 355
Philipp Fechteler, Wolfgang Paier, Anna Hilsmann, Peter Eisert, Fraunhofer Heinrich Hertz Institute, Germany

MP.L4.4: REAL-TIME 3D BODY RECONSTRUCTION FOR IMMERSIVE TV 360
Wolfgang Waizenegger, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute / Humboldt University, Germany; Ingo Feldmann, Oliver Schreer, Peter Kauff, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany; Peter Eisert, Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute / Humboldt University, Germany

MP.L4.5: 3D TELE-IMMERSION PLATFORM FOR INTERACTIVE IMMERSIVE EXPERIENCES BETWEEN REMOTE USERS 365
Nikolaos Zioulis, Dimitrios Alexiadis, Alexandros Doumanoglou, Georgios Louizis, Konstantinos Apostolakis, Dimitrios Zarpalas, Petros Daras, Centre for Research and Technology Hellas, Greece

MP.L4.6: NOVEL TILE SEGMENTATION SCHEME FOR OMNIDIRECTIONAL VIDEO 370
Jisheng Li, Ziyu Wen, Sihan Li, Yikai Zhao, Bichuan Guo, Jiangtao Wen, Tsinghua University, China

MP.L5: BLOOD VESSEL ANALYSIS

MP.L5.1: VESSEL SEGMENTATION IN LOW CONTRAST X-RAY ANGIOGRAM IMAGES 375
Banafsheh Felfelian, Hamidreza Fazlali, Nader Karimi, Isfahan University of Technology, Iran; S.M.Reza Soroushmehr, University of Michigan, United States; Shadrokh Samavi, Isfahan University of Technology, Iran; Brahmajee Nallamothu, Kayvan Najarian, University of Michigan, United States

MP.L5.2: AUTOMATED BLOOD VESSEL EXTRACTION IN TWO-DIMENSIONAL BREAST THERMOGRAPHY 380
Siva Teja Kakileti, Krithika Venkataramani, Xerox Research Centre India, India

MP.L5.3: CONVOLUTIONAL NEURAL NETWORKS FOR DEEP FEATURE LEARNING IN RETINAL VESSEL SEGMENTATION 385
Aya Khalaf, Inas Yassine, Ahmed S. Fahmy, Faculty of Engineering, Cairo University, Egypt

MP.L5.4: AUTOMATIC SEGMENTATION OF COMMON CAROTID ARTERY IN TRANSVERSE MODE ULTRASOUND IMAGES 389
J. R Harish Kumar, Chandra Sekhar Seelamantula, Indian Institute of Science Bangalore, India; Nikhil S. Narayan, Pina Marziliano, Nanyang Technological University, Singapore

MP.L5.5: BLOOD VESSEL EXTRACTION FROM OCT DATA BY SHORT-TIME RPCA 394
Pin-Hsien Lee, Chin-Cheng Chan, Sheng-Lung Huang, National Taiwan University, Taiwan; Andrew Chen, David Geffen School of Medicine at UCLA, United States; Homer H. Chen, National Taiwan University, Taiwan

MP.L5.6: AUTOMATIC HEMORRHAGE DETECTION IN COLOR FUNDUS IMAGES BASED ON GRADUAL REMOVAL OF VASCULAR BRANCHES 399
Lei Zhou, Penglin Li, Qi Yu, Yu Qiao, Jie Yang, Shanghai Jiao Tong University, China

MP.L6: FACE HALLUCINATION AND SPOOFING

MP.L6.1: FACE SPOOFING DETECTION USING LDP-TOP 404
Quoc-Tin Phan, Duc-Tien Dang-Nguyen, Giulia Boato, Francesco G.B. De Natale, University of Trento, Italy

MP.L6.2: LOCALITY PRESERVING PARTIAL LEAST SQUARES FOR NEIGHBOR EMBEDDING-BASED FACE HALLUCINATION 409
Zhaoqiang Zhang, Chun Qi, Xi'an Jiaotong University, China; Yuanhong Hao, North Automatic Control Technology Institute, China

MP.L6.3: ROBUST FACE HALLUCINATION USING QUANTIZATION-ADAPTIVE DICTIONARIES 414
Reuben A. Farrugia, University of Malta, Malta; Christine Guillemot, INRIA Rennes-Bretagne-Atlantique, France

MP.L6.4: LOCALITY-CONSTRAINED MATRIX REGRESSION FOR POSITION-PATCH BASED FACE HALLUCINATION 419
Guangwei Gao, Xiaoyuan Jing, Quan Zhou, Songsong Wu, Dong Yue, Nanjing University of Posts and Telecommunications, China

MP.L6.5: LOCALITY CONSTRAINT NEIGHBOR EMBEDDING VIA KPCA AND OPTIMIZED REFERENCE PATCH FOR FACE HALLUCINATION 424
Qiang Tu, Jianwu Li, Ikram Javaria, Beijing Institute of Technology, China

MP.L6.6: FACE HALLUCINATION SCHEME BASED ON SINGULAR VALUE CONTENT METRIC FOR K-NN SELECTION AND AN ITERATIVE REFINING IN A MODIFIED FEATURE SPACE 429
Javaria Ikram, Yao Lu, Jianwu Li, Nie Hui, Beijing Institute of Technology, China

MP.L7: TRACKING II

MP.L7.1: CO-DIFFERENCE BASED OBJECT TRACKING ALGORITHM FOR INFRARED VIDEOS 434
H. Seckin Demir, ASELSAN, Turkey; A. Enis Cetin, Bilkent University, Turkey

MP.L7.2: VISUAL TRACKING WITH SPARSE CORRELATION FILTERS 439
Yanmei Dong, Min Yang, Mingtao Pei, Beijing Institute of Technology, China

MP.L7.3: STOCHASTIC GEOMETRY FOR MULTIPLE OBJECT TRACKING IN FLUORESCENCE MICROSCOPY 444
Paula Craciun, Josiane Zerubia, INRIA, France

MP.L7.4: RECOMMENDED KEYPOINT-AWARE TRACKER: ADAPTIVE REAL-TIME VISUAL TRACKING USING CONSENSUS FEATURE PRIOR RANKING 449
Ran Duan, Changhong Fu, Erdal Kayacan, Nanyang Technological University, Singapore; Danda Pani Paudel, University of Strasbourg, France

MP.L7.5: LEARNING A SCALE-AND-ROTATION CORRELATION FILTER FOR ROBUST VISUAL TRACKING 454
Yan Li, Guizhong Liu, Xi'an Jiaotong University, China

MP.L7.6: CORRELATION FILTER TRACKING VIA BOOTSTRAP LEARNING 459
Kunqi Gu, Tao Zhou, Fanghui Liu, Jie Yang, Yu Qiao, Shanghai Jiao Tong University, China

MP.L8: INTEGRATIVE APPLICATIONS: SOCIAL, AGRICULTURE

MP.L8.1: ROBUST FOOTSTEP COUNTING AND TRAVELED DISTANCE CALCULATION BY MOBILE PHONES INCORPORATING CAMERA GEOMETRY 464
Yantao Lu, Senem Velipasalar, Syracuse University, United States

MP.L8.2: AUTOMATIC CREATION OF MAGAZINE-PAGE-LIKE SOCIAL MEDIA VISUAL SUMMARY FOR MOBILE BROWSING 469
Shuang Ma, Chang Wen Chen, State University of New York at Buffalo, United States

MP.L8.3: FORECASTING INITIAL POPULARITY OF JUST-UPLOADED USER-GENERATED VIDEOS 474
Changsha Ma, Zhisheng Yan, Chang Wen Chen, University at Buffalo, United States

MP.L8.4: HIERARCHICAL CONTENT GROUP DETECTION FROM DIFFERENT SOCIAL MEDIA PLATFORMS USING WEB LINK STRUCTURE 479
Daichi Takehara, Ryosuke Harakawa, Takahiro Ogawa, Miki Haseyama, Hokkaido University, Japan

MP.L8.5: AUTOMATIC INDIVIDUAL HOLSTEIN FRIESIAN CATTLE IDENTIFICATION VIA SELECTIVE LOCAL COAT PATTERN MATCHING IN RGB-D IMAGERY 484
William Andrew, Sion Hannuna, Neill Campbell, Tilo Burghardt, University of Bristol, United Kingdom

MP.L8.6: TEXTURE AND SHAPE ATTRIBUTE SELECTION FOR PLANT DISEASE MONITORING IN A MOBILE CLOUD-BASED ENVIRONMENT 489
Punnarai Siricharoen, Bryan Scotney, Philip Morrow, Gerard Parr, Ulster University, United Kingdom

MP.L9: CLASSIFICATION II

MP.L9.1: EFFICIENT SELECTION OF INFORMATIVE AND DIVERSE TRAINING SAMPLES WITH APPLICATIONS IN SCENE CLASSIFICATION 494
Sujoy Paul, Jawadul H. Bappy, Amit K. Roy-Chowdhury, University of California, Riverside, United States

MP.L9.2: RGB-D SCENE CLASSIFICATION VIA HETEROGENEOUS MODEL FUSION 499
Xinda Liu, Xueming Wang, Ningxia University, China; Shuqiang Jiang, Chinese Academy of Sciences, China

MP.L9.3: A SHAPE FEATURE BASED BOVW METHOD FOR IMAGE CLASSIFICATION USING N-GRAM AND SPATIAL PYRAMID CODING SCHEME 504
Elham Etemad, Dalhousie University, Canada; Gang Hu, State University of New York at Fredonia, United States; Qigang Gao, Dalhousie University, Canada

MP.L9.4: DIMENSIONALITY REDUCTION FOR IMAGE CLASSIFICATION VIA MUTUAL INFORMATION MAXIMIZATION 509
Shuai Huang, Trac D. Tran, Johns Hopkins University, United States

MP.L9.5: USING NODE RELATIONSHIPS FOR HIERARCHICAL CLASSIFICATION 514
Tien-Dung Mai, Thanh Duc Ngo, Duy-Dinh Le, Duc Anh Duong, Kiem Hoang, University of Information Technology, Viet Nam; Shin'ichi Satoh, National Institute of Informatics, Japan

MP.L9.6: CORAL CLASSIFICATION WITH HYBRID FEATURE REPRESENTATIONS 519
Ammar Mahmood, Mohammed Bennamoun, Senjian An, The University of Western Australia, Australia; Ferdous Sohel, Murdoch University, Australia; Farid Boussaid, Renae Hovey, Gary Kendrick, The University of Western Australia, Australia; Robert Fisher, University of Edinburgh, United Kingdom

MPA.P1: IMAGE QUALITY ASSESSMENT II

MPA.P1.1: BLIND IMAGE QUALITY ASSESSMENT ON AUTHENTICALLY DISTORTED IMAGES WITH PERCEPTUAL FEATURES 2042
Luping Yang, Haiqing Du, Jingtao Xu, Yong Liu, Beijing University of Posts and Telecommunications, China

MPA.P1.2: RESIFT: RELIABILITY-WEIGHTED SIFT-BASED IMAGE QUALITY ASSESSMENT 2047
Dogancan Temel, Ghassan AlRegib, Georgia Institute of Technology, United States

MPA.P1.3: SHEARLET-BASED REDUCED REFERENCE IMAGE QUALITY ASSESSMENT 2052
Sebastian Bosse, Qiaobo Chen, Mischa Siekmann, Wojciech Samek, Thomas Wiegand, Fraunhofer Heinrich Hertz Institute, Germany

MPA.P1.4: QUALITY ASSESSMENT FOR IMAGE SUPER-RESOLUTION BASED ON ENERGY CHANGE AND TEXTURE VARIATION 2057
Yuming Fang, Jiangxi University of Finance and Economics, China; Jiaying Liu, Peking University, China; Yabin Zhang, Weisi Lin, Nanyang Technological University, China; Zongming Guo, Peking University, China

MPA.P1.5: TEXTURE FIDELITY CRITERION 2062
Milos Kudelka, Jr., Michal Haindl, The Institute of Information Theory and Automation of the CAS, Czech Republic

MPA.P1.6: A PERCEPTUAL VISIBILITY METRIC FOR BANDING ARTIFACTS 2067
Yilin Wang, Sang-Uok Kum, Chao Chen, Anil Kokaram, Google Inc., United States

MPA.P1.7: A NOVEL STRUCTURAL VARIATION DETECTION STRATEGY FOR IMAGE QUALITY ASSESSMENT 2072
Yibing Zhan, Rong Zhang, Department of Electronic Engineering and Information Science, University of Science and Technology of China, China

MPA.P1.8: RANKING CONSISTENT RATE: NEW EVALUATION CRITERION ON PAIRWISE SUBJECTIVE EXPERIMENTS 2077
Yeji Shen, Tingting Jiang, Peking University, China

MPA.P1.9: SCREEN CONTENT IMAGE QUALITY ASSESSMENT VIA CONVOLUTIONAL NEURAL NETWORK 2082
Lingxuan Zuo, Hanli Wang, Jie Fu, Tongji University, China

MPA.P1.10: IMAGE ENTROPY OF PRIMITIVE AND VISUAL QUALITY ASSESSMENT 2087
Wuzhen Shi, Feng Jiang, Debin Zhao, Harbin Institute of Technology, China

MPA.P2: VIDEO STREAMING

MPA.P2.1: BLOCK-SIZE ADAPTIVE TRANSFORM DOMAIN ESTIMATION OF END-TO-END DISTORTION FOR ERROR-RESILIENT VIDEO CODING 2092
Bohan Li, Tejaswi Nanjundaswamy, Kenneth Rose, University of California, Santa Barbara, United States

MPA.P2.2: A NOVEL CUMULATIVE DISTORTION METRIC AND A NO-REFERENCE SPARSE PREDICTION MODEL FOR PACKET PRIORITIZATION IN ENCODED VIDEO TRANSMISSION 2097
Arun Sankisa, Northwestern University, United States; Katerina Pandremmenou, Lisimachos Kondi, University of Ioannina, Greece; Aggelos K. Katsaggelos, Northwestern University, United States

MPA.P2.3: EPIQ VIDEO STREAMING: PACKET DESIGN AND PERFORMANCE ANALYSIS 2102
Hothaifa Al-Qassab, Hayder Radha, Michigan State University, United States

MPA.P2.4: JOINT ERROR-RESILIENT VIDEO SOURCE CODING AND FEC CODE RATE OPTIMIZATION FOR AN AWGN CHANNEL 2107
Qing Song, University of California, San Diego, United States; Arash Vosoughi, LG Electronics Mobile Research Lab, United States; Pamela Cosman, Laurence Milstein, University of California, San Diego, United States

MPA.P2.5: ADAPTIVE MD-FEC OVER MULTILINK VIDEO DISTRIBUTION NETWORK 2112
Qiushi Gong, John Woods, Koushik Kar, Rensselaer Polytechnic Institute, United States

MPA.P2.6: JOINT SOURCE-CHANNEL RATE CONTROL FOR MULTIVIEW VIDEO STREAMING OVER ERASURE CHANNELS 2117
Weiliang Xu, Junni Zou, Shanghai University, China; Hongkai Xiong, Shanghai Jiao Tong University, China

MPA.P2.7: SOFTCAST WITH PER-CARRIER POWER-CONSTRAINED CHANNELS 2122
Shuo Zheng, Télécom ParisTech, France; Marc Antonini, I3S, Univ. Nice-Sophia Antipolis, CNRS, France; Marco Cagnazzo, IMT, Telecom-ParisTech, CNRS--LTCI, France; Lorenzo Guerrieri, STMicroelectronics S.r.l., Italy; Michel Kieffer, Irina Nemoianu, L2S - CNRS - CentraleSupelec - Univ Paris-Sud, France; Roger Samy, SAGEMCOM, R&T Direction, France; Bo Zhang, Formerly of STMicroelectronics S.r.l., United States

MPA.P2.8: GENERIC STATISTICAL MULTIPLEXER WITH A PARAMETRIZED BITRATE ALLOCATION CRITERIA 2127
Mederic Blestel, Michael Ropert, Ericsson - Envivio R&D center Rennes, France; Wassim Hamidouche, INSA de Rennes / IETR, France

MPA.P2.9: A SYSTEM FOR HIGH PRECISION GLASS-TO-GLASS DELAY MEASUREMENTS IN VIDEO COMMUNICATION 2132
Christoph Bachhuber, Eckehard Steinbach, Technical University of Munich, Germany

MPA.P3: IMAGE AND VIDEO CODING

MPA.P3.1: ADAPTIVE BLOCK TRUNCATION CODING IMAGE COMPRESSION TECHNIQUE USING OPTIMIZED DOT DIFFUSION 2137
Yun-Fu Liu, Jing-Ming Guo, Yu Cheng, National Taiwan University of Science and Technology, Taiwan

MPA.P3.2: A UNIVERSAL IMAGE CODING APPROACH USING SPARSE STEERED MIXTURE-OF-EXPERTS REGRESSION 2142
Ruben Verhack, Ghent University - iMinds / Technische Universität Berlin, Belgium; Thomas Sikora, Lieven Lange, Technische Universität Berlin, Germany; Glenn Van Wallendael, Peter Lambert, iMinds - Ghent University, Belgium

MPA.P3.3: CONCURRENT EVOLUTION OF PIXEL PREDICTOR AND CONTEXT MODELING FOR IMAGE CODING 2147
Seishi Takamura, Atsushi Shimizu, NTT Corporation, Japan

MPA.P3.4: FINE-TUNING JPEG-XT COMPRESSION PERFORMANCE USING LARGE-SCALE OBJECTIVE QUALITY TESTING 2152
Rafal K. Mantiuk, Computer Laboratory, University of Cambridge, United Kingdom; Thomas Richter, Computing Center, University of Stuttgart, Germany, Germany; Alessandro Artusi, GiLab, Universitat de Girona, Spain, Spain

MPA.P3.5: CONVEX OPTIMIZATION FOR FRAME-LEVEL RATE ALLOCATION IN MV-HEVC 2157
Aniello Fiengo, Institut Mines-Télécom, Télécom Paris-Tech, France; Giovanni Chierchia, Université Paris-Est, France; Marco Cagnazzo, Béatrice Pesquet-Popescu, Institut Mines-Télécom, Télécom Paris-Tech, France

MPA.P3.6: HIGH-THROUGHPUT AND MEMORY-AWARE HARDWARE OF A SUB-PIXEL INTERPOLATOR FOR MULTIPLE VIDEO CODING STANDARDS 2162
Guilherme Paim, Jones Goebel, Wagner Penny, Bruno Zatt, Marcelo Porto, Luciano Agostini, Federal University of Pelotas, Brazil

MPA.P3.7: AN EFFICIENT SUB-SAMPLE INTERPOLATOR HARDWARE FOR VP9-10 STANDARDS 2167
Guilherme Paim, Wagner Penny, Jones Goebel, Federal University of Pelotas, Brazil; Vladimir Afonso, Federal University of Pelotas/ Federal University of Rio Grande do Sul, Brazil; Altamiro Susin, Federal University of Rio Grande do Sul, Brazil; Marcelo Porto, Bruno Zatt, Luciano Agostini, Federal University of Pelotas, Brazil

MPA.P3.8: VIDEO GENERATION ALGORITHM BASED ON HIGH TEMPORAL-RESOLUTION IMAGING 2172
Yukihiro Bandoh, Seishi Takamura, Atsushi Shimizu, NTT Corporation, Japan

MPA.P3.9: FAST VIDEO ENHANCEMENT TRANSCODING 2177
Kefan Shen, Zhongyuan Wang, Zhen Han, Wuhan University, China

MPA.P3.10: PREDICTIVE LOSSLESS COMPRESSION OF REGIONS OF INTEREST IN HYPERSPECTRAL IMAGE VIA MAXIMUM CORRENTROPY CRITERION BASED LEAST MEAN SQUARE LEARNING 2182
Hongda Shen, David Pan, University of Alabama in Huntsville, United States

MPA.P4: HYPERSPECTRAL IMAGING

MPA.P4.1: HYPERSPECTRAL UNMIXING WITH MATERIAL VARIABILITY USING SOCIAL SPARSITY 2187
Travis Meyer, University of California, Los Angeles, United States; Lucas Drumetz, Jocelyn Chanussot, Grenoble Alpes University, France; Andrea Bertozzi, University of California, Los Angeles, United States; Christian Jutten, Grenoble Alpes University, France

MPA.P4.2: HYPERSPECTRAL MATERIAL CLASSIFICATION UNDER MONOCHROMATIC AND TRICHROMATIC SAMPLING RATES ..... N/A
Mohammad Aghagolzadeh, Hayder Radha, Michigan State University, United States

MPA.P4.3: TENSOR MORPHOLOGICAL PROFILE FOR HYPERSPECTRAL IMAGE CLASSIFICATION 2197
Jie Liang, Australian National University, Australia; Jun Zhou, Yongsheng Gao, Griffith University, Australia

MPA.P4.4: SUPER PIXEL BASED CLASSIFICATION USING CONDITIONAL RANDOM FIELDS FOR HYPERSPECTRAL IMAGES 2202
Yang Hu, Sildomar Monteiro, Eli Saber, Rochester Institute of Technology, United States

MPA.P4.5: MULTIPLE FEATURES LEARNING VIA ROTATION STRATEGY 2206
Junshi Xia, Lionel Bombrun, Yannick Berthoumieu, Christian Germain, IMS Bordeaux, France

MPA.P4.6: MITIGATING DISCONTINUITIES IN SEGMENTED KARHUNEN-LOÈVE TRANSFORMS 2211
Monika Stadnicka, Ian Blanes, Joan Serra-Sagristà, Universitat Autònoma de Barcelona, Spain; Michael Marcellin, University of Arizona, United States

MPA.P4.7: A NOVEL COVARIANCE FUNCTION FOR PREDICTING VEGETATION BIOCHEMISTRY FROM HYPERSPECTRAL IMAGERY WITH GAUSSIAN PROCESSES 2216
Utsav Gewali, Sildomar Monteiro, Rochester Institute of Technology, United States

MPA.P4.8: GAS PLUME DETECTION IN HYPERSPECTRAL VIDEO SEQUENCE USING LOW RANK REPRESENTATION 2221
Yang Xu, Zebin Wu, Zhihui Wei, Nanjing University of Science and Technology, China; Mauro Dalla Mura, Jocelyn Chanussot, GIPSA-Lab, Grenoble Institute of Technology, France; Andrea Bertozzi, University of California, Los Angeles, United States

MPA.P5: DEHAZING

MPA.P5.1: D-HAZY: A DATASET TO EVALUATE QUANTITATIVELY DEHAZING ALGORITHMS 2226
Cosmin Ancuti, Universite Catholique de Louvain, Belgium; Codruta Ancuti, University of Girona, Spain; Christophe De Vleeschouwer, Universite Catholique de Louvain, Belgium

MPA.P5.2: TEXT-AWARE IMAGE DEHAZING USING STROKE WIDTH TRANSFORM 2231
Jinwon Park, Kyumok Kim, Sungmin Lee, Chee Sun Won, Seung-Won Jung, Dongguk University, Republic of Korea

MPA.P5.3: IMAGE DEHAZING BASE ON TWO-PEAK CHANNEL PRIOR 2236
Xiao Xu Han, Hong Wei Feng, Qi Rong Bu, Jun Feng, Xiaoning Liu, Northwest University, P.R. China, China

MPA.P5.4: AN EFFICIENT METHOD FOR IMAGE DEHAZING 2241
Wencheng Wang, Weifang University, China; Xiaohui Yuan, University of North Texas, United States; Xiaojin Wu, Yunlong Liu, Weifang University, China; Somayeh Ghanbarzadeh, University of North Texas, United States

MPA.P5.5: CONVEX OPTIMIZATION FOR FAST IMAGE DEHAZING 2246
Jiaxi He, Cishen Zhang, Swinburne University of Technology, Australia; Ran Yang, Swinburne University of Technology/Sun Yat-Sen University, Australia; Kai Zhu, Swinburne University of Technology/NICTA, Australia

MPA.P5.6: DEHAZING OF COLOR IMAGE USING STOCHASTIC ENHANCEMENT 2251
Saumik Bhattacharya, Sumana Gupta, K.S. Venkatesh, Indian Institute of Technology Kanpur, India

MPA.P5.7: NIGHT-TIME DEHAZING BY FUSION..... 2256
Cosmin Ancuti, Universite Catholique de Louvain, Belgium; Codruta Ancuti, University of Girona, Spain; Christophe De Vleeschouwer, Universite Catholique de Louvain, Belgium; Alan Bovik, University of Texas at Austin, United States

MPA.P5.8: NIGHTTIME IMAGE DEHAZING WITH LOCAL ATMOSPHERIC LIGHT AND 2261
WEIGHTED ENTROPY
Dubok Park, Korea University, Republic of Korea; David K. Han, Office of Naval Research, United States; Hanseok Ko, Korea University, Republic of Korea

MPA.P6: DEEP LEARNING BASED VISUAL PROCESSING II

MPA.P6.1: ASSESSING SEMANTIC INFORMATION IN CONVOLUTIONAL NEURAL 2266
NETWORK REPRESENTATIONS OF IMAGES VIA IMAGE ANNOTATION
Michael B. Mayhew, Barry Chen, Lawrence Livermore National Laboratory, United States; Karl S. Ni, In-Q-Tel, United States

MPA.P6.2: CONTROLLING EXPLANATORY HEATMAP RESOLUTION AND 2271
SEMANTICS VIA DECOMPOSITION DEPTH
Sebastian Bach, Fraunhofer Heinrich Hertz Institute, Germany; Alexander Binder, Singapore University of Technology and Design, Singapore; Klaus-Robert Müller, Berlin Institute of Technology, Germany; Wojciech Samek, Fraunhofer Heinrich Hertz Institute, Germany

MPA.P6.3: SIMPLE AND EFFECTIVE VISUAL QUESTION ANSWERING IN A SINGLE 2276
MODALITY
Yuetan Lin, Zhangyang Pang, Yanan Li, Donghui Wang, Zhejiang University, China

MPA.P6.4: MULTIMODAL REPRESENTATION: KNESER-NEY 2281
SMOOTHING/SKIP-GRAM BASED NEURAL LANGUAGE MODEL
Mingoo Song, Chang D. Yoo, Korea Advanced Institute of Science and Technology, Republic of Korea

MPA.P6.5: SPEEDING-UP A CONVOLUTIONAL NEURAL NETWORK BY 2286
CONNECTING AN SVM NETWORK
Jérôme Pasquet, Berger Levrault & LIRMM, France; Marc Chaumont, University of Nîmes, France; Gérard Subsol, LIRMM, University of Montpellier/CNRS, France; Mustapha Derras, Berger Levrault, France

MPA.P6.6: IMAGE AESTHETIC PREDICTORS BASED ON WEIGHTED CNNS..... 2291
Bin Jin, Ecole Polytechnique Fédérale de Lausanne, Switzerland; Maria V. Ortiz Segovia, Océ Print Logic Technologies, France; Sabine Süsstrunk, Ecole Polytechnique Fédérale de Lausanne, Switzerland

MPA.P6.7: LEARNING DEEP TRANSMISSION NETWORK FOR SINGLE IMAGE 2296
DEHAZING
Zhigang Ling, Hunan University, China; Guoliang Fan, Oklahoma State University, United States; Yaonan Wang, Xiao Lu, Hunan University, China

MPA.P6.8: DEEPIRISNET: DEEP IRIS REPRESENTATION WITH APPLICATIONS IN 2301
IRIS RECOGNITION AND CROSS-SENSOR IRIS RECOGNITION
Abhishek Gangwar, Akanksha Joshi, CDAC, India

MPA.P6.9: FACE SEGMENTATION IN THUMBNAIL IMAGES BY DATA-ADAPTIVE 2306
CONVOLUTIONAL SEGMENTATION NETWORKS
Serkan Kiranyaz, Qatar University, Qatar; Muhammad-Adeel Waris, Iftikhar Ahmad, Tampere University of Technology, Finland; Ridha Hamila, Qatar University, Qatar; Moncef Gabbouj, Tampere University of Technology, Finland

MPA.P6.10: LOCALIZE HEAVILY OCCLUDED HUMAN FACES VIA DEEP 2311
SEGMENTATION
Kaihao Zhang, Yongzhen Huang, Ran He, Chinese Academy of Sciences, China; Hong Wu, University of Electronic Science and Technology of China, China; Liang Wang, Chinese Academy of Sciences, China

MPA.P7: MEDICAL IMAGING

MPA.P7.1: A BAG-OF-SHAPES DESCRIPTOR FOR MEDICAL IMAGING ..... N/A
Shuo Li, Andrea Lum, Gary Brahm, Ilanit Ben Nachum, Manas Sharma, Olga Shmuilovich, James Warrington, Western University, Canada

MPA.P7.2: JOINT MOTION CORRECTION AND IMAGE RECONSTRUCTION IN RESPIRATORY-GATED SPECT 2321
Chao Song, Yongyi Yang, Miles Wernick, Illinois Institute of Technology, United States; P.Hendrik Pretorius, Michael King, University of Massachusetts Medical School, United States

MPA.P7.3: CLUSTER DRIVEN ANISOTROPIC DIFFUSION FOR SPECKLE REDUCTION IN ULTRASOUND IMAGES 2325
Zilong Hu, Jinshan Tang, Michigan Technological University, United States

MPA.P7.4: LEARNING A MULTISCALE PATCH-BASED REPRESENTATION FOR IMAGE DENOISING IN X-RAY FLUOROSCOPY 2330
Yevgen Matviychuk, University of Colorado at Boulder, United States; Boris Mailhé, Xiao Chen, Qiu Wang, Atilla Kiraly, Norbert Strobel, Mariappan Nadar, Siemens Healthcare, United States

MPA.P7.5: DETECTION OF THE MIDSAGITTAL PLANE IN MR IMAGES USING A SHEETNESS MEASURE FROM EIGENANALYSIS OF LOCAL 3D PHASE CONGRUENCY RESPONSES 2335
Ricardo Ferrari, Carlos H. Villa Pinto, Camilo A. Ferri Moreira, Federal University of São Carlos, Brazil

MPA.P7.6: LEARNING DICTIONARIES FROM CORRELATED DATA: APPLICATION TO FMRI DATA ANALYSIS 2340
Abd-Krim Seghouane, University of Melbourne, Australia; Muhammad Usman Khalid, The Australian National University, Australia

MPA.P7.7: DEFORMABLE GROUP-WISE REGISTRATION USING A PHYSIOLOGICAL MODEL: APPLICATION TO DIFFUSION-WEIGHTED MRI 2345
Evgenios Kornaropoulos, Evangelia Zacharaki, CentraleSupélec,Inria,Université Paris Saclay, France; Pierre Zerbib, Centre Hospitalier Universitaire Henri-Mondor, France; Chieh Lin, Chang Gung Memorial Hospital, Taiwan; Alain Rahmouni, Centre Hospitalier Universitaire Henri-Mondor, France; Nikos Paragios, CentraleSupélec,Inria,Université Paris Saclay, France

MPA.P7.8: X-RAY COLLIMATOR SHUTTER DETECTION BY ACTIVE-RODS 2350
Yongjian Yu, University of Virginia, United States; Jue Wang, Union College, United States; Scott T. Acton, University of Virginia, United States

MPA.P7.9: ALIGNMENT OF OPTIC NERVE HEAD OPTICAL COHERENCE TOMOGRAPHY B-SCANS IN RIGHT AND LEFT EYES ..... N/A
Marzieh Mokhtari, Hossein Rabbani, Alireza Mehri, MUI, Iran

MPA.P7.10: BENCHMARKING OF ALGORITHMS FOR 3D TISSUE RECONSTRUCTION 2360
Kimmo Kartasalo, Tampere University of Technology, University of Tampere, Finland; Leena Latonen, Tapio Visakorpi, University of Tampere, Tampere University Hospital, Finland; Matti Nykter, Pekka Ruusuvuori, Tampere University of Technology, University of Tampere, Finland

MPA.P8: TRANSFORM CODING

MPA.P8.1: A STAIRCASE TRANSFORM CODING SCHEME FOR SCREEN CONTENT VIDEO CODING 2365
Cheng Chen, University of Iowa, United States; Jingning Han, Yaowu Xu, James Bankoski, Google Inc., United States

MPA.P8.2: FAST MCT OPTIMIZATION FOR THE COMPRESSION OF WHOLE-SLIDE IMAGES 2370
Miguel Hernandez-Cabronero, Victor Sanchez, University of Warwick, United Kingdom; Francesc Auli-LLinas, Joan Serra-Sagristà, Universitat Autònoma de Barcelona, Spain

MPA.P8.3: GBST: SEPARABLE TRANSFORMS BASED ON LINE GRAPHS FOR PREDICTIVE VIDEO CODING 2375
Hilmi E. Egilmez, Yung-Hsuan Chao, Antonio Ortega, University of Southern California, United States; Bumshik Lee, Sehoon Yea, LG Electronics Inc., Republic of Korea

MPA.P8.4: H.264 INTRA CODING WITH TRANSFORMS BASED ON PREDICTION INACCURACY MODELING 2380
Xun Cai, Jae Lim, Massachusetts Institute of Technology, United States

MPA.P8.5: ROW-COLUMN TRANSFORMS: LOW-COMPLEXITY APPROXIMATION OF OPTIMAL NON-SEPARABLE TRANSFORMS 2385
Hilmi E. Egilmez, University of Southern California, United States; Onur G. Guleryuz, Jana Ehmann, Sehoon Yea, LG Electronics Inc., United States

MPA.P8.7: TRANSFORM-CODED PEL-RECURSIVE VIDEO COMPRESSION 2390
Jana Ehmann, Onur G. Guleryuz, Sehoon Yea, LG Electronics Inc., United States

MPA.P8.8: RATE-CONSTRAINED SUCCESSIVE ELIMINATION OF HADAMARD-BASED SATDS 2395
Ismael Seidel, Luiz Cancellier, José Luís Güntzel, Federal University of Santa Catarina, Brazil; Luciano Agostini, Federal University of Pelotas, Brazil

TA.L1: HEVC INTRA CODING

TA.L1.1: COMBINING DIRECTIONAL INTRA PREDICTION AND INTRA BLOCK COPY WITH BLOCK PARTITION FOR HEVC 524
Yue Li, Li Li, Dong Liu, Houqiang Li, Feng Wu, University of science and Technology of China, China

TA.L1.2: TWO-STAGE EXCLUSION OF ANGULAR INTRA PREDICTION MODES FOR FAST MODE DECISION IN HEVC 529
Andreas Heindel, Christoph Pylinski, André Kaup, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

TA.L1.3: POSITION DEPENDENT PREDICTION COMBINATION FOR INTRA-FRAME VIDEO CODING 534
Amir Said, Xin Zhao, Marta Karczewicz, Jianle Chen, Feng Zou, Qualcomm Technologies, Inc., United States

TA.L1.4: MODE DEPENDENT INTRA SMOOTHING FILTER FOR HEVC 539
Yang Wang, Xiaopeng Fan, Debin Zhao, Harbin Institute of Technology, China; Wen Gao, Peking University, China

TA.L1.5: JOINT OPTIMIZATION OF RATE, DISTORTION, AND DECODING ENERGY FOR HEVC INTRAFRAME CODING 544
Christian Herglotz, André Kaup, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

TA.L1.6: AVX2–OPTIMIZED KVAZAAR HEVC INTRA ENCODER 549
Ari Lemmetti, Ari Koivula, Marko Viitanen, Jarno Vanne, Timo Hämäläinen, Tampere University of Technology, Finland

TA.L2: INTERPOLATION AND SUPER-RESOLUTION I

TA.L2.1: IMAGE-GUIDED DEPTH MAP UPSAMPLING USING NORMALIZED CUTS-BASED SEGMENTATION AND SMOOTHNESS PRIORS 554
Suraj Krishnamurthy, Ramakrishnan Kalpathi, Indian Institute of Science, India

TA.L2.2: ROBUST WEIGHTED LEAST SQUARES FOR GUIDED DEPTH UPSAMPLING 559
Wei Liu, Shanghai Jiao Tong University, China; Xiaogang Chen, University of Shanghai for Science and Technology, China; Jie Yang, Shanghai Jiao Tong University, China; Qiang Wu, University of Technology, Sydney, Australia

TA.L2.3: MAXIMUM LIKELIHOOD INTERPOLATION FOR ALIASING-AWARE IMAGE RESTORATION 564
Chaoqun Dong, Hong Kong University of Science and Technology, Hong Kong SAR of China; Javier Portilla, Consejo Superior de Investigaciones Cientificas (CSIC), Spain

TA.L2.4: PATH-BASED IMAGE SEQUENCE INTERPOLATION GUIDED BY FEATURE POINTS 569
Yizhou Fan, Tsinghua University, China; Nobuki Yoda, Takeo Igarashi, The University of Tokyo, Japan; Hongbing Ma, Tsinghua University, China

TA.L2.5: COUPLED DICTIONARY LEARNING ON COMMON FEATURE SPACE FOR MEDICAL IMAGE SUPER RESOLUTION 574
Songze Tang, Haitao Guo, Nan Zhou, Nanjing Forest Police College, China; Lili Huang, Guangxi University of Science and Technology, China; Tianming Zhan, Jiangsu University,

TA.L2.6: SPARSITY BASED SUPER RESOLUTION USING COLOR CHANNEL CONSTRAINTS 579
Hojjat Seyed Mousavi, Vishal Monga, Pennsylvania State University, United States

TA.L3: HUMAN DETECTION AND PROCESSING I

TA.L3.1: VIDEO SYSTEM FOR HUMAN ATTRIBUTE ANALYSIS USING COMPACT CONVOLUTIONAL NEURAL NETWORK 584
Yi Yang, Feng Chen, Xiaoming Chen, Yan Dai, Zhenyang Chen, Jiang Ji, Intel PRC, China; Tong Zhao, Shanghai Jiao Tong University, China

TA.L3.2: COMBINING ISOPHOTE AND CASCADE CLASSIFIER INFORMATION FOR PRECISE PUPIL LOCALIZATION 589
Sebastian Vater, Fernando Puente León, Karlsruhe Institute of Technology, Germany

TA.L3.3: LOCALIZED REGION CONTEXT AND OBJECT FEATURE FUSION FOR PEOPLE HEAD DETECTION 594
Yule Li, Yong Dou, Xinwang Liu, Teng Li, National University of Defense Technology, China

TA.L3.4: WEAKLY SUPERVISED HUMAN BODY DETECTION UNDER ARBITRARY POSES 599
Yawei Cai, Xiaoyang Tan, Nanjing University of Aeronautics and Astronautics, China

TA.L3.5: NEW APPROACH FOR HUMAN DETECTION IN SPHERICAL IMAGES 604
Marouane Boui, Hicham Hadj-Abdelkader, Fakhr-Eddine Ababsa, University of Evry, France; El Houssine Bouyakhf, University Mohammed V-Rabat, Morocco

TA.L3.6: AGE ESTIMATION VIA FUSION OF MULTIPLE BINARY AGE GROUPING SYSTEMS 609
Tsung-Jung Liu, National Chung Hsing University, Taiwan; Kuan-Hsien Liu, Academia Sinica, Taiwan; Hsin-Hua Liu, Soo-Chang Pei, National Taiwan University, Taiwan

TA.L4: EMOTION AND EXPRESSION RECOGNITION

TA.L4.1: WHERE DO EMOTIONS COME FROM? PREDICTING THE EMOTION STIMULI MAP 614
Kuan-Chuan Peng, Cornell University, United States; Amir Sadovnik, Lafayette College, United States; Andrew Gallagher, Google Inc., United States; Tsuhan Chen, Cornell University, United States

TA.L4.2: HOW DEEP NEURAL NETWORKS CAN IMPROVE EMOTION RECOGNITION ON VIDEO DATA 619
Pooya Khorrami, Tom Le Paine, University of Illinois at Urbana-Champaign, United States; Kevin Brady, Charlie Dagli, Massachusetts Institute of Technology Lincoln Laboratory, United States; Thomas S. Huang, University of Illinois at Urbana-Champaign, United States

TA.L4.3: LOCAL SALIENCY-INSPIRED BINARY PATTERNS FOR AUTOMATIC RECOGNITION OF MULTI-VIEW FACIAL EXPRESSION 624
Bikash Santra, Dipti Prasad Mukherjee, Indian Statistical Institute, India

TA.L4.4: MODELING TEMPORAL INFORMATION USING DISCRETE FOURIER TRANSFORM FOR RECOGNIZING EMOTIONS IN USER-GENERATED VIDEOS 629
Haimin Zhang, Min Xu, University of Technology, Sydney, Australia

TA.L4.5: MULTI-SCALE BLOCKS BASED IMAGE EMOTION CLASSIFICATION USING MULTIPLE INSTANCE LEARNING 634
Tianrong Rao, Min Xu, University of Technology, Sydney, Australia; Huiying Liu, Institute for Infocomm Research, Singapore, Singapore; Jinqiao Wang, Chinese Academy of Sciences, China; Ian Burnett, University of Technology, Sydney, Australia

TA.L4.6: SMILE DETECTION IN THE WILD WITH HIERARCHICAL VISUAL FEATURE 639
Jiahuiran Li, Junkai Chen, Zheru Chi, The Hong Kong Polytechnic University, Hong Kong SAR of China

TA.L5: OBJECT RECOGNITION

TA.L5.1: INVARIANT MULTI-SCALE SHAPE DESCRIPTOR FOR OBJECT MATCHING AND RECOGNITION 644
Haoran Xu, Jianyu Yang, Soochow University, China; Junsong Yuan, Nanyang Technological University, Singapore

TA.L5.2: EXPLOITING COARSE-TO-FINE MECHANISM FOR FINE-GRAINED RECOGNITION 649
Yongzhong Wang, Xu-Yao Zhang, Yanming Zhang, Xinwen Hou, Cheng-Lin Liu, Institute of Automation, Chinese Academy of Sciences, China

TA.L5.3: SELF-RESTRAINT OBJECT RECOGNITION BY MODEL BASED CNN LEARNING 654
Yida Wang, Weihong Deng, Beijing University of Posts and Telecommunications, China

TA.L5.4: OBJECT RECOGNITION SPEED IMPROVEMENT USING BITMAP-HOG 659
Alireza Dehghani, David Moloney, Movidius Plc., Ireland; Ivan Griffin, Emdalo Technologies, Ireland

TA.L5.5: FAST 2D-TO-3D MATCHING WITH CAMERA POSE VOTING FOR 3D OBJECT IDENTIFICATION 664
Ruihan Bao, Kota Iwamoto, Data Science Research Laboratories, NEC Corporation, Japan

TA.L5.6: DISTRIBUTED OBJECT RECOGNITION IN SMART CAMERA NETWORKS 669
Alireza Rahimpour, Ali Taalimi, Jiajia Luo, Hairong Qi, The University of Tennessee, Knoxville, United States

TA.L6: VISUAL SALIENCY I

TA.L6.1: WEBPAGE SALIENCY PREDICTION WITH MULTI-FEATURES FUSION 674
Jian Li, Beijing University of Posts and Telecommunications, China; Li Su, University of Chinese Academy of Sciences, China; Bo Wu, Capital Medical University, China; Junbiao Pang, Beijing University of Technology, China; Chunfeng Wang, Zhe Wu, Qingming Huang, University of Chinese Academy of Sciences, China

TA.L6.2: VISUAL SEARCH GUIDED BY AN EFFICIENT TOP-DOWN ATTENTION APPROACH 679
Rafael Mesquita, Carlos Mello, Pedro Castilho, Universidade Federal de Pernambuco, Brazil

TA.L6.3: VISUAL SALIENCY DETECTION USING VIDEO DECOMPOSITION 684
Saumik Bhattacharya, Sumana Gupta, K.S. Venkatesh, Indian Institute of Technology Kanpur, India

TA.L6.4: IMPACT OF VISUAL ANGLE ON ATTENTION DEPLOYMENT AND ROBUSTNESS OF VISUAL SALIENCY MODELS IN VIDEOS: FROM SD TO UHD 689
Toinon Vigier, Matthieu Perreira Da Silva, Patrick Le Callet, Université de Nantes, France

TA.L6.5: SPATIO-TEMPORAL SALIENCY DETECTION USING ABSTRACTED FULLY-CONNECTED GRAPHICAL MODELS 694
Amir-Hossein Karimi, Mohammad Javad Shafiee, Christian Scharfenberger, Ibrahim BenDaya, Shahid Haider, Naeem Talukdar, David A. Clausi, Alexander Wong, University of Waterloo, Canada

TA.L6.6: FMRI-BASED PERCEPTUAL VALIDATION OF A COMPUTATIONAL MODEL FOR VISUAL AND AUDITORY SALIENCY IN VIDEOS 699
Georgia Panagiotaropoulou, Petros Koutras, Athanasios Katsamanis, Petros Maragos, Athanasia Zlatintsi, National Technical University of Athens, Greece; Athanassios Protopapas, Efstratios Karavasilis, Nikolaos Smyrnis, University of Athens, Greece

TA.L7: DICTIONARY LEARNING

TA.L7.1: RELATIVE ATTRIBUTE GUIDED DICTIONARY LEARNING 704
Mohammadreza Babaee, Thomas Wolf, Gerhard Rigoll, Institute for Human-Machine Communication, TU München, Germany

TA.L7.2: CROSS-SCALE PREDICTIVE DICTIONARIES FOR IMAGE AND VIDEO RESTORATION 709
Vishwanath Saragadam, Aswin Sankaranarayanan, Xin Li, Carnegie Mellon University, United States

TA.L7.3: FAST AND ROBUST FMRI UNMIXING USING HIERARCHICAL DICTIONARY LEARNING 714
Vinayak Abrol, Pulkit Sharma, Indian Institute of Technology Mandi, India; Shahrooz F. Roohi, NUS, Singapore; Anil Kumar Sao, Indian Institute of Technology Mandi, India; Ashraf A. Kassim, NUS, Singapore

TA.L7.4: DISCRIMINATIVE DICTIONARY PAIR LEARNING FROM PARTIALLY LABELED DATA 719
Yi Rong, Shengwu Xiong, Wuhan University of Technology, China; Yongsheng Gao, Griffith University, Australia

TA.L7.5: HUMAN ACTIVITIES PREDICTION BY LEARNING COMBINATORIAL SPARSE REPRESENTATIONS 724
Kaiping Xu, Zheng Qin, Guolong Wang, Tsinghua University, China

TA.L7.6: SHAPE-INCLUDED LABEL-CONSISTENT DISCRIMINATIVE DICTIONARY LEARNING: AN APPROACH TO DETECT AND SEGMENT MULTI-CLASS OBJECTS IN IMAGE 729
Mahdi Marsousi, Xingyu Li, Konstantinos N. Plataniotis, University of Toronto, Canada

TA.L8: INTEGRATIVE APPLICATIONS: INDUSTRIAL

TA.L8.1: HIGH QUALITY TRADEMARK PROPOSALS BASED ON TRADEMARK-CONFIDENCE SCORE OF MSERS ..... N/A
Yuan Zhang, Wei Wen, Lei Nie, Junjun Xiong, Samsung Electronics, China; Yehui Yang, Chinese Academy of Sciences, China

TA.L8.2: A MORPHOLOGICAL APPROACH TO THE AUTOMATIC DETECTION OF DARK FRINGES APPLIED TO BIREFRINGENCE IMAGES 739
Lucas Thomaz, Allan da Silva, Eduardo da Silva, Sergio Netto, Andre Castro, Juliana Pereira, Argimiro Secchi, Universidade Federal do Rio de Janeiro, Brazil

TA.L8.3: ROBUST REAL-TIME UAV BASED POWER LINE DETECTION AND TRACKING 744
Guang Zhou, Jinwei Yuan, I-Ling Yen, Farokh Bastani, University of Texas at Dallas, United States

TA.L8.4: IS OVERFEAT USEFUL FOR IMAGE-BASED SURFACE DEFECT CLASSIFICATION TASKS? 749
Pei-Hung Chen, Shen-Shyang Ho, Nanyang Technological University, Singapore

TA.L8.5: MULTI-FEATURE SPARSE-BASED DEFECT DETECTION AND CLASSIFICATION IN SEMICONDUCTOR UNITS 754
Bashar Haddad, Lina J. Karam, Jieping Ye, Arizona State University, United States; Nital Patel, Martin Braun, Intel Corporation, United States

TA.L8.6: ANOMALY REGION DETECTION AND LOCALIZATION IN METAL SURFACE INSPECTION 759
Sriram Vaikundam, Tzu-Yi Hung, Rolls Royce @ NTU corporate lab, Singapore; Liang Tien Chia, Nanyang Technological University, Singapore

TA.L9: RE-IDENTIFICATION I

TA.L9.1: PERSON RE-IDENTIFICATION USING A PATCH-BASED APPEARANCE MODEL 764
Khalid Tahboub, Blanca Delgado, Edward Delp, Purdue University, United States

TA.L9.2: TOWARDS UNSUPERVISED OPEN-SET PERSON RE-IDENTIFICATION 769
Hanxiao Wang, Xiatian Zhu, Tao Xiang, Shaogang Gong, Queen Mary, University of London, United Kingdom

TA.L9.3: PERSON RE-IDENTIFICATION USING SPARSE REPRESENTATION WITH MANIFOLD CONSTRAINTS 774
Behzad Mirmahboub, Hamed Kiani, Amran Bhuiyan, Alessandro Perina, Istituto Italiano di Tecnologia (iit), Italy; Baochang Zhang, Beihang University, China; Alessio Del Bue, Vittorio Murino, Istituto Italiano di Tecnologia (iit), Italy

TA.L9.4: PREDOMINANT COLOR NAME INDEXING STRUCTURE FOR PERSON RE-IDENTIFICATION 779
Raphael Felipe Prates, Cristianne Dutra, William Robson Schwartz, Universidade Federal de Minas Gerais, Brazil

TA.L9.5: MULTI-KERNEL METRIC LEARNING FOR PERSON RE-IDENTIFICATION 784
Muhammad Adnan Syed, Jianbin Jiao, University of Chinese Academy of sciences, China

TA.L9.6: PERSON RE-IDENTIFICATION BY DISTANCE METRIC LEARNING TO DISCRETE HASHING 789
Jiaxin Chen, Yunhong Wang, Beihang University, China; Rui Wu, Beihang University & Samsung R&D Institute of China, China

TA.P1: VIDEO QUALITY ASSESSMENT

TA.P1.1: AN OPTICAL FLOW-BASED NO-REFERENCE VIDEO QUALITY ASSESSMENT ALGORITHM 2400
Manasa K, Sumohana Channappayya, Indian Institute of Technology Hyderabad, India

TA.P1.2: QUALITY-OF-EXPERIENCE OF STREAMING VIDEO: INTERACTIONS BETWEEN PRESENTATION QUALITY AND PLAYBACK STALLING 2405
Kai Zeng, Hojatollah Yeganeh, Zhou Wang, University of Waterloo, Canada

TA.P1.3: VIDEO AESTHETIC QUALITY ASSESSMENT USING KERNEL SUPPORT VECTOR MACHINE WITH ISOTROPIC GAUSSIAN SAMPLE UNCERTAINTY (KSVM-IGSU) 2410
Christos Tzelepis, Eftichia Mavridaki, Vasileios Mezaris, Centre for Research and Technology Hellas, Greece; Ioannis Patras, Queen Mary University of London, United Kingdom

TA.P1.4: PERCEPTUAL CONTRAST SENSITIVITY BASED VIDEO QUALITY ASSESSMENT IN DCT DOMAIN 2415
Junyong You, Christian Michelsen Research, Norway

TA.P1.5: THE EFFECT OF PERCEPTUAL VIDEO QUALITY ON EEG POWER DISTRIBUTION **2420**
Philip Davis, Charles Creusere, Jim Kroger, New Mexico State University, United States

TA.P1.6: WHAT'S ON TV: A LARGE SCALE QUANTITATIVE CHARACTERISATION OF MODERN BROADCAST VIDEO CONTENT **2425**
Felix Mercer Moss, Fan Zhang, Roland Baddeley, David R. Bull, University of Bristol, United Kingdom

TA.P1.7: QUALITY METRIC FOR CAMERA-BASED PULSE RATE MONITORING IN FITNESS EXERCISE **2430**
Wenjin Wang, Eindhoven University of Technology, Netherlands; Benoit Balmaekers, Gerard de Haan, Philips Research Eindhoven, Netherlands

TA.P1.8: THE VISIBILITY OF MOTION ARTIFACTS AND THEIR EFFECT ON MOTION QUALITY **2435**
Alex Mackin, University of Bristol, United Kingdom; Katy Noland, BBC Research and Development, United Kingdom; David R. Bull, University of Bristol, United Kingdom

TA.P1.9: CHARACTERIZING DISTORTIONS IN FIRST-PERSON VIDEOS **2440**
Chen Bai, Amy R. Reibman, Purdue University, United States

TA.P2: IMAGE RETRIEVAL

TA.P2.1: A NOVEL CNN-BASED MATCH KERNEL FOR IMAGE RETRIEVAL **2445**
Dan Zhou, Xue Li, Yu-Jin Zhang, Tsinghua University, China

TA.P2.2: CO-SPARSITY REGULARIZED DEEP HASHING FOR IMAGE INSTANCE RETRIEVAL ..... **N/A**
Jie Lin, Institute for Infocomm Research, Singapore; Olivier Morere, Université Pierre et Marie Curie, France; Vijay Chandrasekhar, Institute for Infocomm Research, Singapore; Antoine Veillard, Université Pierre et Marie Curie, France; Hanlin Goh, Institute for Infocomm Research, Singapore

TA.P2.3: SUPERVISED LEARNING OF LOW-RANK TRANSFORMS FOR IMAGE RETRIEVAL **2455**
Cagdas Bilen, Joaquin Zepeda, Patrick Perez, Technicolor, France

TA.P2.4: SKETCH-BASED IMAGE RETRIEVAL VIA SIAMESE CONVOLUTIONAL NEURAL NETWORK **2460**
Yonggang Qi, Beijing University of Posts and Telecommunications, China; Yi-Zhe Song, Queen Mary University of London, United Kingdom; Honggang Zhang, Jun Liu, Beijing University of Posts and Telecommunications, China

TA.P2.5: TWO-STAGE POOLING OF DEEP CONVOLUTIONAL FEATURES FOR IMAGE RETRIEVAL **2465**
Tiancheng Zhi, Ling-Yu Duan, Yitong Wang, Tiejun Huang, Peking University, China

TA.P2.6: SHAPE MATCHING USING A SELF SIMILAR AFFINE INVARIANT DESCRIPTOR **2470**
Joonsoo Kim, He Li, Jiaju Yue, Edward Delp, Purdue University, United States

TA.P2.7: ENVIRONMENTAL MICROORGANISM IMAGE RETRIEVAL USING MULTIPLE COLOUR CHANNELS FUSION AND PARTICLE SWARM OPTIMISATION **2475**
Yanling Zou, Chengdu University of Information Technology, China; Chen Li, Kimiaki Shirahama, University of Siegen, Germany; Tao Jiang, Chengdu University of Information Technology, China; Marcin Grzegorzek, University of Siegen, Germany

TA.P2.8: CONTENT BASED IMAGE RETRIEVAL USING SALIENT ORIENTATION HISTOGRAMS **2480**
Andrea Manno-Kovacs, Institute for Computer Science and Control, MTA SZTAKI, Hungary

TA.P2.9: FAST EARTH MOVER'S DISTANCE COMPUTATION FOR CATADIOPTRIC IMAGE SEQUENCES **2485**
Omar Tahri, INSA Centre Val de Loire, France; Muhammad Usman, Cédric Demonceaux, David Fofi, Mohamad Mazen Hittawe, University of Burgundy, France

TA.P2.10: GABOR BARCODES FOR MEDICAL IMAGE RETRIEVAL **2490**
Mina Nouredanesh, Hamid Reza Tizhoosh, Ershad Banijamali, University of Waterloo, Canada

TA.P3: COMPRESSIVE SENSING

TA.P3.1: A TWO-STAGE MULTI-HYPOTHESIS RECONSTRUCTION SCHEME IN COMPRESSED VIDEO SENSING **2494**
Wei Feng Ou, Chun Ling Yang, Wen Hao Li, Li Hong Ma, South China University of Technology, China

TA.P3.2: ADAPTIVE REDUCED-SET MATCHING PURSUIT FOR COMPRESSED SENSING RECOVERY **2499**
Michael Abdel-Sayed, Ahmed Khattab, Mohamed Abu-Elyazeed, Cairo University, Egypt

TA.P3.3: BM3D-PRGAMP: COMPRESSIVE PHASE RETRIEVAL BASED ON BM3D DENOISING **2504**
Christopher Metzler, Rice University, United States; Arian Maleki, Columbia University, United States; Richard Baraniuk, Rice University, United States

TA.P3.4: COMPRESSED DELAY-AND-SUM BEAMFORMING FOR ULTRAFAST ULTRASOUND IMAGING **2509**
Adrien Besson, Rafael Carrillo, Ecole Polytechnique Fédérale de Lausanne, Switzerland; Olivier Bernard, University of Lyon - INSA, France; Yves Wiaux, Heriot-Watt University, United Kingdom; Jean-Philippe Thiran, Ecole Polytechnique Fédérale de Lausanne, Switzerland

TA.P3.5: COMPRESSIVE IMAGING USING APPROXIMATE MESSAGE PASSING AND A CAUCHY PRIOR IN THE WAVELET DOMAIN **2514**
Paul Hill, Jong Hoon Kim, The University of Bristol, United Kingdom; Adrian Basarab, Denis Kouame, IRIT, France; David R. Bull, Alin Achim, The University of Bristol, United Kingdom

TA.P3.6: ON NONLOCAL IMAGE COMPLETION USING AN ENSEMBLE OF DICTIONARIES **2519**
Ehsan Miandji, Jonas Unger, Linköping University, Sweden

TA.P3.7: ADAPTIVE SAMPLING AND WAVELET TREE BASED COMPRESSIVE SENSING FOR MRI RECONSTRUCTION **2524**
Qieshi Zhang, Shaanxi Normal University, China; Jun Zhang, Xi'an Serv Stress Engineering Technology Co., Ltd, China; Sei-ichiro Kamata, Waseda University, Japan

TA.P3.8: MULTI-RESOLUTION COMPRESSIVE SENSING RECONSTRUCTION ..... **N/A**
Adriana Gonzalez, University of Louvain, Belgium; Hong Jiang, Gang Huang, Nokia, United States; Laurent Jacques, University of Louvain, Belgium

TA.P3.9: SPARSE SIGNAL RECONSTRUCTION WITH MULTIPLE SIDE INFORMATION USING ADAPTIVE WEIGHTS FOR MULTIVIEW SOURCES **2534**
Huynh Van Luong, Jurgen Seiler, André Kaup, University of Erlangen-Nuremberg, Germany; Soren Forchhammer, Technical University of Denmark, Denmark

TA.P3.10: GENERALIZED ALTERNATING PROJECTION BASED TOTAL VARIATION MINIMIZATION FOR COMPRESSIVE SENSING **2539**
Xin Yuan, Bell Labs, United States

TA.P4: SEGMENTATION I

TA.P4.1: EFFICIENT SUPERPIXEL BASED SEGMENTATION FOR FOOD IMAGE ANALYSIS 2544
Yu Wang, Chang Liu, Fengqing Zhu, Purdue University, United States; Carol Boushey, University of Hawaii Cancer Center, United States; Edward Delp, Purdue University, United States

TA.P4.2: RGB-D IMAGE SEGMENTATION BASED ON MULTIPLE RANDOM WALKERS 2549
Se-Ho Lee, Won-Dong Jang, Korea University, Republic of Korea; Byung Kwan Park, SK Telecom, Republic of Korea; Chang-Su Kim, Korea University, Republic of Korea

TA.P4.3: ORIENTED IMAGE FORESTING TRANSFORM SEGMENTATION WITH CONNECTIVITY CONSTRAINTS 2554
Lucy A. Choque Mansilla, Paulo A. V. Miranda, University of São Paulo, Brazil; Fábio A. M. Cappabianco, Universidade Federal de São Paulo, Brazil

TA.P4.4: SCALE-CONSTRAINED UNSUPERVISED EVALUATION METHOD FOR MULTI-SCALE IMAGE SEGMENTATION ..... N/A
Yuhang Lu, Youchuan Wan, Gang Li, Wuhan University, China

TA.P4.5: SEED GROWING FOR INTERACTIVE IMAGE SEGMENTATION WITH GEODESIC VOTING 2564
Sunjeong Park, Han Lee, Junmo Kim, Korea Advanced Institute of Science and Technology, Republic of Korea

TA.P4.6: A PARALLEL, O(N) ALGORITHM FOR UNBIASED, THIN WATERSHED 2569
Théodore Chabardès, Petr Dokládal, Matthieu Faessel, Michel Bilodeau, PSL Research University MINES ParisTech, France

TA.P4.7: GCE-BASED MODEL FOR THE FUSION OF MULTIPLES COLOR IMAGE SEGMENTATIONS 2574
Lazhar Khelifi, Max Mignotte, University of Montreal, Canada

TA.P4.8: A NEW MULTI-CRITERIA FUSION MODEL FOR COLOR TEXTURED IMAGE SEGMENTATION 2579
Lazhar Khelifi, Max Mignotte, University of Montreal, Canada

TA.P5: 3D SCENE ANALYSIS AND RECONSTRUCTION

TA.P5.1: POINTS CLASSIFICATION FOR NON-RIGID STRUCTURE FROM MOTION ..... N/A
Junjie Hu, Terumasa Aoki, Tohoku University, Japan

TA.P5.2: 3-D POINT CLOUD NORMAL ESTIMATION BASED ON FITTING ALGEBRAIC SPHERES 2589
Hongwei Zhao, Ding Yuan, Hongmei Zhu, Jihao Yin, Beihang University, China

TA.P5.3: VEHICLE DETECTION IN URBAN POINT CLOUDS WITH ORTHOGONAL-VIEW CONVOLUTIONAL NEURAL NETWORK 2593
Jing Huang, Suya You, University of Southern California, United States

TA.P5.4: IMPACT OF DRONE SWARM FORMATIONS IN 3D SCENE RECONSTRUCTION 2598
Simone Milani, Alvise Memo, University of Padova, Italy

TA.P5.5: ROBUST LOOP CLOSURES FOR SCENE RECONSTRUCTION BY COMBINING ODOMETRY AND VISUAL CORRESPONDENCES 2603
Zakaria Laskar, Sami Huttunen, Daniel Herrera C., Esa Rahtu, University of Oulu, Finland; Juho Kannala, Aalto University, Finland

TA.P5.6: TWO-STREAM CONVOLUTIONAL NEURAL NETWORK FOR ACCURATE RGB-D FINGERTIP DETECTION USING DEPTH AND EDGE INFORMATION ..... N/A
Hengkai Guo, Guijin Wang, Xinghao Chen, Tsinghua University, China

TA.P5.7: SUPERPIXEL-BASED DEPTH MAP ESTIMATION USING DEFOCUS BLUR 2613
Saeed Mahmoudpour, Vrije Universiteit Brussel, Belgium; Manbae Kim, Kangwon National University, Republic of Korea

TA.P5.8: MODEL BASED RGBD SLAM 2618
Kathia Melbouci, Sylvie Naudet Collette, Vincent Gay-Bellile, CEA Saclay, France; Omar Ait-Aider, Michel Dhome, Blaise Pascal University, France

TA.P6: IMAGE PROCESSING FOR ONCOLOGY

TA.P6.1: DEEPMOLE: DEEP NEURAL NETWORKS FOR SKIN MOLE LESION CLASSIFICATION 2623
Victor Pomponiu, Hossein Nejati, Ngai-Man Cheung, Singapore University of Technology and Design, Singapore

TA.P6.2: MULTISPECTRAL TEXTURE ANALYSIS OF HISTOPATHOLOGICAL ABNORMALITIES IN COLORECTAL TISSUES 2628
Ahmad Chaddad, Christian Desrosiers, Lama Hassan, Matthew Toews, University of Quebec, Ecole de Technologie Superieure, Canada

TA.P6.3: SEGMENTATION AND CLASSIFICATION OF MELANOCYTIC SKIN LESIONS USING LOCAL AND CONTEXTUAL FEATURES 2633
Eliezer Bernart, Jacob Scharcanski, Sergio Bampi, Federal University of Rio Grande do Sul, Brazil

TA.P6.4: SET OF DESCRIPTORS FOR SKIN CANCER DIAGNOSIS USING NON-DERMOSCOPIC COLOR IMAGES 2638
M.Hossein Jafari, Shadrokh Samavi, Isfahan University of Technology, Iran; S.M.Reza Soroushmehr, University of Michigan, United States; Hoda Mohaghegh, Nader Karimi, Isfahan University of Technology, Iran; Kayvan Najarian, University of Michigan, United States

TA.P6.5: LBP FEATURES FOR BREAST CANCER DETECTION 2643
Pavel Král, Ladislav Lenc, University of West Bohemia, Czech Republic

TA.P6.6: DETECTING MULTIPLE SUB-TYPES OF BREAST CANCER IN A SINGLE PATIENT 2648
Ruchika Verma, Neeraj Kumar, Amit Sethi, Indian Institute of Technology Guwahati, India; Peter H Gann, University of Illinois Chicago, United States

TA.P6.7: UNSUPERVISED MALIGNANT MAMMOGRAPHIC BREAST MASS SEGMENTATION ALGORITHM BASED ON PICKARD MARKOV RANDOM FIELD 2653
Sègbédji R. T. J. Goubalan, Université d'Evry Val d'Essonne & Ecole Polytechnique de Montréal, France; Yves Goussard, Ecole Polytechnique de Montréal, Canada; Hichem Maaref, Université d'Evry Val d'Essonne, France

TA.P6.8: AUTOMATIC QUANTIFICATION AND CLASSIFICATION OF CERVICAL CANCER VIA ADAPTIVE NUCLEUS SHAPE MODELING 2658
Hady Ahmady Phoulady, University of South Florida, United States; Mu Zhou, Stanford University, United States; Dmitry Goldgof, Lawrence Hall, Peter Mouton, University of South Florida, United States

TA.P6.9: FEATURE SELECTION AND PATCH-BASED SEGMENTATION IN MRI FOR PROSTATE RADIOTHERAPY ..... N/A
Maxime Guinin, Su Ruan, University of Rouen, France; Bernard Dubray, Henri Becquerel Center, France; Laurent Massoptier, AQUILAB, France; Isabelle Gardin, Henri Becquerel Center, France

TA.P6.10: COMPUTER-AIDED DIAGNOSTIC TOOL FOR EARLY DETECTION OF PROSTATE CANCER 2668
Islam Reda, Mansoura University - University of Louisville, United States; Ahmed Shalaby, Fahmi Khalifa, University of Louisville, United States; Mohammed Elmogy, Ahmed Aboulfotouh, Mansoura University, Egypt; Mohamed Abou El-Ghar, University of Mansoura, Egypt; Ehsan Hosseini-Asl, University of Louisville, United States; Naoufel Werghi, Khalifa University, United Arab Emirates; Robert Keynton, Ayman El-Baz, University of Louisville, United States

TA.P7: DEBLURRING

TA.P7.1: EFFICIENT PERCEPTUAL-BASED SPATIALLY VARYING OUT-OF-FOCUS BLUR DETECTION 2673
Tong Zhu, Lina J. Karam, Arizona State University, United States

TA.P7.2: MULTIFRAME BLIND DECONVOLUTION OF PASSIVE MILLIMETER WAVE IMAGES USING VARIATIONAL DIRICHLET BLUR KERNEL ESTIMATION 2678
Javier Mateos, Antonio López, Miguel Vega, Rafael Molina, Universidad de Granada, Spain; Aggelos K. Katsaggelos, Northwestern University, United States

TA.P7.3: KERNEL-FREE VIDEO DEBLURRING VIA SYNTHESIS ..... N/A
Feitong Tan, Shuaicheng Liu, Liaoyuan Zeng, Bing Zeng, University of Electronic Science and Technology of China, China

TA.P7.4: MOTION DEBLURRING AND DEPTH ESTIMATION FROM MULTIPLE IMAGES 2688
Ruiwen Zhen, Robert Stevenson, University of Notre Dame, United States

TA.P7.5: IMAGE RETARGETING BASED ON SPATIALLY VARYING DEFOCUS BLUR 2693
Ali Karaali, Cláudio Rosito Jung, Federal University of Rio Grande do Sul, Brazil

TA.P7.6: SPARSE REPRESENTATION OF A BLUR KERNEL FOR OUT-OF-FOCUS BLIND IMAGE RESTORATION 2698
Chia-Chen Lee, Wen-Liang Hwang, Institute of Information Science, Academia Sinica, Taiwan

TA.P7.7: BLUR KERNEL ESTIMATION USING BLURRY STRUCTURE ..... N/A
Shuai Fang, Yuan-Dong Liu, Hefei University of Technology, China; Yang Cao, University of Science and Technology of China, China

TA.P7.9: DECONVOLUTION OF POISSONIAN IMAGES WITH THE PURE-LET APPROACH 2708
Jizhou Li, The Chinese University of Hong Kong, Hong Kong SAR of China; Florian Luisier, Roche Diagnostics Hematology, United States; Thierry Blu, The Chinese University of Hong Kong, Hong Kong SAR of China

TA.P7.10: BLIND IMAGE DECONVOLUTION USING SPECIFIED HPF FOR FEATURE EXTRACTION AND CONJUGATE GRADIENT METHOD IN FREQUENCY DOMAIN 2713
Takanori Fujisawa, Masaaki Ikehara, Keio University, Japan

TA.P8: WATERMARKING, DATA HIDING AND STEGANOGRAPHY

TA.P8.1: AN IMPROVED SPREAD TRANSFORM DITHER MODULATION FOR ROBUST AND SECURE WATERMARKING ..... N/A
Jian Cao, Harbin Institute of Technology, China; Haodong Li, Weiqi Luo, Sun Yat-sen University, China; Jiwu Huang, Shenzhen University, China

TA.P8.2: A SECURE WATERMARKING TECHNIQUE WITHOUT LOSS OF ROBUSTNESS ..... N/A
Jian Cao, Harbin Institute of Technology, China; Haodong Li, Weiqi Luo, Sun Yat-sen University, China; Jiwu Huang, Shenzhen University, China

TA.P8.3: PRINTED IMAGE WATERMARKING USING DIRECT BINARY SEARCH HALFTONING 2727
Fuping Wang, Tsinghua University, China; Jan Allebach, Purdue University, United States

TA.P8.4: A NEW REVERSIBLE DATA HIDING SCHEME EXPLOITING HIGH-DIMENSIONAL PREDICTION-ERROR HISTOGRAM 2732
Siren Cai, Xiaolong Li, Jiaying Liu, Zongming Guo, Peking University, China

TA.P8.5: LOCAL TERNARY PATTERN BASED ON PATH INTEGRAL FOR STEGANALYSIS 2737
Qiuyan Lin, Jiaying Liu, Zongming Guo, Peking University, China

TA.P8.6: BLIND IMAGE STEGANALYSIS BASED ON EVIDENTIAL K-NEAREST NEIGHBORS 2742
Nadjib Guettari, Anne Sophie Capelle-Laizé, Philippe Carré, XLIM-SIC Laboratory, University of Poitiers, France

TA.P8.7: EFFECT OF SATURATED PIXELS ON SECURITY OF STEGANOGRAPHIC SCHEMES FOR DIGITAL IMAGES 2747
Vahid Sedighi, Jessica Fridrich, Binghamton University, United States

TA.P8.8: LEARNING AND TRANSFERRING REPRESENTATIONS FOR IMAGE STEGANALYSIS USING CONVOLUTIONAL NEURAL NETWORK 2752
Yinlong Qian, University of Science and Technology of China, China; Jing Dong, Wei Wang, Tieniu Tan, Institute of Automation, Chinese Academy of Sciences, China

TP.L1: HEVC OPTIMIZATION

TP.L1.1: HEVC ENCODER OPTIMISATIONS USING ADAPTIVE CODING UNIT VISITING ORDER 794
Ivan Zupancic, Queen Mary University of London, United Kingdom; Saverio G. Blasi, BBC Research and Development, United Kingdom; Eduardo Peixoto, Universidade de Brasilia, Brazil; Ebroul Izquierdo, Queen Mary University of London, United Kingdom

TP.L1.2: STEADINESS ANALYSIS FOR OPTIMAL GOP SIZE SELECTION IN HEVC 799
Vigneswaran Poobalasingam, Ebroul Izquierdo, Queen Mary University of London, United Kingdom

TP.L1.3: SIMPLE AND EFFICIENT H.265/HEVC CODING OF FIXED CAMERA VIDEOS 804
Seishi Takamura, Atsushi Shimizu, NTT Corporation, Japan

TP.L1.4: SCENE-BASED LOW DELAY HEVC ENCODING FRAMEWORK BASED ON TRANSPARENT COMPOSITE MODELING 809
Hossam Amer, En-hui Yang, University of Waterloo, Canada

TP.L1.5: PARETO-BASED ENERGY CONTROL FOR THE HEVC ENCODER 814
Wagner Penny, Italo Machado, Marcelo Porto, Luciano Agostini, Bruno Zatt, Federal University of Pelotas, Brazil

TP.L1.6: REAL-TIME COMPLEXITY CONSTRAINED ENCODING 819
Thijs Vermeir, Ghent University / Barco, Belgium; Jürgen Slowack, Barco, Belgium; Glenn Van Wallendael, Peter Lambert, Rik Van de Walle, Ghent University, Belgium

TP.L1.7: SPEEDUP-AWARE HISTORY-BASED TILING ALGORITHM FOR THE HEVC STANDARD 824
Iago Storch, Daniel Palomino, Bruno Zatt, Luciano Agostini, Universidade Federal de Pelotas, Brazil

TP.L1.8: GPU-BASED OPTIMIZATION FOR SAMPLE ADAPTIVE OFFSET IN HEVC 829
Yang Wang, Harbin Institute of Technology, China; Xun Guo, Yan Lu, Microsoft Research, China; Xiaopeng Fan, Debin Zhao, Harbin Institute of Technology, China

TP.L2: SEGMENTATION II

TP.L2.1: MATERIAL SEGMENTATION IN HYPERSPECTRAL IMAGES WITH MINIMAL REGION PERIMETERS 834
Yu Zhang, The Chinese University of Hong Kong, Hong Kong SAR of China; Cong Phuoc Huynh, Nariman Habili, National ICT Australia, Australia; King Ngi Ngan, The Chinese University of Hong Kong, Hong Kong SAR of China

TP.L2.2: BACKGROUND PRIOR AND BOUNDARY WEIGHT-BASED PEDESTRIAN SEGMENTATION IN INFRARED IMAGES 839
Lu Li, Yu Zheng, Xiangzhi Bai, Fugen Zhou, Beihang University, China

TP.L2.3: USER DRIVEN SPARSE POINT-BASED IMAGE SEGMENTATION 844
Sachin Meena, Kannappan Palaniappan, University of Missouri, Columbia, United States; Gunasekaran Seetharaman, U.S. Naval Research Laboratory, United States

TP.L2.4: JOINT OBJECT DISCOVERY AND SEGMENTATION WITH IMAGE-WISE RECONSTRUCTION ERROR 849
Shuhei Tarashima, NTT Corporation, Japan; Jingjing Pan, Georgia Institute of Technology, United States; Go Irie, Takayuki Kurozumi, Tetsuya Kinebuchi, NTT Corporation, Japan

TP.L2.5: 3D IMAGE SEGMENTATION BASED ON FEATURE-SENSITIVE AND ADAPTIVE TETRAHEDRAL MESHES 854
Ming Xu, Zeyun Yu, University of Wisconsin, Milwaukee, United States

TP.L2.6: ROBUST BUILDING ROOF SEGMENTATION USING AIRBORNE POINT CLOUD DATA 859
Syed Ali Naqi Gilani, Monash University, Australia; Mohammad Awrangjeb, Griffith University, Australia; Guojun Lu, Federation University Australia, Australia

TP.L2.7: FIGURE/GROUND VIDEO SEGMENTATION VIA LOW-RANK SPARSE LEARNING 864
Song Gu, Jianguo Wang, Lili Pan, Shilei Cheng, Zheng Ma, Mei Xie, University of Electronic Science and Technology of China, China

TP.L2.8: VIDEO SEGMENTATION USING SPECTRAL CLUSTERING ON SUPERPIXELS 869
Asma Hamza Bhatti, Anis Rahman, Asad Anwar Butt, NUST-SEECS, Pakistan

TP.L3: SS: HIGH DYNAMIC RANGE

TP.L3.1: RENDITION TECHNIQUES FOR HDR SCENES IN PAINTING, PHOTOGRAPHY, AND ELECTRONIC IMAGING 874
John McCann, McCann Imaging, United States

TP.L3.2: RECENT DEVELOPMENTS FROM MPEG IN HDR VIDEO COMPRESSION 879
Louis Kerofsky, Yan Ye, Yuwen He, Interdigital, United States

TP.L3.3: CONTENT AWARE QUANTIZATION: REQUANTIZATION OF HIGH DYNAMIC RANGE BASEBAND SIGNALS BASED ON VISUAL MASKING BY NOISE AND TEXTURE 884
Jan Froehlich, Guan-Ming Su, Scott Daly, Dolby Laboratories Inc., United States; Andreas Schilling, University of Tuebingen, Germany; Bernd Eberhardt, Stuttgart Media University, Germany

TP.L3.4: REAL-TIME TEMPORALLY COHERENT LOCAL HDR TONE MAPPING 889
Simone Croci, Disney Research, ETH Zurich, Switzerland; Tunc Aydin, Nikolce Stefanoski, Disney Research, Switzerland; Markus Gross, Disney Research, ETH Zurich, Switzerland; Aljoscha Smolic, Disney Research, Switzerland

TP.L3.5: REAL-TIME NOISE-AWARE TONE-MAPPING AND ITS USE IN LUMINANCE RETARGETING 894
Gabriel Eilertsen, Linköping University, Sweden; Rafal K. Mantiuk, University of Cambridge, United Kingdom; Jonas Unger, Linköping University, Sweden

TP.L3.6: OBJECTIVE QUALITY ASSESSMENT OF TONE-MAPPED VIDEOS 899
Hojatollah Yeganeh, Shiqi Wang, Kai Zeng, University of Waterloo, Canada; Mahzar Eisapour, N/A, Canada; Zhou Wang, University of Waterloo, Canada

TP.L3.7: PRACTICALITIES OF PREDICTING QUALITY OF HIGH DYNAMIC RANGE IMAGES AND VIDEO 904
Rafal K. Mantiuk, University of Cambridge, United Kingdom

TP.L3.8: UNAMBIGUOUS VIDEO PIPELINE DESCRIPTION MOTIVATED BY HDR 909
Walter Gish, Scott Miller, Dolby Laboratories Inc., United States

TP.L4: SS: VIDEO PROCESSING IN THE WILD: UNDERSTANDING REAL CCTV STREET-SCENE

TP.L4.1: FORMAL REPRESENTATION OF EVENTS IN A SURVEILLANCE DOMAIN ONTOLOGY 913
Faranak Sobhani, Krishna Chandramouli, Qianni Zhang, Ebroul Izquierdo, Queen Mary University of London, United Kingdom

TP.L4.2: HOLISTIC FEATURES FOR REAL-TIME CROWD BEHAVIOUR ANOMALY DETECTION 918
Mark Marsden, Kevin McGuinness, Suzanne Little, Noel E. O'Connor, Dublin City University, Ireland

TP.L4.3: DEEP CROSS-LAYER ACTIVATION FEATURES FOR VISUAL RECOGNITION 923
Georgios Th. Papadopoulos, Elpida Machairidou, Petros Daras, Centre for Research and Technology Hellas, Greece

TP.L4.4: MULTI-TARGET DETECTION IN CCTV FOOTAGE FOR TRACKING APPLICATIONS USING DEEP LEARNING TECHNIQUES 928
Anastasios Dimou, Universidad Politecnica de Madrid, Spain; Paschalina Medentzidou, Centre for Research and Technology Hellas, Greece; Federico Álvarez García, Universidad Politecnica de Madrid, Spain; Petros Daras, Centre for Research and Technology Hellas, Greece

TP.L4.5: FIGARO, HAIR DETECTION AND SEGMENTATION IN THE WILD 933
Michele Svanera, Umar Riaz Muhammad, Riccardo Leonardi, Sergio Benini, University of Brescia, Italy

TP.L4.6: FACE IDENTIFICATION FROM LOW RESOLUTION NEAR-INFRARED IMAGES 938
Soumyadeep Ghosh, Rohit Keshari, Richa Singh, Mayank Vatsa, Indraprastha Institute of Information Technology, Delhi, India

TP.L4.7: REDUCTION OF FALSE ALARMS TRIGGERED BY SPIDERS/COBWEBS IN SURVEILLANCE CAMERA NETWORKS 943
Ramya Hebbalaguppe, Dublin City University/ TCS Innovation Labs, Delhi, Ireland; Kevin McGuinness, Jogile Kuklyte, Rami Albatal, Cem Direkoglu, Jiang Zhou, Leonardo Gualano, Noel E. O'Connor, Dublin City University, Ireland

TP.L4.8: MACHINE LISTENING TECHNIQUES AS A COMPLEMENT TO VIDEO IMAGE ANALYSIS IN FORENSICS 948
Romain Serizel, Victor Bisot, Slim Essid, Gaël Richard, LTCI, CNRS, Télécom ParisTech, France

TP.L5: SS: INTEGRATION OF IMAGING SYSTEMS AND COMPUTATIONAL ALGORITHMS

TP.L5.1: FOCAL-SWEEP FOR LARGE APERTURE TIME-OF-FLIGHT CAMERAS 953
Sagar Honnungar, Indian Institute of Technology Madras, India; Jason Holloway, Adithya Pediredla, Ashok Veeraraghavan, Rice University, United States; Kaushik Mitra, Indian Institute of Technology Madras, India

TP.L5.2: COMPRESSIVE RECONSTRUCTION FOR 3D INCOHERENT HOLOGRAPHIC MICROSCOPY 958
Oliver Cossairt, Kuan He, Ruibo Shang, Nathan Matsuda, Manoj Sharma, Northwestern University, United States; Xiang Huang, Argonne National Laboratory, United States; Aggelos K. Katsaggelos, Leonidas Spinoulas, Seunghwan Yoo, Northwestern University, United States

TP.L5.3: STRUCTURED LOW-RANK RECOVERY OF PIECEWISE CONSTANT SIGNALS WITH PERFORMANCE GUARANTEES 963
Greg Ongie, Sampurna Biswas, Mathews Jacob, University of Iowa, United States

TP.L5.4: RECENT PROGRESSES OF ACCELERATED MRI USING ANNIHILATING FILTER-BASED LOW-RANK INTERPOLATION 968
Kyong Hwan Jin, Dongwook Lee, Juyoung Lee, Jong Chul Ye, Korea Advanced Institute of Science and Technology, Republic of Korea

TP.L5.5: COMPUTATIONAL SINGLE-PHOTON DEPTH IMAGING WITHOUT TRANSVERSE REGULARIZATION 973
Dongeek Shin, Jeffrey H. Shapiro, Massachusetts Institute of Technology, United States; Vivek K Goyal, Boston University, United States

TP.L5.6: IMAGE RECONSTRUCTION AND THRESHOLD DESIGN FOR QUANTA IMAGE SENSORS 978
Omar Elgendy, Stanley Chan, Purdue University, United States

TP.L5.7: ATMOSPHERIC LIDAR IMAGING AND POISSON INVERSE PROBLEMS 983
Willem Marais, Robert Holz, Yu Hen Hu, Rebecca Willett, University of Wisconsin-Madison, United States

TP.L5.8: TURBO DENOISING FOR MOBILE PHOTOGRAPHIC APPLICATIONS 988
Tak-Shing Wong, Peyman Milanfar, Google Research, United States

TP.L6: 3D QUALITY ASSESSMENT

TP.L6.1: GAUSSIAN NOISE APPROXIMATION FOR DISPARITY-BASED AUTOFOCUS 993
Cheng-Chieh Yang, Homer H. Chen, National Taiwan University, Taiwan

TP.L6.2: EMPIRICAL RELIABILITY ANALYSIS OF DISPARITY-BASED AUTOFOCUS 998
Shao-Kang Huang, Cheng-Chieh Yang, Homer H. Chen, National Taiwan University, Taiwan

TP.L6.3: QUALITY ASSESSMENT OF MONOCULAR 3D INFERENCE 1002
Jorge Hernandez, Research Engineer / Safran SA, France

TP.L6.4: FULL-REFERENCE SALIENCY-BASED 3D MESH QUALITY ASSESSMENT INDEX 1007
Anass Nouri, Christophe Charrier, Olivier Lézoray, Normandie université, université de Caen, école nationale supérieure des ingénieurs de Caen (ENSICAEN), GREYC UMR CNRS 6072, France

TP.L6.5: QUALITY ASSESSMENT OF 3D SYNTHESIZED IMAGES VIA DISOCCLUDED REGION DISCOVERY 1012
Yu Zhou, Leida Li, China University of Mining and Technology, China; Ke Gu, Nanyang Technological University, Singapore; Yuming Fang, Jiangxi University of Finance and Economics, China; Weisi Lin, Nanyang Technological University, Singapore

TP.L6.6: ON THE PERFORMANCE OF 3D JUST NOTICEABLE DIFFERENCE MODELS 1017
Yu Fan, Mohamed-Chaker Larabi, XLIM - University of Poitiers, France; Faouzi Alaya Cheikh, NTNU, Norway; Christine Fernandez, XLIM - University of Poitiers, France

TP.L6.7: TIME-EFFICIENT SUBJECTIVE TESTING METHODOLOGY FOR 3D VIDEO QUALITY ASSESSMENT 1022
Engin Senol, Nükhet Özbek, Ege University, Turkey

TP.L6.8: MEASUREMENT OF CRITICAL TEMPORAL INCONSISTENCY FOR QUALITY ASSESSMENT OF SYNTHESIZED VIDEO 1027
Hak Gu Kim, Yong Man Ro, Korea Advanced Institute of Science and Technology, Republic of Korea

TP.L7: DEEP LEARNING FOR DETECTION AND CLASSIFICATION I

TP.L7.1: TEXT DETECTION BASED ON CONVOLUTIONAL NEURAL NETWORKS WITH SPATIAL PYRAMID POOLING 1032
Rui Zhu, Xiao-Jiao Mao, Qi-Hai Zhu, Ning Li, Yu-Bin Yang, Nanjing University, China

TP.L7.2: ACCELERATE CONVOLUTIONAL NEURAL NETWORKS FOR BINARY CLASSIFICATION VIA CASCADING COST-SENSITIVE FEATURE 1037
Junbiao Pang, Huihuang Lin, Beijing University of Technology, China; Su Li, Chunjie Zhang, Chinese Academy of Sciences, China; Weigang Zhang, Harbin Institute of Technology, China; Lijuan Duan, Beijing University of Technology, China; Qingming Huang, Chinese Academy of Sciences, China; Baocai Yin, Beijing University of Technology, China

TP.L7.3: SALIENT OBJECT DETECTION VIA FAST R-CNN AND LOW-LEVEL CUES 1042
Xiang Wang, Huimin Ma, Xiaozhi Chen, Tsinghua University, China

TP.L7.4: DEEP-CSSR: SCENE CLASSIFICATION USING CATEGORY-SPECIFIC SALIENT REGION WITH DEEP FEATURES 1047
Mengshi Qi, Yunhong Wang, Beihang University, China

TP.L7.5: LEARNING DEEP COMPACT CHANNEL FEATURES FOR OBJECT DETECTION IN TRAFFIC SCENES 1052
Yuqiang Fang, National University of Defense Technology, China; Lin Sun, Hong Kong University of Science and Technology, China; Hao Fu, Tao Wu, National University of Defense Technology, China; Ruili Wang, Massey University, New Zealand; Bin Dai, National University of Defense Technology, China

TP.L7.6: TRANSFER LEARNING USING CONVOLUTIONAL NEURAL NETWORKS FOR OBJECT CLASSIFICATION WITHIN X-RAY BAGGAGE SECURITY IMAGERY 1057
Samet Akcay, Mikolaj E. Kundegorski, Durham University, United Kingdom; Michael Devereux, University of Bristol, United Kingdom; Toby P Breckon, Durham University, United Kingdom

TP.L7.7: ACTIVE LEARNING FOR HYPERSPECTRAL IMAGE CLASSIFICATION WITH A STACKED AUTOENCODERS BASED NEURAL NETWORK ..... N/A
Jiming Li, Zhejiang Police College, China

TP.L7.8: OBJECT CLASSIFICATION IN INFRARED IMAGES USING DEEP REPRESENTATIONS 1066
Erhan Gundogdu, Aykut Koc, ASELSAN, Turkey; A. Aydin Alatan, Middle East Technical University, Turkey

TP.L8: 3D PROCESSING I

TP.L8.2: JOINT BUNDLED CAMERA PATHS FOR STEREOSCOPIC VIDEO STABILIZATION 1071
Heng Guo, Shuaicheng Liu, Shuyuan Zhu, Bing Zeng, University of Electronic Science and Technology of China, China

TP.L8.3: CONTEXT-AWARE EVENT-DRIVEN STEREO MATCHING 1076
Dongqing Zou, Ping Guo, Qiang Wang, Xiaotao Wang, Guangqi Shao, Feng Shi, Jia Li, Advanced Research Lab, SRC Beijing, Samsung Electronics, China; Paul K. J. Park, Multimedia Processing Lab, SAIT, Samsung Electronics, Republic of Korea

TP.L8.4: PARAMETER FREE TORSION ESTIMATION OF CURVES IN 3D IMAGES 1081
Christoph Blankenburg, University of Applied Sciences Darmstadt, Germany; Christian Daul, Université de Lorraine, France; Joachim Ohser, University of Applied Sciences Darmstadt, Germany

TP.L8.5: LOCAL REFINEMENT FOR 3D DEFORMABLE PARAMETRIC SURFACES 1086
Anaïs Badoual, Daniel Schmitter, Michael Unser, Ecole Polytechnique Fédérale de Lausanne, Switzerland

TP.L8.6: ENHANCING REAL-TIME FULL 3D RECONSTRUCTION OF HUMANS WITH PRE-SCANNED MESHES 1091
Nicholas Vretos, Dimitrios Alexiadis, Dimitrios Zarpalas, Petros Daras, Centre for Research and Technology Hellas, Greece

TP.L8.7: QUANTIFYING THE ACCURACY OF FRI-BASED LIDAR WAVEFORM ANALYSIS 1096
Charles Creusere, Juan Castorena, Ivan Dragulin, David Voelz, New Mexico State University, United States

TP.L8.8: (H)EXASHRINK: MULTIRESOLUTION COMPRESSION OF LARGE STRUCTURED HEXAHEDRAL MESHES WITH DISCONTINUITIES IN GEOSCIENCES 1101
Jean-Luc Peyrot, Laurent Duval, Sébastien Schneider, IFP Energies Nouvelles, France; Frédéric Payan, Marc Antonini, Laboratory I3S - University Nice and CNRS, France

TPA.P1: VISUAL SALIENCY II

TPA.P1.1: SALIENCY ANALYSIS AND REGION-OF-INTEREST EXTRACTION FOR SATELLITE IMAGES BY BIOLOGICAL SPARSE MODELING 2757
Libao Zhang, Xu Liang, Jie Chen, Beijing Normal University, China

TPA.P1.2: SALIENT OBJECT DETECTION BY MULTI-LEVEL FEATURES LEARNING DETERMINED SPARSE RECONSTRUCTION 2762
Xiaoyun Yan, Yuehuan Wang, Qiong Song, Kaiheng Dai, Huazhong University of Science and Technology, China

TPA.P1.3: ADAPTIVE BACKGROUND SEARCH AND FOREGROUND ESTIMATION FOR SALIENCY DETECTION VIA COMPREHENSIVE AUTOENCODER 2767
Ke Yan, Changyang Li, Xiuying Wang, Ang Li, Yuchen Yuan, Jinman Kim, Dagan Feng, University of Sydney, Australia

TPA.P1.4: SALIENCY DETECTION VIA GLOBAL-OBJECT-SEED-GUIDED CELLULAR AUTOMATA 2772
Hong Liu, Shuning Tao, Zheyuan Li, Shenzhen Graduate School, Peking University, China

TPA.P1.5: VISUAL SALIENCY DETECTION VIA IMAGE COMPLEXITY FEATURE 2777
Min Liu, Shanghai Jiao Tong University, China; Ke Gu, Nanyang Technological University, Singapore; Guangtao Zhai, Shanghai Jiao Tong University, China; Patrick Le Callet, Université de Nantes, France

TPA.P1.6: FUNNRAR: HYBRID RARITY/LEARNING VISUAL SALIENCY 2782
Pierre Marighetto, University of Mons, Belgium; Ilhem Hadj Abdelkader, Sacha Duzelier, Telecom SudParis, France; Marc Décombas, Cooprev, France; Nicolas Riche, University of Mons, Belgium; Jérémie Jakubowicz, Telecom SudParis, France; Matei Mancas, Bernard Gosselin, University of Mons, Belgium; Robert Laganière, University of Ottawa, Canada

TPA.P1.7: VISUAL ATTENTION INSPIRED DISTANT VIEW AND CLOSE-UP VIEW CLASSIFICATION 2787
Song Tong, Kyoto University, Japan; Yuen Peng Loh, University of Malaya, Malaysia; Xuefeng Liang, Takatsune Kumada, Kyoto University, Japan

TPA.P1.8: VISUAL ATTENTION QUALITY DATABASE FOR BENCHMARKING PERFORMANCE EVALUATION METRICS 2792
Milind Gide, Samuel Dodge, Lina J. Karam, Arizona State University, United States

TPA.P1.9: MOUSE CALIBRATION AIDED REAL-TIME GAZE ESTIMATION BASED ON BOOST GAUSSIAN BAYESIAN LEARNING 2797
Nanyang Ye, Xiaoming Tao, Linhao Dong, Ning Ge, Tsinghua University, China

TPA.P1.10: MULTI-IMAGE SALIENCY ANALYSIS VIA HISTOGRAM AND SPECTRAL FEATURE CLUSTERING FOR SATELLITE IMAGES 2802
Libao Zhang, Qiaoyue Sun, Jie Chen, Beijing Normal University, China

TPA.P2: INTERPOLATION AND SUPER-RESOLUTION II

TPA.P2.1: ROLLING SHUTTER SUPER-RESOLUTION IN BURST MODE 2807
Vijay Rengarajan, Abhijith Punnappurath, Rajagopalan A. N., Indian Institute of Technology Madras, India; Gunasekaran Seetharaman, Naval Research Laboratory, United States

TPA.P2.2: CAPTURING GROUND TRUTH SUPER-RESOLUTION DATA 2812
Chengchao Qu, Ding Luo, Eduardo Monari, Tobias Schuchert, Jürgen Beyerer, Fraunhofer Institute of Optronics, System Technologies and Image Exploitation, Germany

TPA.P2.3: MULTISPECTRAL IMAGE SUPER-RESOLUTION WITH L1,2-NORM REGULARIZATION OF SPATIALLY-ALIGNED LAPLACIANS 2817
Xiaolin Wu, Dahua Gao, McMaster University, Canada

TPA.P2.4: MULTI-IMAGE SUPER-RESOLUTION USING A DUAL WEIGHTING SCHEME BASED ON VORONOI TESSELLATION 2822
Michel Bätz, Andrea Eichenseer, André Kaup, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

TPA.P2.5: ANCHORED NEIGHBORHOOD REGRESSION BASED SINGLE IMAGE SUPER-RESOLUTION FROM SELF-EXAMPLES 2827
Yapeng Tian, Fei Zhou, Wenming Yang, Xuesen Shang, Qingmin Liao, Tsinghua University, China

TPA.P2.6: NON-LOCAL SPARSE REPRESENTATION FOR HYPERSPECTRAL IMAGE SUPER-RESOLUTION 2832
Renwei Dian, Shutao Li, Leyuan Fang, Hunan University, China

TPA.P2.7: HIGH RESOLUTION DEPTH IMAGE RECOVERY ALGORITHM BASED ON THE MODELING OF THE SUM OF AN AVERAGE DISTANCE IMAGE AND A SURFACE IMAGE 2836
Kazunori Uruma, Tokyo University of Science, Japan; Katsumi Konishi, Kogakuin University, Japan; Tomohiro Takahashi, Toshihiro Furukawa, Tokyo University of Science, Japan

TPA.P2.8: THE QUICK AND HIGH QUALITY IMAGE INTERPOLATION FOR SINGLE IMAGE USING MULTI-FILTERING AND WEIGHTED MEAN 2841
Takuro Yamaguchi, Masaaki Ikehara, Keio University, Japan

TPA.P2.9: MULTI-SOURCE DOMAIN ADAPTATION USING C^1-SMOOTH SUBSPACES INTERPOLATION 2846
Jorge Batista, ISR-Institute of Systems and Robotics, Portugal; Krzysztof Krakowski, Wydzial Matematyczno-Przyrodniczy, Poland; Luís Machado, Pedro Martins, Fátima Silva Leite, ISR - Institute of Systems and Robotics, Portugal

TPA.P2.10: OPTIMIZED HIGH-FREQUENCY BASED INTERPOLATION FOR MULTISPECTRAL DEMOSAICKING 2851
Sunil Prasad Jaiswal, Lu Fang, Vinit Jakhetiya, Manohar Kuse, Oscar Au, Hong Kong University of Science and Technology, Hong Kong SAR of China

TPA.P3: SYMBOL AND SIGN RECOGNITION

TPA.P3.1: LOW-COMPUTATION EGOCENTRIC BARCODE DETECTOR FOR THE BLIND 2856
Clement Creusot, Asim Munawar, IBM Research Tokyo, Japan

TPA.P3.2: EXPRESS WAYBILL EXTRACTION ON PARCEL IMAGES BY LOGO MATCHING 2861
Shujing Lu, Shanghai Research Institute of China Post Group, China; Jie Zhao, Yue Lu, East China Normal University, China

TPA.P3.3: TOWARDS ROBUST COLOR RECOVERY FOR HIGH-CAPACITY COLOR QR CODES 2866
Zhibo Yang, Zhiyi Cheng, Chen Change Loy, Wing Cheong Lau, Chak Man Li, Guanchen Li, The Chinese University of Hong Kong, Hong Kong SAR of China

TPA.P3.4: SIGN LANGUAGE RECOGNITION WITH LONG SHORT-TERM MEMORY 2871
Tao Liu, Wengang Zhou, Houqiang Li, University of Science and Technology of China, China

TPA.P3.5: SIGN LANGUAGE RECOGNITION BASED ON ADAPTIVE HMMS WITH DATA AUGMENTATION 2876
Dan Guo, Hefei University of Technology, China; Wengang Zhou, University of Science and Technology of China, China; Meng Wang, Hefei University of Technology, China; Houqiang Li, University of Science and Technology of China, China

TPA.P3.6: MULTI-MODALITY AMERICAN SIGN LANGUAGE RECOGNITION 2881
Chenyang Zhang, Yingli Tian, CUNY City College, United States; Matt Huenerfauth, Rochester Institute of Technology, United States

TPA.P3.7: HIGHLY-ACCURATE FAST CANDIDATE REDUCTION METHOD FOR JAPANESE/CHINESE CHARACTER RECOGNITION 2886
Ryosuke Odate, Hideaki Goto, Tohoku University, Japan

TPA.P3.8: CHARACTER RECOGNITION IN NATURAL SCENE IMAGES USING RANK-1 TENSOR DECOMPOSITION 2891
Muhammad Ali, Hassan Foroosh, University of Central Florida, United States

TPA.P3.9: SCENE TEXT DETECTION WITH EXTREMAL REGION BASED CASCADED FILTERING 2896
Gen Li, Jie Liu, Shuwu Zhang, Institute of Automation, Chinese Academy of Sciences, China; Yang Zheng, University of Science and Technology Beijing, China

TPA.P3.10: TEXT DETECTION IN MANGA BY COMBINING CONNECTED-COMPONENT-BASED AND REGION-BASED CLASSIFICATIONS 2901
Yuji Aramaki, Yusuke Matsui, Toshihiko Yamasaki, Kiyoharu Aizawa, The University of Tokyo, Japan

TPA.P4: HUMAN DETECTION AND PROCESSING II

TPA.P4.1: WEIGHTED REGULARIZED ASM FOR FACE ALIGNMENT 2906
Guillermo Ruiz, Universitat Pompeu Fabra, Spain; Eduard Ramon, Jaime García, Crisalix, Switzerland; Miguel A. González Ballester, Federico M. Sukno, Universitat Pompeu Fabra, Spain

TPA.P4.2: SCALE-ADAPTIVE EIGENEYE FOR FAST EYE DETECTION IN WILD WEB IMAGES 2911
Xu Zhou, Yilin Wang, Peng Zhang, Baoxin Li, Arizona State University, United States

TPA.P4.3: A GENETICS-MOTIVATED UNSUPERVISED MODEL FOR TRI-SUBJECT KINSHIP VERIFICATION 2916
Junkang Zhang, Siyu Xia, Hong Pan, Southeast University, China; A. K. Qin, Royal Melbourne Institute of Technology, Australia

TPA.P4.4: SIFT FLOW BASED GENETIC FISHER VECTOR FEATURE FOR KINSHIP VERIFICATION 2921
Ajit Puthenputhussery, Qingfeng Liu, Chengjun Liu, New Jersey Institute of Technology, United States

TPA.P4.5: PEDESTRIAN DETECTION VIA A LEG-DRIVEN PHYSIOLOGY FRAMEWORK 2926
Gongbo Liang, Qi Li, Western Kentucky University, United States; Xiangui Kang, Sun Yat-sen University, China

TPA.P4.6: OBLIQUE RANDOM FOREST BASED ON PARTIAL LEAST SQUARES APPLIED TO PEDESTRIAN DETECTION 2931
Artur Jordão Correia, William Robson Schwartz, Universidade Federal de Minas Gerais, Brazil

TPA.P4.7: USING GROUP BEHAVIORS TO DETECT HOFSTEDE CULTURAL DIMENSIONS 2936
Rodolfo Favaretto, Leandro Dihl, Rodrigo Barreto, Soraia Raupp Musse, Pontifical Catholic Unversity of Rio Grande do Sul, Brazil

TPA.P4.8: ANATOMICAL STRUCTURE SIMILARITY ESTIMATION BY RANDOM FOREST 2941
Yuru Pei, Lei Kou, Hongbin Zha, Peking University, China

TPA.P5: CAMERA AND DISPLAY PARAMETER ESTIMATION

TPA.P5.1: HAVE WE UNDERESTIMATED THE POWER OF IMAGE UNDISTORTION? 2946
Wei Li, Wenting Huang, Matthias Breier, Dorit Merhof, RWTH Aachen University, Germany

TPA.P5.3: SALIENCY-GUIDED PROJECTION GEOMETRIC CORRECTION USING A PROJECTOR-CAMERA SYSTEM 2951
Ameneh Boroomand, Hicham Sekkati, University of Waterloo, Canada; Mark Lamm, Christie Digital Systems Canada Inc., Canada; David A. Clausi, Alexander Wong, University of Waterloo, Canada

TPA.P5.4: ROBUST RADIAL DISTORTION CORRECTION BASED ON ALTERNATE OPTIMIZATION 2956
Juan Andrade, Lina J. Karam, Arizona State University, United States

TPA.P5.5: IN-LOOP RADIAL DISTORTION COMPENSATION FOR LONG-TERM MOSAICING OF AERIAL VIDEOS 2961
Holger Meuel, Stephan Ferenz, Marco Munderloh, Hanno Ackermann, Jörn Ostermann, Leibniz Universität Hannover, Germany

TPA.P5.6: RECOVERING PLANAR MOTION FROM HOMOGRAPHIES OBTAINED USING A 2.5-POINT SOLVER FOR A POLYNOMIAL SYSTEM 2966
Mårten Wadenbäck, Kalle Åström, Anders Heyden, Lund University, Sweden

TPA.P5.7: ACCURATE RGB CAMERA RELOCALIZATION USING REGRESSION FOREST 2971
Jianing Li, Lianghao Wang, Dongxiao Li, Ming Zhang, Zhejiang University, China

TPA.P5.8: CAMERA GEO-CALIBRATION USING AN MCMC APPROACH 2976
Menghua Zhai, Scott Workman, Nathan Jacobs, University of Kentucky, United States

TPA.P6: FACE RECOGNITION

TPA.P6.1: FISHER VECTOR ENCODED DEEP CONVOLUTIONAL FEATURES FOR UNCONSTRAINED FACE VERIFICATION 2981
Jun-Cheng Chen, Jingxiao Zheng, University of Maryland College Park, Taiwan; Vishal M. Patel, Rutgers, The State University of New Jersey, United States; Rama Chellappa, University of Maryland College Park, United States

TPA.P6.2: LOW RANK GROUP SPARSE REPRESENTATION BASED CLASSIFIER FOR POSE VARIATION 2986
Shivangi Yadav, Maneet Singh, Mayank Vatsa, Richa Singh, Angshul Majumdar, Indraprastha Institute of Information Technology, Delhi, India

TPA.P6.3: PARTIAL FACE DETECTION FOR CONTINUOUS AUTHENTICATION 2991
Upal Mahbub, University of Maryland, College Park, United States; Vishal M. Patel, Rutgers, The State University of New Jersey, United States; Deepak Chandra, Brandon Barbello, Google Inc., United States; Rama Chellappa, University of Maryland, College Park, United States

TPA.P6.4: SPATIO-TEMPORAL REPRESENTATION FOR FACE AUTHENTICATION BY USING MULTI-TASK LEARNING WITH HUMAN ATTRIBUTES 2996
Seong Tae Kim, Dae Hoe Kim, Yong Man Ro, Korea Advanced Institute of Science and Technology, Republic of Korea

TPA.P6.5: A JOINT OPTIMIZATION SCHEME TO COMBINE DIFFERENT LEVELS OF FEATURES FOR FACE RECOGNITION WITH MAKEUP CHANGES 3001
Zhenzhu Zheng, Guodong Guo, West Virginia University, United States

TPA.P6.6: PATCH-BASED ALIGNMENT-FREE GENERIC SPARSE REPRESENTATION FOR POSE-ROBUST FACE RECOGNITION 3006
Jianquan Gu, Haifeng Hu, Haoxi Li, Weipeng Hu, Sun Yat-sen University, China

TPA.P6.7: ACCURATE 3D FACE MODELING AND RECOGNITION FROM RGB-D STREAM IN THE PRESENCE OF LARGE POSE CHANGES 3011
Donghyun Kim, Jongmoo Choi, Jatuporn Toy Leksut, Gérard Medioni, University of Southern California, United States

TPA.P6.8: 3D FACE RECOGNITION UNDER PARTIAL OCCLUSIONS USING RADIAL STRINGS 3016
Xun Yu, Yongsheng Gao, Jun Zhou, Griffith University, Australia

TPA.P6.9: EFFICIENT MISALIGNMENT-ROBUST FACE RECOGNITION VIA LOCALITY-CONSTRAINED REPRESENTATION ..... N/A
Yandong Wen, South China University of Technology, China; Weiyang Liu, Peking University, China; Meng Yang, Shenzhen University, China; Ming Li, Sun Yat-sen University, China

TPA.P6.10: A JOINTLY LOCAL STRUCTURED SPARSE DEEP LEARNING NETWORK FOR FACE RECOGNITION 3026
Renjie Wu, Sei-ichiro Kamata, Waseda University, Japan

TPA.P7: ACTION RECOGNITION I

TPA.P7.1: DETECTING RIOTS USING ACTION LOCALIZATION 3031
Muhammad Abdullah Hanif, Asad Anwar Butt, National University of Sciences and Technology, Pakistan; Muhammad Murtaza Khan, University of Jeddah, Saudi Arabia

TPA.P7.2: ACTIVE PRIVILEGED LEARNING OF HUMAN ACTIVITIES FROM WEAKLY LABELED SAMPLES 3036
Michalis Vrigkas, Christophoros Nikou, University of Ioannina, Greece; Ioannis Kakadiaris, University of Houston, United States

TPA.P7.3: HUMAN ACTION RECOGNITION BASED ON 3D SKELETON PART-BASED POSE ESTIMATION AND TEMPORAL MULTI-RESOLUTION ANALYSIS 3041
Ayatallah Aly Halim, Christel Dartigues-Pallez, Frederic Precioso, Michel Riveill, University Nice Sophia Antipolis, France; Abderrahim Benslimane, Salma Ghoneim, French University in Egypt, Egypt

TPA.P7.4: SPATIO-TEMPORAL FASTMAP-BASED MAPPING FOR HUMAN ACTION RECOGNITION 3046
Lilia Chorfi Belhadj, Max Mignotte, Université de Montréal, Canada

TPA.P7.5: SKELETON-BASED ACTION RECOGNITION USING CITATION-KNN ON BAGS OF TIME-STAMPED POSE DESCRIPTORS 3051
Sebastián Ubalde, Francisco Gómez-Fernández, Norberto Adrian Goussies, Marta Mejail, University of Buenos Aires, Argentina

TPA.P7.6: TUBE CONVNETS: BETTER EXPLOITING MOTION FOR ACTION RECOGNITION 3056
Zhihao Li, Wenmin Wang, Nannan Li, Jinzhuo Wang, Peking University, China

TPA.P7.7: INTRODUCING TEMPORAL ORDER OF DOMINANT VISUAL WORD SUB-SEQUENCES FOR HUMAN ACTION RECOGNITION 3061
Nikolaos Kardaris, Vassilis Pitsikalis, National Technical University of Athens, Greece; Effrosyni Mavroudi, Johns Hopkins University, Greece; Petros Maragos, National Technical University of Athens, Greece

TPA.P7.8: A MULTIMEDIA GESTURE DATASET FOR HUMAN ROBOT COMMUNICATION: ACQUISITION, TOOLS AND RECOGNITION RESULTS 3066
Isidoros Rodomagoulakis, Nikolaos Kardaris, Vassilis Pitsikalis, Antonis Arvanitakis, Petros Maragos, National Technical University of Athens, Greece

TPA.P7.9: MULTI-SCALE REGION CANDIDATE COMBINATION FOR ACTION RECOGNITION 3071
Zhichen Zhao, Huimin Ma, Xiaozhi Chen, Tsinghua University, China

TPA.P7.10: SALIENCY-CONTEXT TWO-STREAM CONVNETS FOR ACTION RECOGNITION 3076
Quan-Qi Chen, Feng Liu, Xue Li, Tsinghua University, China; Bao-Di Liu, China University of Petroleum, China; Yu-Jin Zhang, Tsinghua University, China

TPA.P8: DENOISING

TPA.P8.1: WEIGHTED TENSOR NUCLEAR NORM MINIMIZATION FOR COLOR IMAGE DENOISING 3081
Kaito Hosono, Chiba Institute of Technology, Japan; Shunsuke Ono, Tokyo Institute of Technology, Japan; Takamichi Miyata, Chiba Institute of Technology, Japan

TPA.P8.2: HYPERSPECTRAL IMAGE DENOISING BASED ON LOW-RANK REPRESENTATION AND SUPERPIXEL SEGMENTATION 3086
Jiayi Ma, Wuhan University, China; Chang Li, Huazhong University of Science and Technology, China; Yong Ma, Zhongyuan Wang, Wuhan University, China

TPA.P8.3: CONTENT-ADAPTIVE LOW RANK REGULARIZATION FOR IMAGE DENOISING 3091
Hangfan Liu, Peking University, China; Xinfeng Zhang, Nanyang Technological University, Singapore; Ruiqin Xiong, Peking University, China

TPA.P8.4: ADAPTIVE REGULARIZER LEARNING FOR LOW RANK APPROXIMATION WITH APPLICATION TO IMAGE DENOISING 3096
Xixi Jia, Xiangchu Feng, Weiwei Wang, Xidian University, China

TPA.P8.5: AUTOMATIC RANK ESTIMATION OF PARAFAC DECOMPOSITION AND APPLICATION TO MULTISPECTRAL IMAGE WAVELET DENOISING 3101
Abir Zidi, Fraunhofer Institute IIS, Germany; Julien Marot, Salah Bourennane, Institut Fresnel, France; Klaus Spinnler, Fraunhofer Institute IIS, Germany

TPA.P8.6: DENOISING METHOD SELECTION BY COMPARISON-BASED IMAGE QUALITY ASSESSMENT 3106
Haoyi Liang, Daniel Weller, University of Virginia, United States

TPA.P8.7: LOCAL DENOISING BASED ON CURVATURE SMOOTHING CAN VISUALLY OUTPERFORM NON-LOCAL METHODS ON PHOTOGRAPHS WITH ACTUAL NOISE 3111
Gabriela Ghimpeteanu, David Kane, Thomas Batard, Universitat Pompeu Fabra, Spain; Stacey Levine, Duquesne University, United States; Marcelo Bertalmío, Universitat Pompeu Fabra, Spain

TPB.P1: BIOMETRICS PROCESSING

TPB.P1.2: MOBILE PERIOCULAR MATCHING WITH PRE-POST CATARACT SURGERY 3116
Rohit Keshari, Soumyadeep Ghosh, Akshay Agarwal, Richa Singh, Mayank Vatsa, Indraprastha Institute of Information Technology, India

TPB.P1.3: EYE CENTER LOCALIZATION AND DETECTION USING RADIAL MAPPING 3121
Karan Ahuja, Indian Institute of Information Technology Guwahati, India; Ruchika Banerjee, Indraprastha Institute of Information Technology, Delhi, India; Seema Nagar, Kuntal Dey, IBM Research, India; Ferdous Barbhuiya, Indian Institute of Information Technology Guwahati, India

TPB.P1.4: FIXATION IDENTIFICATION FOR LOW-SAMPLE-RATE MOBILE EYE TRACKERS 3126
Nantheera Anantrasirichai, Iain D. Gilchrist, David R. Bull, University of Bristol, United Kingdom

TPB.P1.5: AT-A-DISTANCE PERSON RECOGNITION VIA COMBINING OCULAR FEATURES 3131
Shalini Verma, Snapdeal, India; Paritosh Mittal, Oxford University, United Kingdom; Mayank Vatsa, Richa Singh, Indraprastha Institute of Information Technology, Delhi, India

TPB.P1.6: TWO-PHASE APPROACH – CALIBRATION AND IRIS CONTOUR ESTIMATION – FOR GAZE TRACKING OF HEAD-MOUNTED EYE CAMERA 3136
Jianfeng Li, Tottori University, Japan; Shigang Li, Hiroshima City University, Japan

TPB.P1.7: AN EFFICIENT FINGER-VEIN EXTRACTION ALGORITHM BASED ON RANDOM FOREST REGRESSION WITH EFFICIENT LOCAL BINARY PATTERNS 3141
Chenguang Liu, Samsung Research America, United States; Yeong-Hwa Kim, Chung-Ang University, Republic of Korea

TPB.P1.8: HAND DORSAL VEIN RECOGNITION BY MATCHING WIDTH SKELETON MODELS 3146
Xiaoxia Li, Di Huang, Renke Zhang, Yunhong Wang, Xianbo Xie, Beihang University, China

TPB.P1.9: GAIT RECOGNITION BASED ON 3D SKELETON JOINTS CAPTURED BY KINECT 3151
Yufei Wang, Shandong University, China; Jiande Sun, Shandong Normal University, China; Jing Li, Shandong Management University, China; Dong Zhao, Shandong University, China

TPB.P1.10: SHOW ME YOUR BODY: GENDER CLASSIFICATION FROM STILL IMAGES 3156
Ioannis Kakadiaris, Nikolaos Sarafianos, University of Houston, United States; Christophoros Nikou, University of Houston, University of Ioannina, United States

TPB.P2: COMPUTATIONAL MICROSCOPY

TPB.P2.1: 3-D UNDERSTANDING OF ELECTRON MICROSCOPY IMAGES OF NANO BIO OBJECTS BY COMPUTING GENERATIVE MECHANICAL MODELS 3161
Yunye Gong, Peter Doerschuk, Cornell University, United States

TPB.P2.2: FLUORESCENCE BLIND STRUCTURED ILLUMINATION MICROSCOPY: A NEW RECONSTRUCTION STRATEGY 3166
Simon Labouesse, Marc Allain, Aix-Marseille Université, CNRS, Centrale Marseille, France; Jérôme Idier, Sébastien Bourguignon, Ecole Centrale de Nantes, CNRS, France; Awoke Negash, Aix-Marseille Université, CNRS, Centrale Marseille, France; Penghuan Liu, Ecole Centrale de Nantes, CNRS, France; Anne Sentenac, Aix-Marseille Université, CNRS, Centrale Marseille, France

TPB.P2.3: FOURIER PTYCHOGRAPHIC RECONSTRUCTION USING WEIGHTED REPLACEMENT IN THE FOURIER DOMAIN 3171
Pengming Song, Weixin Jiang, Yongbing Zhang, Qionghai Dai, Tsinghua University, China

TPB.P2.4: MODEL BASED IMAGE RECONSTRUCTION WITH PHYSICS BASED PRIORS 3176
Muhammad Usman Sadiq, Purdue University, United States; Jeff Simmons, Air Force Research Laboratory, United States; Charles A. Bouman, Purdue University, United States

TPB.P2.5: VASCULAR NETWORK FORMATION IN SILICO USING THE EXTENDED CELLULAR POTTS MODEL 3180
David Svoboda, Vladimír Ulman, Peter Kovác, Barbara Šalingová, Lenka Tesarová, Irena Koutná, Petr Matula, Masaryk University, Czech Republic

TPB.P2.6: LEARNING-BASED APPROACH TO BOOST DETECTION RATE AND LOCALISATION ACCURACY IN SINGLE MOLECULE LOCALISATION MICROSCOPY 3184
Silvia Colabrese, Marco Castello, Giuseppe Vicidomini, Alessio Del Bue, Istituto Italiano di Tecnologia (IIT), Italy

TPB.P2.7: RETRIEVING THE PARAMETERS OF CRYO ELECTRON MICROSCOPY DATASET IN THE HETEROGENEOUS AB-INITIO CASE 3189
Yves Michels, Etienne Baudrier, University of Strasbourg, CNRS, France

TPB.P2.8: A BLOCK PARALLEL MAJORIZE-MINIMIZE MEMORY GRADIENT ALGORITHM 3194
Sara Cadoni, Emilie Chouzenoux, Jean-Christophe Pesquet, Universite Paris-Est Marne-la-Vallee, France; Caroline Chaux, Aix Marseille Université, France

TPB.P2.9: CELL PROPOSAL NETWORK FOR MICROSCOPY IMAGE ANALYSIS 3199
Saad Ullah Akram, University of Oulu, Finland; Juho Kannala, Aalto University, Finland; Lauri Eklund, Janne Heikkilä, University of Oulu, Finland

TPB.P3: FACE PROCESSING I

TPB.P3.1: 3D CONSTRAINED LOCAL MODEL WITH INDEPENDENT COMPONENT ANALYSIS AND NON-GAUSSIAN SHAPE PRIOR DISTRIBUTION: APPLICATION TO 3D FACIAL LANDMARK DETECTION 3204
Marwa C. El Rai, Claudio Tortorici, Hassan Al-Muhairi, Khalifa University of Science, Technology and Research, United Arab Emirates; Marius Linguraru, Sheikh Zayed Institute, United States; Naoufel Werghi, Khalifa University of Science, Technology and Research, United Arab Emirates

TPB.P3.2: A DEEP FACIAL LANDMARKS DETECTION WITH FACIAL CONTOUR AND FACIAL COMPONENTS CONSTRAINT 3209
Wissam Baddar, Jisoo Son, Dae Hoe Kim, Seong Tae Kim, Yong Man Ro, Korea Advanced Institute of Science and Technology, Republic of Korea

TPB.P3.3: FCFD: TEACH THE MACHINE TO ACCOMPLISH FACE DETECTION STEP BY STEP 3214
Shilun Lin, Fei Su, Beijing University of Posts and Telecommunications, China

TPB.P3.4: A FAST MULTI-VIEW FACE DETECTOR FOR MOBILE PHONE 3219
Hao Feng, Biao Wang, Chao Zhang, Bing Yu, Samsung R&D Institute China-Beijing, China; Wonjun Hwang, Jae-Joon Han, Changkyu Choi, Samsung Advanced Institute of Technology, Republic of Korea; Haitao Wang, Samsung R&D Institute China-Beijing, China

TPB.P3.5: LOCAL BINARY PATTERN NETWORK : A DEEP LEARNING APPROACH FOR FACE RECOGNITION 3224
Meng Xi, Liang Chen, Desanka Polajnar, University of Northern British Columbia, Canada; Weiyang Tong, Syracuse University, United States

TPB.P3.6: MULTI-MODEL ROBUST ERROR CORRECTION FOR FACE RECOGNITION 3229
Michael Iliadis, Leonidas Spinoulas, Albert Berahas, Northwestern University, United States; Haohong Wang, TCL Research America, United States; Aggelos K. Katsaggelos, Northwestern University, United States

TPB.P3.7: TRIPLE LOCAL FEATURE BASED COLLABORATIVE REPRESENTATION FOR FACE RECOGNITION WITH SINGLE SAMPLE PER PERSON ..... N/A
Tiancheng Song, Xing Wang, Meng Yang, Shiqi Yu, Linlin Shen, Shenzhen University, China

TPB.P3.8: LEVERAGING MID-LEVEL DEEP REPRESENTATIONS FOR PREDICTING FACE ATTRIBUTES IN THE WILD 3239
Yang Zhong, Josephine Sullivan, Haibo Li, KTH Royal Institute of Technology, Sweden

TPB.P3.9: PURSUING FACE IDENTITY FROM VIEW-SPECIFIC REPRESENTATION TO VIEW-INVARIANT REPRESENTATION 3244
Ting Zhang, Qiulei Dong, Zhanyi Hu, Institute of Automation, Chinese Academy of Sciences, China

TPB.P3.10: LINEAR CANONICAL CORRELATION ANALYSIS BASED RANKING APPROACH FOR FACIAL AGE ESTIMATION 3249
Hong Liu, Xiaohu Sun, Peking University, China

TPB.P4: SCANNED-DOCUMENT ANALYSIS

TPB.P4.1: SIGNATURE LINE DETECTION IN SCANNED DOCUMENTS 3254
Osborn de Lima, Shruty Janakiraman, Eli Saber, Rochester Institute of Technology, United States; David C. Day, Peter Bauer, Mark Shaw, Roger Twede, Perry Lea, HP Inc., United States

TPB.P4.2: VESSELNESS FOR TEXT DETECTION IN HISTORICAL DOCUMENT IMAGES 3259
Simon Hofmann, Martin Gropp, David Bernecker, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany; Christopher Pollin, University of Graz, Germany; Andreas Maier, Vincent Christlein, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

TPB.P4.3: DENSE PREDICTION FOR TEXT LINE SEGMENTATION IN HANDWRITTEN DOCUMENT IMAGES 3264
Quang Nhat Vo, GueeSang Lee, Chonnam National University, Republic of Korea

TPB.P4.4: A TESSERACT-BASED OCR FRAMEWORK FOR HISTORICAL DOCUMENTS LACKING GROUND-TRUTH TEXT 3269
Brennan Nunamaker, Syed Saqib Bukhari, Damian Borth, Andreas Dengel, DFKI, Germany

TPB.P4.5: MQDF WITH A NOVEL COVARIANCE MATRIX ESTIMATION AND DISCRIMINANT LSRC, WHICH IS BETTER FOR IN-AIR HANDWRITTEN CHINESE CHARACTER RECOGNITION 3274
Zhaochun Xu, Weiqiang Wang, Ke Lu, University of Chinese Academy of Sciences, China

TPB.P4.6: A KNOWLEDGE-BASED TABLE RECOGNITION METHOD FOR CHINESE BANK STATEMENT IMAGES 3279
Liang Xu, Wei Fan, Jun Sun, Xin Li, Satoshi Naoi, Fujitsu R&D Center, China

TPB.P4.7: AUTOMATIC CHARACTER LABELING FOR CAMERA CAPTURED DOCUMENT IMAGES 3284
Wei Fan, Fujitsu Research & Development Center Co. Ltd., China; Koichi Kise, Masakazu Iwamura, Osaka Prefecture University, Japan

TPB.P4.8: NO-REFERENCE DOCUMENT IMAGE QUALITY ASSESSMENT BASED ON HIGH ORDER IMAGE STATISTICS 3289
Jingtao Xu, Beijing University of Posts and Telecommunications, China; Peng Ye, Airbnb, United States; Qiaohong Li, Nanyang Technological University, Singapore; Yong Liu, Beijing University of Posts and Telecommunications, China; David Doermann, University of Maryland College Park, United States

TPB.P5: IMAGE FILTERING

TPB.P5.1: A NEW CLASS OF IMAGE FILTERS WITHOUT NORMALIZATION 3294
Peyman Milanfar, Hossein Talebi, Google Inc., United States

TPB.P5.2: HARDWARE-EFFICIENT DEBANDING AND VISUAL ENHANCEMENT FILTER FOR INVERSE TONE MAPPED HIGH DYNAMIC RANGE IMAGES AND VIDEOS 3299
Qing Song, University of California, San Diego, United States; Guan-Ming Su, Dolby Laboratories Inc., United States; Pamela Cosman, University of California, San Diego, United States

TPB.P5.4: EDGE-AWARE IMAGE SMOOTHING USING COMMUTE TIME DISTANCES 3304
Youngjung Kim, Changjae Oh, Kwanghoon Sohn, Yonsei University, Republic of Korea

TPB.P5.5: CONSTANT TIME BILATERAL FILTERING FOR COLOR IMAGES 3309
Wei-Chih Tu, Ying-An Lai, Shao-Yi Chien, National Taiwan University, Taiwan

TPB.P5.6: IMAGE REGULARIZATION WITH MULTIPLE MORPHOLOGICAL GRADIENT PRIORS 3314
Makoto Nakashizuka, Chiba Institute of Technology, Japan

TPB.P5.7: CONSTANT-TIME BILATERAL FILTER USING SPECTRAL DECOMPOSITION 3319
Kenjiro Sugimoto, Waseda University, Japan; Toby P Breckon, Durham University, United Kingdom; Sei-ichiro Kamata, Waseda University, Japan

TPB.P6: VIDEO ANALYSIS AND UNDERSTANDING II

TPB.P6.1: BLOCK BASED VIDEO ALIGNMENT WITH LINEAR TIME AND SPACE COMPLEXITY 3324
Armin Kappeler, Michael Iliadis, Northwestern University, United States; Haohong Wang, TCL Research America, United States; Aggelos K. Katsaggelos, Northwestern University, United States

TPB.P6.2: DIVERSITY PROMOTING ONLINE SAMPLING FOR STREAMING VIDEO SUMMARIZATION 3329
Rushil Anirudh, IBM Almaden Research Center, United States; Ahnaf Masroor, Pavan Turaga, Arizona State University, United States

TPB.P6.3: FAST-FORWARD VIDEO BASED ON SEMANTIC EXTRACTION 3334
Washington Luís Souza Ramos, Michel Melo Silva, Mario Fernando Montenegro Campos, Erickson Rangel Nascimento, Universidade Federal de Minas Gerais, Brazil

TPB.P6.4: A POISSON PROCESS MODEL FOR ACTIVITY FORECASTING 3339
Tahmida Mahmud, Mahmudul Hasan, University of California, Riverside, United States; Anirban Chakraborty, Nanyang Technological University, Singapore; Amit K. Roy-Chowdhury, University of California, Riverside, United States

TPB.P6.5: ROLE OF HEVC CODING ARTIFACTS ON GAZE PREDICTION IN INTERACTIVE VIDEO STREAMING SYSTEMS 3344
Yashas Rai, Patrick Le Callet, University of Nantes, France; Gene Cheung, The Graduate University for Advanced Studies, Japan

TPB.P6.6: LOG-ENCODING ESTIMATION FOR COLOR STABILIZATION OF CINEMATIC FOOTAGE 3349
Javier Vazquez-Corral, Marcelo Bertalmío, Universitat Pompeu Fabra, Spain

TPB.P6.7: ABNORMAL EVENT DETECTION USING SPATIO-TEMPORAL FEATURE AND NONNEGATIVE LOCALITY-CONSTRAINED LINEAR CODING 3354
Yu Zhao, Lei Zhou, Keren Fu, Jie Yang, Shanghai Jiao Tong University, China

TPB.P6.8: SEMANTIC HIGHLIGHT RETRIEVAL 3359
Kuo-Hao Zeng, Yen-Chen Lin, National Tsing Hua University, Taiwan; Ali Farhadi, University of Washington, United States; Min Sun, National Tsing Hua University, Taiwan

TPB.P6.9: BEYOND CAPTION TO NARRATIVE: VIDEO CAPTIONING WITH MULTIPLE SENTENCES 3364
Andrew Shin, Katsunori Ohnishi, Tatsuya Harada, The University of Tokyo, Japan

TPB.P6.10: A REALTIME FUSION ALGORITHM OF VISIBLE AND INFRARED VIDEOS BASED ON SPECTRUM CHARACTERISTICS 3369
Jiawei Wu, Hai-Miao Hu, Yuanyuan Gao, Beihang University, China

TPB.P7: MEDICAL IMAGE PROCESSING

TPB.P7.1: LABEL INFERENCE ENCODED WITH LOCAL AND GLOBAL PATCH PRIORS 3374
Siqi Bao, Albert Chung, Hong Kong University of Science and Technology, Hong Kong SAR of China

TPB.P7.2: AUTOMATIC DETECTION OF DIRECT RADIATION FOR DIGITAL FLUOROSCOPY OPTIMIZATION 3379
Yongjian Yu, University of Virginia, United States; Jue Wang, Union College, United States; Scott T. Acton, University of Virginia, United States

TPB.P7.3: MULTISCALE NAKAGAMI PARAMETRIC IMAGING FOR IMPROVED LIVER TUMOR LOCALIZATION ..... N/A
Omar Al-Kadi, University of Jordan, Jordan

TPB.P7.4: AUTOMATED CELL INDIVIDUALIZATION AND COUNTING IN CEREBRAL MICROSCOPIC IMAGES 3389
Zhenzhen You, Michel E. Vandenberghe, Yael Balbastre, Nicolas Souedet, Philippe Hantraye, Caroline Jan, Anne-Sophie Herard, Thierry Delzescaux, Commissariat à l'énergie atomique et aux énergies alternatives, France

TPB.P7.5: ACTIVE-DISC-BASED KALMAN FILTER TECHNIQUE FOR TRACKING OF BLOOD CELLS IN MICROFLUIDIC CHANNELS 3394
Badarish Colathur Arvind, Georgia Institute of Technology, United States; Sujith Kumar Nagaraj, R.V. College of Engineering, India; Chandra Sekhar Seelamantula, Sai Siva Gorthi, Indian Institute of Science, India

TPB.P7.6: A RANDOM FOREST-BASED FRAMEWORK FOR 3D KIDNEY SEGMENTATION FROM DYNAMIC CONTRAST-ENHANCED CT IMAGES 3399
Fahmi Khalifa, Ahmed Soliman, Amy Dwyer, University of Louisville, United States; Georgy Gimel'farb, University of Auckland, Auckland, New Zealand, New Zealand; Ayman El-Baz, University of Louisville, United States

TPB.P7.7: QUANTITATIVE STUDY OF IMAGE FEATURES OF CLUSTERED MICROCALCIFICATIONS IN FOR-PRESENTATION MAMMOGRAMS 3404
Juan Wang, Yongyi Yang, Illinois Institute of Technology, United States; Robert Nishikawa, University of Pittsburgh, United States

TPB.P7.8: CASE-BASED DECISION STRATEGY USING OUTLIER PROBABILITY IN DETECTION OF MICROCALCIFICATIONS IN MAMMOGRAPHIC LESIONS 3409
Maria V. Sainz de Cea, Yongyi Yang, Illinois Institute of Technology, United States

TPB.P7.9: A NOVEL CLASSIFICATION SYSTEM FOR DYSPLASTIC NEVUS AND MALIGNANT MELANOMA 3414
Mutlu Mete, Nikolay Sirakov, Texas A&M University -Commerce, United States; John Griffin, Alan Menter, Baylor University, United States

TPB.P7.10: CONGENITAL HEART DISEASE (CHD) DISCRIMINATION IN FETAL ECHOCARDIOGRAM BASED ON 3D FEATURE FUSION 3419
Liqun Ji, Yun Gu, Shanghai Jiao Tong University, China; Kun Sun, Xin Hua Hospital Affiliated to Shanghai Jiao Tong University School of Medicine, China; Jie Yang, Yu Qiao, Shanghai Jiao Tong University, China

TPB.P8: STEREO MATCHING

TPB.P8.1: CONVOLUTIONAL NEURAL NETWORK USING MULTI-SCALE INFORMATION FOR STEREO MATCHING COST COMPUTATION 3424
Jiahui Chen, Chun Yuan, Graduate School at Shenzhen, Tsinghua University, China

TPB.P8.2: ADAPTIVE SMOOTHNESS CONSTRAINTS FOR EFFICIENT STEREO MATCHING USING TEXTURE AND EDGE INFORMATION 3429
Kyung-Rae Kim, Chang-Su Kim, Korea University, Republic of Korea

TPB.P8.3: A REGULARIZATION FRAMEWORK FOR STEREO MATCHING USING IGMRF PRIOR AND SPARSENESS LEARNED FROM AUTOENCODER. 3434
Sonam Nahar, The Lakshmi Niwas Mittal Institute of Information Technology, India; Manjunath V. Joshi, Dhirubhai Ambani Institute of Information and Communication Technology, India

TPB.P8.4: GENERALIZED DYNAMIC OBJECT REMOVAL FOR DENSE STEREO VISION BASED SCENE MAPPING USING SYNTHESISED OPTICAL FLOW 3439
Oliver Hamilton, Toby P Breckon, Durham University, United Kingdom

TPB.P8.5: DEPTH ESTIMATION FROM FOCUS AND DISPARITY 3444
Arnav Acharyya, Dustin Hudson, Ka Wai Chen, Tianjia Feng, Chih-Yin Kan, Truong Nguyen, University of California, San Diego, United States

TPB.P8.6: DISPARITY REFINEMENT BASED ON SEGMENT-TREE AND FAST WEIGHTED MEDIAN FILTER 3449
Wenxuan Wu, Li Li, Weiqi Jin, Beijing Institute of Technology, China

TPB.P8.7: ANCC FLOW: ADAPTIVE NORMALIZED CROSS-CORRELATION WITH EVOLVING GUIDANCE AGGREGATION FOR DENSE CORRESPONDENCE ESTIMATION 3454
Seungryong Kim, Yonsei University, Republic of Korea; Dongbo Min, Chungnam National University, Republic of Korea; Kwanghoon Sohn, Yonsei University, Republic of Korea

TPB.P8.8: FAST WEIGHTED COST PROPAGATION WITH SMOOTHNESS CONSTRAINT ON A TREE 3459
Qingqing Yang, Lang Wang, Yigang Wang, Shengli Fan, Ningbo Institute of Technology, Zhejiang University, China

WA.L1: DEPTH CODING

WA.L1.1: DEPTH MAP CODING WITH ELASTIC CONTOURS AND 3D SURFACE PREDICTION 1106
Marco Calemme, Télécom ParisTech, France; Pietro Zanuttigh, Simone Milani, University of Padova, Italy; Marco Cagnazzo, Béatrice Pesquet-Popescu, Télécom ParisTech, France

WA.L1.2: ATTENTION-WEIGHTED DEPTH MAP RATE-ALLOCATION IN FREE-VIEWPOINT TELEVISION 1111
Camilo Dorea, University of Brasilia, Brazil; Ricardo de Queiroz, Universidade de Brasilia, Brazil

WA.L1.3: COMPLEXITY REDUCTION FOR 3D-HEVC DEPTH MAP CODING BASED ON EARLY SKIP AND EARLY DIS SCHEME 1116
Ruhan Conceição, Giovanni Avila, Guilherme Corrêa, Marcelo Porto, Bruno Zatt, Luciano Agostini, Federal University of Pelotas, Brazil

WA.L1.4: FAST ALGORITHM FOR PREDICTION UNIT AND MODE DECISIONS OF INTRA DEPTH CODING IN 3D-HEVC 1121
Ruixue Guo, Gang He, Yunsong Li, Keyan Wang, Xidian University, China

WA.L1.5: LOW COMPLEXITY DEPTH INTRA CODING COMBINING FAST INTRA MODE AND FAST CU SIZE DECISION IN 3D-HEVC 1126
Kuan-Kai Peng, Jui-Chiu Chiang, Wen-Nung Lie, National Chung Cheng University, Taiwan

WA.L1.6: FAST ALGORITHM BASED ON SOLE- AND MULTI-DEPTH MEASUREMENTS FOR HEVC INTRA CODING 1131
Gang He, Jing Hu, Yunsong Li, Xidian University, China; Wenxin Yu, Southwest University of Science and Technology, China

WA.L2: VIDEO SUPER-RESOLUTION

WA.L2.1: CONFIDENCE-AWARE LEVENBERG-MARQUARDT OPTIMIZATION FOR JOINT MOTION ESTIMATION AND SUPER-RESOLUTION 1136
Cosmin Bercea, Andreas Maier, Thomas Köhler, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

WA.L2.2: FAST VIDEO SUPER-RESOLUTION VIA APPROXIMATE NEAREST NEIGHBOR SEARCH 1141
Yi-Ting Chen, Wei-Chih Tu, Shao-Yi Chien, Taiwan, Taiwan

WA.L2.3: SUPER-RESOLUTION OF HEVC VIDEOS VIA CONVEX OPTIMIZATION 1145
Benoit Boyadjis, LTCI, CNRS, Télécom Paristech, Université - Thales Communications & Security, France; Béatrice Pesquet-Popescu, Frédéric Dufaux, LTCI, CNRS, Télécom Paristech, Université, France; Cyril Bergeron, Thales Communications & Security, France

WA.L2.4: SUPER-RESOLUTION OF COMPRESSED VIDEOS USING CONVOLUTIONAL NEURAL NETWORKS 1150
Armin Kappeler, Seunghwan Yoo, Qiqin Dai, Aggelos K. Katsaggelos, Northwestern University, United States

WA.L2.5: BILATERAL VIDEO SUPER-RESOLUTION USING NON-LOCAL MEANS WITH ADAPTIVE PARAMETERS 1155
Yawei Li, Xiaofeng Li, Zhizhong Fu, Xiuxia Yin, Yufei Zhao, University of Electronic Science and Technology of China, China

WA.L2.6: TRILATERAL FILTERING -BASED HYBRID UP-SAMPLING IN DUAL DOMAINS FOR SINGLE VIDEO FRAME SUPER RESOLUTION 1160
Zhenyu Wu, University of Electronic Science and Technology of China, China; Hong Hu, Huawei Technologies, China

WA.L3: CAMERA CALIBRATION

WA.L3.1: MULTIMODE CAMERA CALIBRATION 1165
Andrey Bushnevskiy, Lorenzo Sorgi, Technicolor R&I, Germany; Bodo Rosenhahn, Leibniz Universität Hannover, Germany

WA.L3.2: THE COMMON SELF-POLAR TRIANGLE OF SEPARATE CIRCLES: PROPERTIES AND APPLICATIONS TO CAMERA CALIBRATION 1170
Haifei Huang, Hong Kong Baptist University; United International College, BNU-HKBU, China; Hui Zhang, United International College, BNU-HKBU, China; Yiu-Ming Cheung, Hong Kong Baptist University; United International College, BNU-HKBU, China

WA.L3.3: HIGH-PRECISION MULTI-VIEW CAMERA CALIBRATION USING A ROTATING STAGE 1175
Evan Levine, Manuel Martinello, Mahdi Nezamabadi, Canon USA Inc., United States

WA.L3.4: MARKER BASED SIMPLE NON-OVERLAPPING CAMERA CALIBRATION 1180
Fangda Zhao, Toru Tamaki, Takio Kurita, Bisser Raytchev, Kazufumi Kaneda, Hiroshima University, Japan

WA.L3.5: ROBUST MOVING CAMERA CALIBRATION FOR SYNTHESIZING FREE VIEWPOINT SOCCER VIDEO 1185
Qiang Yao, Keisuke Nonaka, Hiroshi Sankoh, Sei Naito, KDDI R&D Laboratory, Japan

WA.L3.6: A PRACTICAL MEANS FOR THE OPTIMIZATION OF STRUCTURED LIGHT SYSTEM CALIBRATION PARAMETERS 1190
Yuping Ye, Zhan Song, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China

WA.L4: CROWD PROCESSING

WA.L4.1: CROWD BEHAVIOR IDENTIFICATION 1195
Mohib Ullah, Norwegian University of Science and Technology, Norway; Habib Ullah, COMSATS Institute of Science and Technology, Pakistan; Nicola Conci, Francesco G.B. De Natale, University of Trento, Italy

WA.L4.2: A TRAJECTORY CLUSTERING APPROACH TO CROWD FLOW SEGMENTATION IN VIDEOS 1200
Rahul Sharma, Tanaya Guha, Indian Institute of Technology Kanpur, India

WA.L4.3: MOTION SKETCH BASED CROWD VIDEO RETRIEVAL VIA MOTION STRUCTURE CODING 1205
Shuang Wu, Shanghai Jiao Tong University, China; Hang Su, Tsinghua University, China; Shibao Zheng, Hua Yang, Qin Zhou, Shanghai Jiao Tong University, China

WA.L4.4: PEDESTRIAN DETECTION IN CROWDED SCENES VIA SCALE AND OCCLUSION ANALYSIS 1210
Lu Wang, Lisheng Xu, Northeastern University, China; Ming-Hsuan Yang, University of California, Merced, United States

WA.L4.5: END-TO-END CROWD COUNTING VIA JOINT LEARNING LOCAL AND GLOBAL COUNT 1215
Chong Shang, Haizhou Ai, Tsinghua University, China; Bo Bai, Huawei, China

WA.L4.6: JOINT CROWD DETECTION AND SEMANTIC SCENE MODELING USING A GESTALT LAWS-BASED SIMILARITY 1220
Weiqi Zhao, Zhang Zhang, Kaiqi Huang, Chinese Academy of Sciences, China

WA.L5: BIOMEDICAL IMAGE AND VIDEO PROCESSING

WA.L5.1: MOTION BASED DETECTION OF RESPIRATION RATE IN INFANTS USING VIDEO 1225
Daniel Myklatun Tveit, Kjersti Engan, Ivar Austvoll, Øyvind Meinich-Bache, University of Stavanger, Norway

WA.L5.2: SAPPHIRE: STOCHASTICALLY ACQUIRED PHOTOPLETHYSMOGRAM FOR HEART RATE INFERENCE IN REALISTIC ENVIRONMENTS 1230
Brendan Chwyl, Audrey Chung, Robert Amelard, Jason Deglint, David A. Clausi, Alexander Wong, University of Waterloo, Canada

WA.L5.3: AUTOMATIC RECOGNITION OF MOVEMENT PATTERNS IN THE VOJTA-THERAPY USING RGB-D DATA 1235
Muhammad Hassan Khan, Jullien Helsper, Zeyd Boukhers, Marcin Grzegorzek, University of Siegen, Germany

WA.L5.4: AUTOMATING THE MEASUREMENT OF PHYSIOLOGICAL PARAMETERS: A CASE STUDY IN THE IMAGE ANALYSIS OF CILIA MOTION 1240
Elodie Puybareau, Hugues Talbot, Emilie Bequignon, Bruno Louis, Gabriel Pelle, Jean-François Papon, André Coste, Laurent Najman, Université Paris-Est, France

WA.L5.5: ENHANCEMENT OF LOW-RESOLUTION HEP-2 CELL IMAGE CLASSIFICATION USING PARTIAL LEAST-SQUARE REGRESSION 1245
Asaad Anam, Muhammad Rushdi, Ahmed S. Fahmy, Cairo University, Egypt

WA.L5.6: WHEAL DETECTION FROM SKIN PRICK TEST IMAGES USING NORMALIZED-CUTS AND REGION SELECTION 1250
Orhan Bulan, PARC, United States; Yusuf Artan, Havelsan, Turkey

WA.L6: GRAPH-BASED METHODS FOR IMAGE SEGMENTATION

WA.L6.1: PROJECTIVE NON-NEGATIVE MATRIX FACTORIZATION FOR UNSUPERVISED GRAPH CLUSTERING 1254
Christos Bampis, University of Texas at Austin, United States; Petros Maragos, National Technical University of Athens, Greece; Alan Bovik, University of Texas at Austin, United States

WA.L6.2: REDUCED-COMPLEXITY IMAGE SEGMENTATION UNDER PARALLEL MARKOV RANDOM FIELD FORMULATION USING GRAPH PARTITIONING 1259
Talita Perciano, Daniela Ushizima, E. Wes Bethel, Lawrence Berkeley National Laboratory, United States; Yariv Mizrahi, University of British Columbia, Canada; Dilworth Parkinson, Lawrence Berkeley National Laboratory, United States; James Sethian, University of California, Berkeley, United States

WA.L6.4: MULTILEVEL AFFINITY GRAPH FOR UNSUPERVISED IMAGE SEGMENTATION 1264
Ang Li, Xiuying Wang, The University of Sydney, Australia; Ke Yan, the University of Sydney, Australia; Changyang Li, Dagan Feng, The University of Sydney, Australia

WA.L6.5: WEAKLY SUPERVISED SEMANTIC SEGMENTATION WITH SUPERPIXEL EMBEDDING 1269
Frank Z. Xing, Erik Cambria, Nanyang Technological University, Singapore; Win-Bin Huang, Yang Xu, Peking University, China

WA.L6.6: SEA–LAND SEGMENTATION VIA HIERARCHICAL REGION MERGING AND EDGE DIRECTED GRAPH CUT .....N/A
Dongcai Cheng, Gaofeng Meng, Chunhong Pan, Institute of Automation, Chinese Academy of Sciences, China

WA.L7: POSE ESTIMATION

WA.L7.1: HUMAN POSE ESTIMATION USING TWO RGB-D SENSORS 1279
Wanxin Xu, Po-chang Su, Sen-ching Samson Cheung, University of Kentucky, United States

WA.L7.2: A STRONG BILAYER APPEARANCE MODEL FOR HUMAN POSE ESTIMATION FROM A HIGH FREEDOM STILL IMAGE 1284
Chengyu Guo, Songsong Ruan, Xiaohui Liang, Beihang University, China

WA.L7.3: 3D HEAD POSE ESTIMATION WITH CONVOLUTIONAL NEURAL NETWORK TRAINED ON SYNTHETIC IMAGES 1289
Xiabing Liu, Wei Liang, Yumeng Wang, Shuyang Li, Mingtao Pei, Beijing Institute of Technology, China

WA.L7.4: POSE-INDEXED BASED MULTI-VIEW METHOD FOR FACE ALIGNMENT 1294
Hui Qi, Qingjie Zhao, Xiongpeng Wang, Mingtao Pei, Beijing Institute of Technology, China

WA.L7.5: VIDEO POSE ESTIMATION VIA MEDIUM GRANULARITY GRAPHICAL MODEL WITH SPATIAL-TEMPORAL SYMMETRIC CONSTRAINT PART MODEL 1299
Qingxuan Shi, Huijun Di, Yao Lu, Ming Qin, Beijing Institute of Technology, China; Xuedong Tian, Hebei University, China

WA.L7.6: LOCALIZATION AND POSE ESTIMATION OF TEXTURELESS OBJECTS FOR AUTONOMOUS EXPLORATION MISSIONS 1304
Nicolai Wojke, Frank Neuhaus, Dietrich Paulus, University of Koblenz-Landau, Germany

WA.L8: INTEGRATIVE APPLICATIONS: HEALTH, WILDLIFE

WA.L8.1: OPTICAL DISTORTION CORRECTION FOR EYEGLASSES-TYPE WEARABLE DEVICE USING MULTI-MIRROR ARRAY 1309
Takayuki Sasaki, Masahiro Baba, Toshiba Corporation, Japan

WA.L8.2: KINECT-BASED GAIT ANALYSIS FOR AUTOMATIC FRAILTY SYNDROME ASSESSMENT 1314
Elena Gianaria, Marco Grangetto, Mattia Roppolo, Anna Mulasso, Emanuela Rabaglietti, University of Turin, Italy

WA.L8.3: QUANTITATIVE ANALYSIS OF FACIAL PARALYSIS BASED ON THREE-DIMENSIONAL FEATURES 1319
Truc Hung Ngo, Yen-Wei Chen, Masataka Seo, Ritsumeikan University, Japan; Naoki Matsushiro, Osaka Police Hospital, Japan; Wei Xiong, Institute for Infocomm Research, Singapore

WA.L8.4: TOWARDS AUTOMATIC ASSESSMENT OF COMPULSIVE HOARDING FROM IMAGES 1324
Alexander Tooke, Janusz Konrad, Jordana Muroff, Boston University, United States

WA.L8.5: DIMENSIONALITY REDUCTION OF BRAIN IMAGING DATA USING GRAPH SIGNAL PROCESSING 1329
Rui Liu, Hossein Nejati, Ngai-Man Cheung, Singapore University of Technology and Design, Singapore

WA.L8.6: FINDING AREAS OF MOTION IN CAMERA TRAP IMAGES 1334
Agnieszka Miguel, Sara Beery, Erica Flores, Loren Klemesrud, Seattle University, United States; Rana Bayrakcismith, Panthera, United States

WA.L9: CLASSIFICATION III

WA.L9.1: UGRAD: A GRAPH-THEORETIC FRAMEWORK FOR CLASSIFICATION OF ACTIVITY WITH COMPLEMENTARY GRAPH BOUNDARY DETECTION 1339
Tamal Batabyal, Scott T. Acton, Andrea Vaccari, University of Virginia, United States

WA.L9.2: DEEPER AND WIDER FULLY CONVOLUTIONAL NETWORK COUPLED WITH CONDITIONAL RANDOM FIELDS FOR SCENE LABELING 1344
Kien Nguyen Thanh, Clinton Fookes, Sridha Sridharan, Queensland University of Technology, Australia

WA.L9.3: CONTEXTUAL MULTI-SCALE IMAGE CLASSIFICATION ON QUADTREE 1349
Ihsen Hedhli, INRIA, France; Gabriele Moser, Sebastiano B. Serpico, University of Genoa, Italy; Josiane Zerubia, INRIA, France

WA.L9.4: LEVERAGING 2D AND 3D CUES FOR FINE-GRAINED OBJECT CLASSIFICATION 1354
Xiaolong Wang, Robert (Bo) Li, Jon Currey, Samsung, United States

WA.L9.5: MULTI-SCALE FEATURE EXTRACTION APPROACHES FOR CLASSIFICATION OF INSAR AND PHASE GRADIENT INSAR IMAGES 1359
Nazli Deniz Cagatay, Mihai Datcu, German Aerospace Center, Germany

WA.L9.6: NON-PARAMETRIC BOUNDS ON THE NEAREST NEIGHBOR CLASSIFICATION ACCURACY BASED ON THE HENZE-PENROSE METRIC 1364
Sally Ghanem, Erik Skau, Hamid Krim, North Carolina State University, United States; Hamilton Scott Clouse, Wesam Sakla, Air Force Research Lab, United States

WA.P1: TRACKING III

WA.P1.1: SIMPLE ONLINE AND REALTIME TRACKING 3464
Alex Bewley, Zongyuan Ge, Queensland University of Technology, Australia; Lionel Ott, Fabio Ramos, University of Sydney, Australia; Ben Upcroft, Queensland University of Technology, Australia

WA.P1.2: INDEPENDENT SELECTION AND VALIDATION FOR TRACKING-LEARNING-DETECTION 3469
Helena Maia, Fábio Oliveira, Marcelo Vieira, Universidade Federal de Juiz de Fora, Brazil

WA.P1.3: VISUAL TRACKING BY THE COMBINATION OF GLOBAL DETECTOR AND LOCAL IMAGE PATCH MATCHING 3474
Li Sun, Kai Qu, Shanshan Xu, Song Qiu, East China Normal University, China

WA.P1.4: ROBSTRUCK: IMPROVING OCCLUSION HANDLING OF STRUCTURED TRACKING-BY-DETECTION USING ROBUST KALMAN FILTER 3479
Ivan Bogun, Eraldo Ribeiro, Florida Institute of Technology, United States

WA.P1.5: ROBUST ONLINE MULTIPLE OBJECT TRACKING BASED ON THE CONFIDENCE-BASED RELATIVE MOTION NETWORK AND CORRELATION FILTER 3484
Se-Hoon Park, Kyuewang Lee, Kuk-Jin Yoon, Gwangju Institute of Science and Technology, Republic of Korea

WA.P1.7: ONLINE MULTI-MODEL PARTICLE FILTER-BASED TRACKING TO STUDY BEDLOAD TRANSPORT 3489
Hugo Lafaye de Micheaux, Irstea, France; Christophe Ducottet, University of Saint-Etienne, France; Philippe Frey, Irstea, France

WA.P1.8: A SPARSE SAMPLE COLLECTION AND REPRESENTATION METHOD USING RE-WEIGHTING AND DYNAMICALLY UPDATING OMP FOR FISH TRACKING 3494
YiHao Hsiao, ChaurChin Chen, National Tsing Hua University, Taiwan

WA.P2: RECONSTRUCTION

WA.P2.1: CONVEX CLUSTERING AND RECOVERY OF PARTIALLY OBSERVED DATA 3498
Sunrita Poddar, Mathews Jacob, The University of Iowa, United States

WA.P2.2: VISIBILITY ESTIMATION AND JOINT INPAINTING OF LIDAR DEPTH MAPS 3503
Marco Bevilacqua, Jean-François Aujol, Université de Bordeaux, France; Mathieu Brédif, Université Paris-Est, IGN, France; Aurélie Bugeau, Université de Bordeaux, France

WA.P2.3: BOUNDED SPARSE PHOTON-LIMITED IMAGE RECOVERY 3508
Lasith Adhikari, Roummel Marcia, University of California, Merced, United States

WA.P2.4: INEXACT HALF-QUADRATIC OPTIMIZATION FOR IMAGE RECONSTRUCTION 3513
Marc Robini, Yuemin Zhu, CREATIS, INSA-Lyon, France; Xudong Lv, Wanyu Liu, Harbin Institute of Technology, China

WA.P2.5: IMAGE RESTORATION AND RECONSTRUCTION USING VARIABLE SPLITTING AND CLASS-ADAPTED IMAGE PRIORS 3518
Afonso Teodoro, José Bioucas-Dias, Mário Figueiredo, Instituto Superior Técnico, Portugal

WA.P2.6: A HYBRID MARKOV RANDOM FIELD MODEL FOR BILEVEL CUTSET RECONSTRUCTION 3523
Shengxin Zha, Thrasyvoulos Pappas, Northwestern University, United States

WA.P2.7: WAVELET CONTRAST-BASED IMAGE INPAINTING WITH SPARSITY-DRIVEN INITIALIZATION 3528
Philipp Tiefenbacher, Michael Sirch, Mohammadreza Babaee, Gerhard Rigoll, Technical University of Munich, Germany

WA.P2.9: X-RAY IMAGE SEPARATION VIA COUPLED DICTIONARY LEARNING 3533
Nikos Deligiannis, Vrije Universiteit Brussel - iMinds, Belgium; Joao Mota, University College London, United Kingdom; Bruno Cornelis, Vrije Universiteit Brussel - iMinds, Belgium; Miguel Rodrigues, University College London, United Kingdom; Ingrid Daubechies, Duke University, United States

WA.P2.10: EYE GAZE ANALYSIS AND LEARNING-TO-RANK TO OBTAIN THE MOST PREFERRED RESULT IN IMAGE INPAINTING 3538
Mariko Isogawa, Dan Mikami, Kosuke Takahashi, Akira Kojima, NTT Corporation, Japan

WA.P3: TEXTURE REPRESENTATION AND ANALYSIS

WA.P3.1: TEXTURE IMAGE CLASSIFICATION WITH RIEMANNIAN FISHER VECTORS 3543
Ioana Ilea, Université de Bordeaux, Laboratoire IMS, Group Signal et Image; Technical University of Cluj-Napoca, France; Lionel Bombrun, Christian Germain, Université de Bordeaux, Laboratoire IMS, Group Signal et Image, France; Romulus Terebes, Monica Borda, Technical University of Cluj-Napoca, Romania; Yannick Berthoumieu, Université de Bordeaux, Laboratoire IMS, Group Signal et Image, France

WA.P3.2: COMPLETED LOCAL DERIVATIVE PATTERN FOR ROTATION INVARIANT TEXTURE CLASSIFICATION 3548
Yuting Hu, Zhiling Long, Ghassan AlRegib, Georgia Institute of Technology, United States

WA.P3.3: STRUCTURE TENSOR LOG-EUCLIDEAN STATISTICAL MODELS FOR TEXTURE ANALYSIS 3553
Roxana-Gabriela Rosu, Jean-Pierre Da Costa, Univ. Bordeaux, IMS Laboratory, France; Marc Donias, CNRS, IMS, France

WA.P3.4: HYPERBOLIC WAVELET LEADERS FOR ANISOTROPIC MULTIFRACTAL TEXTURE ANALYSIS 3558
Stéphane G. Roux, Patrice Abry, ENS Lyon, France; Béatrice Vedel, Université de Bretagne Sud, France; Stéphane Jaffard, Université Paris-Est - Créteil Val-de-Marne, France; Herwig Wendt, Université de Toulouse, France

WA.P3.5: EDGE-BASED TEXTURE GRANULARITY DETECTION 3563
Haoyi Liang, Daniel Weller, University of Virginia, United States

WA.P3.6: A DEEP SPATIAL/SPECTRAL DESCRIPTOR OF HYPERSPECTRAL TEXTURE USING SCATTERING TRANSFORM 3568
Gianni Franchi, Jesus Angulo, MINES ParisTech, PSL-Research University, France

WA.P3.7: COLOR TEXTURE REPRESENTATION USING CIRCULAR-PROCESSING BASED HUE-LBP FOR HISTO-PATHOLOGY IMAGE ANALYSIS 3573
Xingyu Li, Konstantinos N. Plataniotis, University of Toronto, Canada

WA.P3.8: RANK-CONSTRAINED PCA FOR INTRINSIC IMAGES DECOMPOSITION 3578
Jinze Yu, University of Tokyo, Japan

WA.P3.9: INTRODUCING THE LOCALLY STATIONARY DUAL-TREE COMPLEX WAVELET MODEL 3583
James Nelson, Alexander Gibberd, University College London, United Kingdom

WA.P3.10: BAYESIAN FRAMEWORK FOR SOLVING TRANSFORM INVARIANT LOW-RANK TEXTURES 3588
Shihui Hu, Lei Yu, Menglei Zhang, Chengcheng Lv, Wuhan University, China

WA.P4: ANALYSIS AND REPRESENTATION I

WA.P4.1: INVARIANT REPRESENTATION FOR BLUR AND DOWN-SAMPLING TRANSFORMATIONS ..... N/A
Huxiang Gu, Institute of Automation, Chinese Academy of Sciences, China; Leibo Joel, Anselmi Fabio, Massachusetts Institute of Technology, United States; Chunhong Pan, Institute of Automation, Chinese Academy of Sciences, China; Tomaso Poggio, Massachusetts Institute of Technology, United States

WA.P4.2: ROTATIONAL CONTOUR SIGNATURES FOR ROBUST LOCAL SURFACE DESCRIPTION 3598
Jiaqi Yang, Qian Zhang, Ke Xian, Yang Xiao, Zhiguo Cao, Huazhong University of Science and Technology, China

WA.P4.3: HIERARCHICAL SKELETON FOR SHAPE MATCHING 3603
Aurélie Leborgne, Univ Lyon, France; Julien Mille, INSA-Centre Val de Loire, France; Laure Tougne, Univ Lyon, France

WA.P4.4: PYRAMIDAL IMAGE REPRESENTATION WITH DEFORMATION: REFORMULATION OF DOMAIN TRANSFORM AND FILTER DESIGNS 3608
Saho Yagyu, Akie Sakiyama, Yuichi Tanaka, Tokyo University of Agriculture and Technology, Japan

WA.P4.5: IMAGE DESCRIPTION THROUGH FUSION BASED RECURRENT MULTI-MODAL LEARNING 3613
Ram Manohar Oruganti, Shagan Sah, Suhas Pillai, Raymond Ptucha, Rochester Institute of Technology, United States

WA.P4.6: EFFICIENT PARAMETER OPTIMIZATION FOR EXAMPLE-BASED DESIGN OF NONSEPARABLE OVERSAMPLED LAPPED TRANSFORM 3618
Shogo Muramatsu, Masaki Ishii, Zhiyu Chen, Niigata University, Japan

WA.P4.7: AN ALTERNATIVE MATTING LAPLACIAN 3623
François Pitié, Trinity College Dublin, Ireland

WA.P4.8: A NOVEL TENSOR ALGEBRAIC APPROACH FOR HIGH-DIMENSIONAL OUTLIER DETECTION UNDER DATA MISALIGNMENT 3628
Bo Fan, Zemin Zhang, Shuchin Aeron, Tufts University, United States

WA.P5: OBJECT DETECTION

WA.P5.1: FISHER-SELECTIVE SEARCH FOR OBJECT DETECTION 3633
Ilker Buzcu, University of California, Los Angeles, United States; A. Aydin Alatan, Middle East Technical University, Turkey

WA.P5.2: WEAKLY SUPERVISED OBJECT DETECTION WITH CORRELATION AND PART SUPPRESSION 3638
Fang Wan, Pengxu Wei, Zhenjun Han, University of Chinese Academy of Sciences, China; Kun Fu, Chinese Academy of Sciences, China; Qixiang Ye, University of Chinese Academy of Sciences, China

WA.P5.3: ITERATIVE LOCALIZATION REFINEMENT IN CONVOLUTIONAL NEURAL NETWORKS FOR IMPROVED OBJECT DETECTION 3643
Kai-Wen Cheng, Yie-Tarng Chen, Wen-Hsien Fang, National Taiwan University of Science and Technology, Taiwan

WA.P5.4: CIRCLE DETECTION ON IMAGES BY LINE SEGMENT AND CIRCLE COMPLETENESS 3648
Truc Le, Ye Duan, University of Missouri, United States

WA.P5.5: FAST VISUAL OBJECT COUNTING VIA EXAMPLE-BASED DENSITY ESTIMATION 3653
Yi Wang, Yuexian Zou, Peking University, China

WA.P5.6: CNN BASED REGION PROPOSALS FOR EFFICIENT OBJECT DETECTION 3658
Jawadul H. Bappy, Amit K. Roy-Chowdhury, University of California, Riverside, United States

WA.P5.7: TEMPORAL OBJECTNESS: MODEL-FREE LEARNING OF OBJECT PROPOSALS IN VIDEO 3663
Liang Peng, Xiaojun Qi, Utah State University, United States

WA.P5.8: THE LOG-NORMAL DISTRIBUTION OF THE SIZE OF OBJECTS IN DAILY MEAL IMAGES AND ITS APPLICATION TO THE EFFICIENT REDUCTION OF OBJECT PROPOSALS 3668
Shota Horiguchi, Kiyoharu Aizawa, The University of Tokyo, Japan; Makoto Ogawa, foo.log Inc., Japan

WA.P6: DEEP LEARNING FOR DETECTION AND CLASSIFICATION II

WA.P6.1: JOINT VISUAL DENOISING AND CLASSIFICATION USING DEEP LEARNING 3673
Gang Chen, SUNY at Buffalo, United States; Yawei Li, University of Electronic Science and Technology of China, China; Sargur Srihari, SUNY at Buffalo, United States

WA.P6.2: MAX-MIN CONVOLUTIONAL NEURAL NETWORKS FOR IMAGE CLASSIFICATION 3678
Michael Blot, University Pierre and Marie Curie, France; Matthieu Cord, Nicolas Thome, Université Pierre et Marie Curie, France

WA.P6.3: FINE-TO-COARSE KNOWLEDGE TRANSFER FOR LOW-RES IMAGE CLASSIFICATION 3683
Xingchao Peng, Umass Lowell, United States; Judy Hoffman, University of California, Berkeley, United States; Stella X. Yu, International Computer Science Institute, United States; Kate Saenko, Umass Lowell, United States

WA.P6.4: ADAPTIVE DATA AUGMENTATION FOR IMAGE CLASSIFICATION 3688
Alhussein Fawzi, Ecole Polytechnique Fédérale de Lausanne, Switzerland; Horst Samulowitz, Deepak Turaga, IBM Thomas J. Watson Research Center, United States; Pascal Frossard, Ecole Polytechnique Fédérale de Lausanne, Switzerland

WA.P6.5: FINE TUNING CNNS WITH SCARCE TRAINING DATA - ADAPTING IMAGENET TO ART EPOCH CLASSIFICATION 3693
Christian Hentschel, Timur Pratama Wiradarma, Harald Sack, Hasso Plattner Institute for Software Systems Engineering, Germany

WA.P6.6: PRE-TRAINING CONVOLUTIONAL NEURAL NETWORKS: IS FINE-TUNE ALWAYS PREQUISITE? ..... N/A
Wenlei Wu, Ruiwen Wu, Xinghao Ding, Yue Huang, Xiamen University, China

WA.P6.7: CECI N'EST PAS UNE PIPE: A DEEP CONVOLUTIONAL NETWORK FOR FINE-ART PAINTINGS CLASSIFICATION 3703
Wei Ren Tan, Shinshu University, Japan; Chee Seng Chan, University of Malaya, Malaysia; Hernán E. Aguirre, Kiyoshi Tanaka, Shinshu University, Japan

WA.P6.8: ROAD CRACK DETECTION USING DEEP CONVOLUTIONAL NEURAL NETWORK 3708
Lei Zhang, Fan Yang, Yimin Daniel Zhang, Ying Julie Zhu, Temple University, United States

WA.P6.9: PLANKTON CLASSIFICATION ON IMBALANCED LARGE SCALE DATABASE VIA CONVOLUTIONAL NEURAL NETWORKS WITH TRANSFER LEARNING 3713
Hansang Lee, Minseok Park, Junmo Kim, Korea Advanced Institute of Science and Technology, Republic of Korea

WA.P6.10: FINE-GRAINED MAIZE CULTIVAR IDENTIFICATION USING FILTER-SPECIFIC CONVOLUTIONAL ACTIVATIONS 3718
Hao Lu, Zhiguo Cao, Yang Xiao, Zhiwen Fang, Yanjun Zhu, Huazhong University of Science and Technology, China

WA.P7: STATISTICAL MODELS AND LEARNING II

WA.P7.1: LEVERAGING SEED DICTIONARIES TO IMPROVE DICTIONARY LEARNING 3723
Daniel Reichman, Jordan Malof, Leslie Collins, Duke University, United States

WA.P7.2: FAST HYPOTHESIS FILTERING FOR MULTI-STRUCTURE GEOMETRIC MODEL FITTING 3728
Lokender Tiwari, Saket Anand, Indraprastha Institute of Information Technology, Delhi, India

WA.P7.3: LATENT STRUCTURAL SVM WITH MARGINAL PROBABILITIES FOR WEAKLY LABELED STRUCTURED LEARNING 3733
Shahin Rahmatollahi Namin, National ICT Australia (NICTA), Australian National University (ANU), Australia; Jose M. Alvarez, National ICT Australia, Australia; Laurent Kneip, Australian National University, Australia; Lars Petersson, National ICT Australia (NICTA), Australian National University (ANU), Australia

WA.P7.4: EFFICIENT INCREMENTAL COMPUTATION OF ATTRIBUTES BASED ON LOCALLY COUNTABLE PATTERNS IN COMPONENT TREES 3738
Dennis Jose da Silva, University of São Paulo, Brazil; Wonder Alexandre Luz Alves, Universidade Nove de Julho, Brazil; Alexandre Morimitsu, Ronaldo Fumio Hashimoto, University of São Paulo, Brazil

WA.P7.5: ROBUST SELECTION OF PARAMETRIC MOTION MODELS IN IMAGE SEQUENCES 3743
Patrick Bouthemy, Bertha Mayela Toledo Acosta, INRIA, France; Bernard Delyon, University of Rennes 1, France

WA.P7.6: RARE EVENT SIMULATION FOR MARKOV RANDOM FIELDS WITH APPLICATION TO GRAIN GROWTH IN CRYSTALS 3748
Shruthi Kubatur, Mary Comer, Purdue University, United States

WA.P7.7: SHAPING DATASETS: OPTIMAL DATA SELECTION FOR SPECIFIC TARGET DISTRIBUTIONS ACROSS DIMENSIONS 3753
Vassilios Vonikakis, Ramanathan Subramanian, Stefan Winkler, Advanced Digital Sciences Center (ADSC), Singapore

WA.P7.8: QUALITY SCORES FOR DEEP REGRESSION SYSTEMS 3758
Yaron Gurovich, Imry Kissos, Yair Hanani, FDNA inc., Israel

WA.P7.9: LEARNING DOCUMENT IMAGE BINARIZATION FROM DATA 3763
Yue Wu, Premkumar Natarajan, Stephen Rawls, Wael AbdAlmageed, Information Sciences Institute, United States

WA.P7.10: ADAPTIVE ALGORITHM SELECTION, WITH APPLICATIONS IN PEDESTRIAN DETECTION 3768
Shu Zhang, SONY Electronics Inc., United States; Qi Zhu, Amit K. Roy-Chowdhury, University of California, Riverside, United States

WA.P8: VISUAL QUALITY ASSESSMENT

WA.P8.1: A DEEP NEURAL NETWORK FOR IMAGE QUALITY ASSESSMENT 3773
Sebastian Bosse, Dominique Maniry, Thomas Wiegand, Wojciech Samek, Fraunhofer Heinrich Hertz Institute, Germany

WA.P8.2: SUBTLE CONSUMER-PHOTO QUALITY EVALUATION 3778
Michele Saad, David Nicholas, Intel Corporation, United States; Patrick McKnight, Jake Quartuccio, George Mason University, United States; Ramesh Jaladi, Philip Corriveau, Intel Corporation, United States

WA.P8.3: REDUCED-REFERENCE SYNTHESIZED-TEXTURE QUALITY ASSESSMENT BASED ON MULTI-SCALE SPATIAL AND STATISTICAL TEXTURE ATTRIBUTES 3783
S. Alireza Golestaneh, Lina J. Karam, Arizona State University, United States

WA.P8.4: MODELING THE PERCEPTUAL DISTORTION OF DYNAMIC TEXTURES AND ITS APPLICATION IN HEVC 3787
Karam Naser, Vincent Ricordel, Patrick Le Callet, University of Nantes, France

WA.P8.5: PRINT QUALITY ASSESSMENT FOR STOCHASTIC CLUSTERED-DOT HALFTONES USING COMPACTNESS MEASURES 3792
Puneet Goyal, Indraprastha Institute of Information Technology, Delhi, India; Jan Allebach, Purdue University, United States

WA.P8.6: A NEW QUALITY MODEL FOR OBJECT DETECTION USING COMPRESSED VIDEOS 3797
Lingchao Kong, Rui Dai, Yuchi Zhang, University of Cincinnati, United States

WA.P8.7: A NEW METRIC FOR JUDDER IN HIGH FRAME-RATE VIDEO 3802
Se Ri Oh, Dongchan Kim, PyeongGang Heo, HyunWook Park, Korea Advanced Institute of Science and Technology, Republic of Korea

WP.L1: NEW MODALITIES CODING

WP.L1.1: REDUNDANT FRAME STRUCTURE USING M-FRAME FOR INTERACTIVE LIGHT FIELD STREAMING 1369
Benedicte Motz, The Graduate University for Advanced Studies, Japan; Gene Cheung, National Institute of Informatics, Japan; Antonio Ortega, University of Southern California, United States

WP.L1.2: ATTRIBUTE COMPRESSION FOR SPARSE POINT CLOUDS USING GRAPH TRANSFORMS 1374
Robert Cohen, Dong Tian, Anthony Vetro, Mitsubishi Electric Research Laboratories, United States

WP.L1.3: A HIGH DYNAMIC RANGE VIDEO CODEC OPTIMIZED BY LARGE-SCALE TESTING 1379
Gabriel Eilertsen, Linköping University, Sweden; Rafal K. Mantiuk, University of Cambridge, United Kingdom; Jonas Unger, Linköping University, Sweden

WP.L1.4: RATE-DISTORTION OPTIMIZATION OF A TONE MAPPING WITH SDR QUALITY CONSTRAINT FOR BACKWARD-COMPATIBLE HIGH DYNAMIC RANGE COMPRESSION 1384
David Gommelet, ENVIVIO Inc., France; Aline Roumy, Christine Guillemot, INRIA, France; Michael Ropert, Julien Le Tanou, ENVIVIO Inc., France

WP.L1.5: LUMINANCE INDEPENDENT CHROMATICITY PREPROCESSING FOR HDR VIDEO CODING 1389
Samir Mahmalat, Nikolce Stefanoski, Daniel Luginbühl, Tunç Ozan Aydin, Aljoscha Smolic, Disney Research, Switzerland

WP.L1.6: ADAPTIVE RESIDUAL MAPPING FOR AN EFFICIENT EXTENSION LAYER CODING IN TWO-LAYER HDR VIDEO CODING 1394
Junaid Mir, Dumidu Talagala, Hemantha Arachchi, Anil Fernando, University of Surrey, United Kingdom

WP.L1.7: LDR IMAGES GENERATION WITH JPEG-XT DECODED HDR IMAGES 1399
Antonio Pinheiro, Marco Bernardo, Manuela Pereira, University of Beira Interior, Portugal

WP.L2: SINGLE-IMAGE SUPER-RESOLUTION

WP.L2.1: TURNING A DENOISER INTO A SUPER-RESOLVER USING PLUG AND PLAY PRIORS 1404
Alon Brifman, Yaniv Romano, Michael Elad, Technion, Israel

WP.L2.2: STRUCTURE PRESERVING SINGLE IMAGE SUPER-RESOLUTION 1409
Fan Yang, Don Xie, Huizhu Jia, Rui Chen, Guoqing Xiang, Wen Gao, Peking University, China

WP.L2.3: FINDING THE RIGHT EXEMPLARS FOR RECONSTRUCTING SINGLE IMAGE SUPER-RESOLUTION 1414
Jiahuan Zhou, Ying Wu, Northwestern University, United States

WP.L2.4: BOOSTING PERFORMANCE AND SPEED OF SINGLE-IMAGE SUPER-RESOLUTION BASED ON PARTITIONED LINEAR REGRESSION 1419
Anustup Choudhury, Dolby Laboratories Inc., United States; Peter van Beek, Sharp Laboratories of America, United States

WP.L2.5: LOW-RANK SPARSE REPRESENTATION FOR SINGLE IMAGE SUPER-RESOLUTION VIA SELF-SIMILARITY LEARNING 1424
Jiahe Shi, Chun Qi, Xi'an Jiaotong University, China

WP.L2.6: IMAGE SUPER-RESOLUTION VIA DUAL-MANIFOLD CLUSTERING AND SUBSPACE SIMILARITY 1429
Mohammed Al-Qizwini, Chinh Dang, Mohammad Aghagolzadeh, Hayder Radha, Michigan State University, United States

WP.L2.7: FAST IMAGE SUPER-RESOLUTION VIA MULTIPLE DIRECTIONAL TRANSFORMS 1434
Zhiyu Chen, Shogo Muramatsu, Niigata University, Japan; Yoshito Abe, Industrial Research Institute of Niigata Prefecture, Japan

WP.L2.8: A HYBRID WAVELET CONVOLUTION NETWORK WITH SPARSE-CODING FOR IMAGE SUPER-RESOLUTION 1439
Xing Gao, Hongkai Xiong, Shanghai Jiao Tong University, China

WP.L3: SS: LIGHT FIELD IMAGE PROCESSING

WP.L3.1: DISPARITY ESTIMATION FROM LIGHT FIELDS USING SHEARED EPI ANALYSIS 1444
Takahiro Suzuki, Keita Takahashi, Toshiaki Fujii, Nagoya University, Japan

WP.L3.2: RELIABLE LIGHT FIELD MULTIWINDOW DISPARITY ESTIMATION 1449
Julia Navarro, Antoni Buades, Universitat Illes Balears, Spain

WP.L3.3: A COST MINIMIZATION WITH LIGHT FIELD IN SCENE DEPTH MAP ESTIMATION 1454
Yuchen Zhang, Hongkai Xiong, Shanghai Jiao Tong University, China

WP.L3.4: A SIMPLE AND ROBUST SUPER RESOLUTION METHOD FOR LIGHT FIELD IMAGES 1459
Yunlong Wang, Guangqi Hou, Zhenan Sun, Institute of Automation, Chinese Academy of Sciences, China; Zilei Wang, University of Science and Technology of China, China; Tieniu Tan, Institute of Automation, Chinese Academy of Sciences, China

WP.L3.5: RECTIFYING PROJECTIVE DISTORTION IN 4D LIGHT FIELD 1464
Chunping Zhang, Zhe Ji, Qing Wang, Northwestern Polytechnical University, China

WP.L3.6: SEGMENTATION OF LIGHT FIELD IMAGE WITH THE STRUCTURE TENSOR 1469
Hao Sheng, Senyou Deng, Shuo Zhang, Chao Li, Zhang Xiong, Beihang University, China

WP.L3.7: LFHOG: A DISCRIMINATIVE DESCRIPTOR FOR LIVE FACE DETECTION FROM LIGHT FIELD IMAGE 1474
Zhe Ji, Hao Zhu, Qing Wang, Northwestern Polytechnical University, China

WP.L3.8: SHEARLET-DOMAIN LIGHT FIELD RECONSTRUCTION FOR HOLOGRAPHIC STEREOGRAM GENERATION 1479
Erdem Sahin, Suren Vagharshakyan, Jani Mäkinen, Robert Bregovic, Atanas Gotchev, Tampere University of Technology, Finland

WP.L4: SS: CLOUD-BASED PROCESSING FOR HIGH QUALITY MEDIA STREAMING

WP.L4.1: COMPLEXITY-BASED CONSISTENT-QUALITY ENCODING IN THE CLOUD 1484
Jan De Cock, Zhi Li, Megha Manohara, Anne Aaron, Netflix, United States

WP.L4.2: GUIDED JUST-IN-TIME TRANSCODING FOR CLOUD-BASED VIDEO PLATFORMS 1489
Thomas Rusert, Kenneth Andersson, Ruoyang Yu, Harald Nordgren, Ericsson, Sweden

WP.L4.3: PEAK BITRATE REDUCTION FOR MULTI-PARTY VIDEO CONFERENCING USING SHVC 1494
Yago Sanchez de la Fuente, Robert Skupin, Cornelius Hellge, Thomas Schierl, Fraunhofer Heinrich Hertz Institute, Germany

WP.L4.4: A CLOUD-BASED LARGE-SCALE DISTRIBUTED VIDEO ANALYSIS SYSTEM 1499
Yongzhe Wang, Wei-Ta Chen, Huahui Wu, Anil Kokaram, Jaron Schaeffer, Google Inc., United States

WP.L4.5: CLOUD-BASED VIDEO STREAMING WITH SYSTEMATIC MOBILE DISPLAY ENERGY SAVING: RATE-DISTORTION-DISPLAY ENERGY PROFILING 1504
Qian Liu, Dalian University of Technology, China; Zhisheng Yan, Chang Wen Chen, State University of New York at Buffalo, United States

WP.L4.6: MCL-JCV: A JND-BASED H.264/AVC VIDEO QUALITY ASSESSMENT DATASET 1509
Haiqiang Wang, Weihao Gan, Sudeng Hu, Joe Yuchieh Lin, Lina Jin, Longguang Song, Ping Wang, University of Southern California, United States; Ioannis Katsavounidis, Anne Aaron, Netflix, United States; C.-C. Jay Kuo, University of Southern California, United States

WP.L4.7: CONTENT-INDEPENDENT AND LOSS-PATTERN-AWARE DISTORTION EVALUATION FOR STREAMING MEDIA 1514
Xiaoqing Zhu, Wai-tian Tan, John Apostolopoulos, Cisco Systems, United States; Ahmed Badr, Ashish Khisti, University of Toronto, Canada

WP.L4.8: QUEUE-ALLOCATION OPTIMIZATION FOR ADAPTIVE VIDEO STREAMING OVER SOFTWARE DEFINED NETWORKS WITH MULTIPLE SERVICE-LEVELS 1519
K. Tolga Bagci, Kemal E. Sahin, A. Murat Tekalp, Koç University, Turkey

WP.L5: SS: GRAPH-BASED MULTIDIMENSIONAL SIGNAL PROCESSING

WP.L5.1: GAUSSIAN PROCESS TRANSFORMS 1524
Philip Chou, Microsoft, United States; Ricardo Queiroz, Universidade de Brasilia, Brazil

WP.L5.2: A NOVEL DESIGN OF BIORTHOGONAL GRAPH WAVELET FILTER BANKS 1529
Xi Zhang, The University of Electro-Communications, Japan

WP.L5.3: SUBSPACE-SPARSIFYING STEERABLE DISCRETE COSINE TRANSFORM FROM GRAPH FOURIER TRANSFORM 1534
Giulia Fracastoro, Enrico Magli, Politecnico di Torino, Italy

WP.L5.4: EDGE ADAPTIVE GRAPH-BASED TRANSFORMS: COMPARISON OF STEP/RAMP EDGE MODELS FOR VIDEO COMPRESSION 1539
Yung-Hsuan Chao, Hilmi E. Egilmez, Antonio Ortega, University of Southern California, United States; Sehoon Yea, Bumshik Lee, LG Electronics Inc., Republic of Korea

WP.L5.5: OPTIMIZATION AND COMPRESSION OF GEOMETRY DISCONTINUITIES FOR GRAPH-BASED REPRESENTATION OF PIECEWISE SMOOTH MEDIA 1544
Aous Naman, David Taubman, Reji Mathew, The University of New South Wales, Australia

WP.L5.6: JOINT DENOISING / COMPRESSION OF IMAGE CONTOURS VIA GEOMETRIC PRIOR AND VARIABLE-LENGTH CONTEXT TREE 1549
Amin Zheng, Hong Kong University of Science and Technology, Hong Kong SAR of China; Gene Cheung, National Institute of Informatics, Japan; Dinei Florencio, Microsoft Research, United States

WP.L5.7: GRAPH-BASED REPRESENTATION FOR MULTIVIEW IMAGES WITH COMPLEX CAMERA CONFIGURATIONS 1554
Xin Su, Thomas Maugey, Christine Guillemot, Centre INRIA Rennes – Bretagne Atlantique, France

WP.L5.8: DEBLURRING OF POINT CLOUD ATTRIBUTES IN GRAPH SPECTRAL DOMAIN 1559
Kaoru Yamamoto, Masaki Onuki, Yuichi Tanaka, Tokyo University of Agriculture and Technology, Japan

WP.L6: COMPUTATIONAL IMAGING II

WP.L6.2: SPATIAL PHASE-SWEEP: INCREASING TEMPORAL RESOLUTION OF TRANSIENT IMAGING USING A LIGHT SOURCE ARRAY 1564
Ryuichi Tadano, Sony Corporation, Japan; Adithya Pediredla, Rice University, United States; Kaushik Mitra, Indian Institute of Technology Madras, India; Ashok Veeraraghavan, Rice University, United States

WP.L6.3: DEPTH AUGMENTED STEREO PANORAMA FOR CINEMATIC VIRTUAL REALITY WITH FOCUS CUES 1569
Jayant Thatte, Jean-Baptiste Boin, Haricharan Lakshman, Gordon Wetzstein, Bernd Girod, Stanford University, United States

WP.L6.4: TWO-LAYER LIGHT FIELD IMAGING USING AN ORGANIC PHOTOELECTRIC CONVERSION FILM 1574
Suguru Kobayashi, Daisuke Sugimura, Takayuki Hamamoto, Tokyo University of Science, Japan

WP.L6.5: LIGHTING DESIGN FOR PORTRAITS WITH A VIRTUAL LIGHT STAGE 1579
Davoud Shahlaei, Marcel Piotraschke, Volker Blanz, University of Siegen, Germany

WP.L6.6: SIMILARITY AND RIGIDITY PRESERVING IMAGE RETARGETING 1584
Biplab Chandra Das, Viswanath Gopalakrishnan, Kiran Nanjunda Iyer, Anshuman Gaurav, Samsung R&D Institute, Bangalore, India

WP.L6.7: COMPRESSIVE VIDEO MICROSCOPE VIA STRUCTURED ILLUMINATION 1589
Xin Yuan, Bell Labs, United States; Shuo Pang, University of Central Florida, United States

WP.L6.8: COLOR-METRIC TENSOR FOR CATADIOPTRIC SYSTEMS 1594
Fatima Aziz, Université de Limoges - Institut National des Postes et Télécommunications, France; Ouiddad Labbani-Igbida, Univertité de Limoges, France; Amina Radgui, Ahmed Tamtaoui, Institut National des Postes et Télécommunications, Morocco

WP.L7: DEEP LEARNING FOR VIDEO

WP.L7.1: VISUAL SALIENCE AND PRIORITY ESTIMATION FOR LOCOMOTION USING A DEEP CONVOLUTIONAL NEURAL NETWORK 1599
Nantheera Anantrasirichai, Iain D. Gilchrist, David R. Bull, University of Bristol, United Kingdom

WP.L7.2: TRANSFER LEARNING WITH DEEP NETWORKS FOR SALIENCY PREDICTION IN NATURAL VIDEO 1604
Souad Chaabouni, University of Sfax- University of Bordeaux, France; Jenny Benois-Pineau, University of Bordeaux, France; Chokri Ben Amar, University of Sfax, Tunisia

WP.L7.3: DEEP LEARNING BASED HUMAN BEHAVIOR RECOGNITION IN INDUSTRIAL WORKFLOWS 1609
Konstantinos Makantasis, Technical University of Crete, Greece; Anastasios Doulamis, Nikolaos Doulamis, National Technical University of Athens, Greece; Konstantinos Psychas, Columbia University, United States

WP.L7.4: LEARNING TEMPORALLY CORRELATED REPRESENTATIONS USING LSTMS FOR VISUAL TRACKING 1614
Qiaozhe Li, Xin Zhao, Kaiqi Huang, University of Chinese Academy of Sciences, China

WP.L7.5: HOW SCENES IMPLY ACTIONS IN REALISTIC VIDEOS? 1619
Hongsong Wang, Wei Wang, Liang Wang, National Laboratory of Pattern Recognition, Chinese Academy of Sciences, China

WP.L7.6: PERFORMANCE IMPROVEMENT OF DEEP LEARNING BASED GESTURE RECOGNITION USING SPATIOTEMPORAL DEMOSAICING TECHNIQUE 1624
Paul K. J. Park, Baek Hwan Cho, Jin Man Park, Kyoobin Lee, Ha Young Kim, Hyo Ah Kang, Hyun Goo Lee, Jooyeon Woo, Yohan Roh, Won Jo Lee, Chang-Woo Shin, Qiang Wang, Hyunsurk Ryu, Samsung Electronics, Republic of Korea

WP.L7.7: UNSUPERVISED CONVOLUTIONAL NEURAL NETWORKS FOR MOTION ESTIMATION 1629
Aria Ahmadi, Ioannis Patras, Queen Mary University of London, United Kingdom

WP.L7.8: LEARNING DEEP FILTER BANKS IN PARALLEL FOR TEXTURE RECOGNITION 1634
Arash Shahriari, The Australian National University, Australia

WP.L8: FACE PROCESSING II

WP.L8.1: WHICH FACE IS MORE ATTRACTIVE? 1639
Jie Lei, Zunlei Feng, Mingli Song, Zhejiang University, China; Dacheng Tao, University of Technology, Sydney, Australia

WP.L8.2: ONE CLASS CLASSIFICATION APPLIED IN FACIAL IMAGE ANALYSIS 1644
Vasileios Mygdalis, Aristotle University of Thessaloniki, Greece; Alexandros Iosifidis, Tampere University of Technology, Finland; Anastasios Tefas, Ioannis Pitas, Aristotle University of Thessaloniki, Greece

WP.L8.3: ADAPTIVE CASCADED REGRESSION 1649
Epameinondas Antonakos, Patrick Snape, George Trigeorgis, Stefanos Zafeiriou, Imperial College London, United Kingdom

WP.L8.4: BAYESIAN CONSTRAINED LOCAL MODELS WITH DEPTH DATA 1654
Pedro Martins, Joao Faro, Patrick Brandao, Jorge Batista, University of Coimbra, Portugal

WP.L8.5: OUTLIER FACES DETECTOR VIA EFFICIENT COHESIVE SUBGRAPH IDENTIFICATION 1659
Yu Cheng, Nalini Ratha, Sharat Pankanti, IBM Research, United States

WP.L8.6: SQI-BASED ILLUMINATION NORMALIZATION FOR FACE RECOGNITION BASED ON DISCRETE WAVELET TRANSFORM 1664
Cheolkon Jung, Jianpeng Yin, Xidian University, China

WP.L8.7: COLLABORATIVE FACIAL COLOR FEATURE LEARNING OF MULTIPLE COLOR SPACES FOR FACE RECOGNITION 1669
Hyung-Il Kim, Yong Man Ro, Korea Advanced Institute of Science and Technology, Republic of Korea

WP.L8.8: A STUDY ON THE DISCRIMINABILITY OF FACS FROM SPONTANEOUS FACIAL EXPRESSIONS 1674
Matthew Shreve, Edgar Bernal, Qun Li, Jayant Kumar, Raja Bala, PARC, A Xerox Company, United States

WPA.P1: COMPUTER VISION FOR VEHICULAR TECHNOLOGY

WPA.P1.1: ACCURATE 3D CAR POSE ESTIMATION 3807
Florian Chabot, Mohamed Chaouch, Jaonary Rabarisoa, Alternative Energies and Atomic Energy Commission, France; Céline Teulière, Thierry Chateau, Institut Pascal, France

WPA.P1.2: CAR DETECTION USING DEFORMABLE PART MODELS WITH COMPOSITE FEATURES 3812
Hao Xu, Qin Huang, C.-C. Jay Kuo, University of Southern California, United States

WPA.P1.3: VEHICLE DETECTION IN AERIAL IMAGES USING MULTISCALE STRUCTURE ENHANCEMENT AND SYMMETRY 3817
Sundaresh Ram, Jeffrey J. Rodriguez, University of Arizona, United States

WPA.P1.4: AUTOMATIC VEHICLE COUNTING METHOD BASED ON PRINCIPAL COMPONENT PURSUIT BACKGROUND MODELING 3822
Jorge Gerardo Quesada Pacora, Paul Antonio Rodriguez Valderrama, Pontificia Universidad Católica del Perú, Peru

WPA.P1.5: MULTI-SCALE VEHICLE LOGO RECOGNITION BY DIRECTIONAL DENSE SIFT FLOW PARSING 3827
Qin Gu, Jianyu Yang, Guolong Cui, Lingjiang Kong, Huakun Zheng, University of Electronic Science and Technology of China, China; Reinhard Klette, Auckland University of Technology, New Zealand

WPA.P1.6: CNN FOR LICENSE PLATE MOTION DEBLURRING 3832
Pavel Svoboda, Michal Hradiš, Lukáš Maršík, Pavel Zemcík, Brno University of Technology, Czech Republic

WPA.P1.7: DOORWAY DETECTION FOR AUTONOMOUS INDOOR NAVIGATION OF UNMANNED VEHICLES 3837
Burak Kakillioglu, Koray Ozcan, Senem Velipasalar, Syracuse University, United States

WPA.P1.8: TOWARDS REAL-TIME DPM OBJECT DETECTOR FOR DRIVER ASSISTANCE 3842
Alaa Ali, Magdy A. Bayoumi, University of Louisiana at Lafayette, United States

WPA.P1.9: 3D ROAD CURB EXTRACTION FROM IMAGE SEQUENCE FOR AUTOMOBILE PARKING ASSIST SYSTEM 3847
Veronique Prinet, JinSong Wang, General Motors, Israel; JongHo Lee, David Wettergreen, Carnegie Mellon University, United States

WPA.P1.10: HIGH-SPEED RAILWAY ROD-INSULATOR DETECTION USING SEGMENT CLUSTERING AND DEFORMABLE PART MODELS 3852
Ye Han, Zhigang Liu, Southwest Jiaotong University, China; Dah-Jye Lee, Brigham Young University, United States; Guinan Zhang, Miao Deng, Southwest Jiaotong University, China

WPA.P2: SPARSITY BASED PROCESSING II

WPA.P2.1: LEARNING FLIPPING AND ROTATION INVARIANT SPARSIFYING TRANSFORMS 3857
Bihan Wen, University of Illinois at Urbana-Champaign, United States; Saiprasad Ravishankar, University of Michigan, United States; Yoram Bresler, University of Illinois at Urbana-Champaign, United States

WPA.P2.2: LEARNING FROM SPARSE CODES 3862
Sofia Karygianni, Pascal Frossard, Ecole Polytechnique Fédérale de Lausanne, Switzerland

WPA.P2.4: SPARSE SIGNAL RECOVERY BASED ON NONCONVEX ENTROPY MINIMIZATION 3867
Shuai Huang, Dung N. Tran, Trac D. Tran, Johns Hopkins University, United States

WPA.P2.5: ROBUST BAYESIAN METHOD FOR SIMULTANEOUS BLOCK SPARSE SIGNAL RECOVERY WITH APPLICATIONS TO FACE RECOGNITION 3872
Igor Fedorov, Ritwik Giri, Bhaskar Rao, Truong Nguyen, University of California, San Diego, United States

WPA.P2.6: RANDOM IMPULSE NOISE REMOVAL USING SPARSE AND LOW RANK DECOMPOSITION OF ANNIHILATING FILTER-BASED HANKEL MATRIX 3877
Kyong Hwan Jin, Jong Chul Ye, Korea Advanced Institute of Science and Technology, Republic of Korea

WPA.P2.7: SCREEN CONTENT IMAGE SEGMENTATION USING SPARSE DECOMPOSITION AND TOTAL VARIATION MINIMIZATION 3882
Shervin Minaee, Yao Wang, New York University, United States

WPA.P2.8: A MULTI-PHASE SPARSE PROBABILITY FRAMEWORK VIA ENTROPY MINIMIZATION FOR SINGLE SAMPLE FACE RECOGNITION 3887
Fan Liu, Hohai University, China; Jinhui Tang, Yan Song, Nanjing University of Science and Technology, China; Qian Huang, Feng Xu, Hohai University, China

WPA.P2.9: SCALE-INVARIANT ANOMALY DETECTION WITH MULTISCALE GROUP-SPARSE MODELS 3892
Diego Carrera, Giacomo Boracchi, Politecnico di Milano, Italy; Alessandro Foi, Tampere University of Technology, Finland; Brendt Wohlberg, Los Alamos National Laboratory, United States

WPA.P2.10: ROBUST COUPLING IN SPACE OF SPARSE CODES FOR MULTI-VIEW RECOGNITION 3897
Ali Taalimi, Alireza Rahimpour, Cristian Capdevila, Zhifei Zhang, Hairong Qi, University of Tennessee-Knoxville, United States

WPA.P3: CONTENT IDENTIFICATION AND FORENSICS

WPA.P3.1: FAST SEQUENTIAL FORENSIC DETECTION OF CAMERA FINGERPRINT 3902
Fernando Pérez-González, Miguel Masciopinto, Iria González-Iglesias, Pedro Comesaña, University of Vigo, Spain

WPA.P3.2: IMAGE ANONYMIZATION FOR PRNU FORENSICS : A SET THEORETIC FRAMEWORK ADDRESSING COMPRESSION RESILIENCE 3907
Ahmed Elliethy, Gaurav Sharma, University of Rochester, United States

WPA.P3.3: IMPACT OF SCREENCASTING ON VIDEO TEMPORAL SYNCHRONIZATION 3912
Bertrand Chupeau, Antoine Robert, Séverine Baudry, Gwenaël Doërr, Technicolor R&D France, France

WPA.P3.4: LOCAL ACTIVE CONTENT FINGERPRINTING: OPTIMAL SOLUTION UNDER LINEAR MODULATION 3917
Dimche Kostadinov, Slava Voloshynovskiy, Maurits Diephuis, Taras Holotyak, University of Geneva, Switzerland

WPA.P3.5: SPLICING LOCALIZATION IN MOTION BLURRED 3D SCENES 3922
Kuldeep Purohit, Rajagopalan A. N., Indian Institute of Technology Madras, India

WPA.P3.6: PRINTED SOURCE IDENTIFICATION BY MICROSCOPIC IMAGES 3927
Min-Jen Tsai, Imam Yuadi, National Chiao Tung University, Taiwan

WPA.P3.7: AUTOMATIC DETECTION OF 3D LIGHTING INCONSISTENCIES VIA A FACIAL LANDMARK BASED MORPHABLE MODEL 3932
Bo Peng, Wei Wang, Jing Dong, Tieniu Tan, Institute of Automation, Chinese Academy of Sciences, China

WPA.P3.8: TOWARDS BIOMETRIC IDENTIFICATION USING 3D EPIDERMAL AND DERMAL FINGERPRINTS 3937
Henrique Sergio Gutierrez da Costa, Olga R.P. Bellon, Luciano Silva, Universidade Federal do Paraná, Brazil; Bowden Audrey K., Stanford University, United States

WPA.P3.9: VISUAL SPEAKER AUTHENTICATION BY ENSEMBLE LEARNING OVER STATIC AND DYNAMIC LIP DETAILS 3942
Xiao-Xing Shi, Shi-Lin Wang, Jun-Yao Lai, Shanghai Jiao Tong University, China

WPA.P4: SEGMENTATION III

WPA.P4.1: MULTI-VIEW SEMANTIC TEMPORAL VIDEO SEGMENTATION 3947
Thomas Theodoridis, Anastasios Tefas, Ioannis Pitas, Aristotle University of Thessaloniki, Greece

WPA.P4.2: HIERARCHICAL MOTION DECOMPOSITION FOR DYNAMIC SCENE PARSING 3952
Juan-Manuel Perez-Rua, Tomas Crivelli, Patrick Perez, Technicolor, France; Patrick Bouthemy, INRIA, France

WPA.P4.3: SSSC-AM: A UNIFIED FRAMEWORK FOR VIDEO CO-SEGMENTATION BY STRUCTURED SPARSE SUBSPACE CLUSTERING WITH APPEARANCE AND MOTION FEATURES 3957
Junlin Yao, Frank Nielsen, Ecole polytechnique, France

WPA.P4.4: FAST DEFOCUS MAP ESTIMATION 3962
Ding-Jie Chen, Hwann-Tzong Chen, Long-Wen Chang, National Tsing Hua University, Taiwan

WPA.P4.5: MOVING CAMERA BACKGROUND-SUBTRACTION FOR OBSTACLE DETECTION ON RAILWAY TRACKS 3967
Hiroki Mukojima, Daisuke Deguchi, Yasutomo Kawanishi, Ichiro Ide, Hiroshi Murase, Nagoya University, Japan; Masato Ukai, Nozomi Nagamine, Ryuta Nakasone, Railway Technical Research Institute, Japan

WPA.P4.6: DYNAMIC TREE-STRUCTURED SPARSE RPCA VIA COLUMN SUBSET SELECTION FOR BACKGROUND MODELING AND FOREGROUND DETECTION 3972
Salehe Erfanian Ebadi, Queen Mary University of London, United Kingdom; Valia Guerra Ones, Delft University of Technology, Netherlands; Ebroul Izquierdo, Queen Mary University of London, United Kingdom

WPA.P4.7: DETECTION OF SMALL BIRDS IN LARGE IMAGES BY COMBINING A DEEP DETECTOR WITH SEMANTIC SEGMENTATION 3977
Akito Takeki, Tu Tuan Trinh, Ryota Yoshihashi, Rei Kawakami, Makoto Iida, Takeshi Naemura, The University of Tokyo, Japan

WPA.P4.8: METRIC LEARNING BASED AUTOMATIC SEGMENTATION OF PATTERNED SPECIES 3982
Ankita Shukla, Saket Anand, Indraprastha Institute of Information Technology, Delhi, India

WPA.P5: COLOR AND MULTISPECTRAL PROCESSING

WPA.P5.1: COLOR FILTERS: WHEN ``OPTIMAL" IS NOT OPTIMAL 3987
Henry Trussell, North Carolina State University, United States; Ali Ercan, Ozyegin University, Turkey; Nicholas Kingsbury, University of Cambridge, United Kingdom

WPA.P5.2: PER-CHANNEL COLOR BARCODES FOR DISPLAYS 3992
Karthik Dinesh, Gaurav Sharma, University of Rochester, United States

WPA.P5.3: MIXED POOLING NEURAL NETWORKS FOR COLOR CONSTANCY 3997
Damien Fourure, Rémi Emonet, Elisa Fromont, Damien Muselet, Alain Trémeau, Laboratoire Hubert Curien, France; Christian Wolf, LIRIS, France

WPA.P5.4: EFFECTIVE COLOR CORRECTION PIPELINE FOR A NOISY IMAGE 4002
Kenta Takahashi, Yusuke Monno, Masayuki Tanaka, Masatoshi Okutomi, Tokyo Institute of Technology, Japan

WPA.P5.5: COLOR IMAGE REGULARIZATION VIA CHANNEL MIXING AND HALF QUADRATIC MINIMIZATION 4007
Freddie Åström, Heidelberg University, Germany

WPA.P5.6: MULTICOLOR REMOVAL BASED ON COLOR LINES FOR SFS ..... N/A
Tianqi Wang, Terumasa Aoki, Tohoku University, Japan

WPA.P5.7: ROBUST AND AUTOMATIC VIDEO COLORIZATION VIA MULTIFRAME REORDERING REFINEMENT 4017
Sifeng Xia, Jiaying Liu, Peking University, China; Yuming Fang, Jiangxi University of Finance and Economics, China; Wenhan Yang, Zongming Guo, Peking University, China

WPA.P6: 3D PROCESSING II

WPA.P6.1: FAST DEPTH ESTIMATION FROM SINGLE IMAGE USING STRUCTURED FOREST 4022
Shuai Fang, Ren Jin, Hefei University of Technology, China; Yang Cao, University of Science and Technology of China, China

WPA.P6.2: DEPTH IMAGE IN-LOOP FILTER VIA GRAPH CUT 4027
Liguo Zhou, Zhongyuan Wang, Youming Fu, Jun Chen, Rui Xiang, Wuhan University, China; Rui Zhong, Vrije Universiteit Brussel, China; Shizheng Wang, Nanyang Technological University, China

WPA.P6.3: BAYESIAN BASED VIEW SYNTHESIS FOR MULTI-PLANAR STRUCTURES 4032
Jie Hu, Chang Wen Chen, State University of New York at Buffalo, United States

WPA.P6.4: EXPLICIT MEASUREMENT ON DEPTH-COLOR INCONSISTENCY FOR DEPTH COMPLETION 4037
Yifan Zuo, Shanghai University & University of technology, Sydney, China; Qiang Wu, University of Technology, Sydney, Australia; Ping An, Shanghai University, China; Jian Zhang, University of Technology, Sydney, Australia

WPA.P6.5: GUIDED CO-TRAINING FOR MULTI-VIEW SPECTRAL CLUSTERING 4042
Chung-Kuei Lee, Tyng-Luh Liu, IIS, Academia Sinica, Taiwan

WPA.P6.6: SKELETON-BASED MULTIVIEW RECONSTRUCTION 4047
Bastien Durix, Géraldine Morin, Sylvie Chambon, Paul Sabatier University, France; Céline Roudet, Lionel Garnier, Burgundy University, France

WPA.P6.7: VOLUMETRIC RECONSTRUCTION OF CRANIOFACIAL STRUCTURES FROM 2D LATERAL CEPHALOGRAMS BY REGRESSION FOREST 4052
Yuru Pei, Fanfan Dai, Tianmin Xu, Hongbin Zha, Peking University, China; Gengyu Ma, uSens Inc., United States

WPA.P6.8: SEISMIC HORIZON RECONSTRUCTION ON POLYGONAL DOMAINS USING THE SCHWARZ-CHRISTOFFEL TRANSFORMATION 4057
Salma Doghraji, Univ. Bordeaux, IMS Laboratory, France; Marc Donias, Bordeaux INP, IMS Laboratory, France

WPA.P6.9: SUPERVOXEL-BASED SALIENCY DETECTION FOR LARGE-SCALE COLORED 3D POINT CLOUDS 4062
Jae-Seong Yun, Jae-Young Sim, UNIST, Republic of Korea

WPA.P7: ENHANCEMENT

WPA.P7.1: HUE-PRESERVING PERCEPTUAL CONTRAST ENHANCEMENT 4067
Fabien Pierre, Jean-François Aujol, Aurélie Bugeau, Université de Bordeaux, France; Gabriele Steidl, Technische Universität Kaiserslautern, France; Vinh-Thong Ta, Université de Bordeaux, France

WPA.P7.2: A QUADRATIC OPTIMISATION APPROACH FOR SHADING AND SPECULARITY RECOVERY FROM A SINGLE IMAGE 4072
*Lin Gu, A*STAR, Singapore; Antonio Robles-Kelly, Data61 - CSIRO, Australia*

WPA.P7.3: A FUSION-BASED METHOD FOR SINGLE BACKLIT IMAGE ENHANCEMENT 4077
Qiuhong Wang, Xueyang Fu, Xiamen University, China; Xiao-Ping Zhang, Ryerson University, Canada; Xinghao Ding, Xiamen University, China

WPA.P7.4: GROUP-BASED SPARSE REPRESENTATION FOR LOW LIGHTING IMAGE ENHANCEMENT 4082
Wuzhen Shi, Harbin Institute of Technology, China; Congcong Chen, Northeast Agricultural University, China; Feng Jiang, Debin Zhao, Harbin Institute of Technology, China; Weizheng Shen, Northeast Agricultural University, China

WPA.P7.5: A FRAMEWORK OF SINGLE-IMAGE DERAINING METHOD BASED ON ANALYSIS OF RAIN CHARACTERISTICS 4087
Yinglong Wang, University of Electronic Science and Technology of China, China; Chen Chen, The Hong Kong University of Science and Technology, China; Shuyuan Zhu, Bing Zeng, University of Electronic Science and Technology of China, China

WPA.P7.6: VIDEO STABILIZATION BASED ON LOCAL TRAJECTORIES AND ROBUST MESH TRANSFORMATION 4092
Zheng Zhao, Xiaohong Ma, Dalian University of Technology, China

WPA.P7.7: WAVELET-BASED TEXTURE-CHARACTERISTIC MORPHOLOGICAL COMPONENT ANALYSIS FOR COLOUR IMAGE ENHANCEMENT 4097
Jianning Chi, Mark Eramian, University of Saskatchewan, Canada

WPA.P7.8: DEPTH ENHANCEMENT WITH IMPROVED EXEMPLAR-BASED INPAINTING AND JOINT TRILATERAL GUIDED FILTERING 4102
Liang Zhang, Peiyi Shen, Shu'E Zhang, Juan Song, Guangming Zhu, Xidian University, China

WPA.P7.9: LAPLACIAN-GUIDED IMAGE DECOLORIZATION 4107
Cosmin Ancuti, Universite Catholique de Louvain, Belgium; Codruta Ancuti, University of Girona, Spain

WPA.P8: BIOMEDICAL IMAGE SEGMENTATION

WPA.P8.1: A NEW ROBUST ACTIVE SHAPE MODEL FORMULATION FOR CARDIAC MRI SEGMENTATION 4112
Carlos Santiago, Jacinto C. Nascimento, Jorge S. Marques, Instituto Superior Técnico, Universidade de Lisboa, Portugal

WPA.P8.2: A KALMAN FILTER-PCA BASED APPROACH FOR BRAIN ANEURYSM SEGMENTATION ..... N/A
Sarada Prasad Dakua, Qatar Robotic Surgery Centre, Qatar; Deepali Naik, MGM Medical college, India; Julien Abi-Nahed, Qatar Science & Technology Park, Qatar; Abdulla Al-Ansari, Hamad Medical Corporation, Qatar

WPA.P8.3: GLAND SEGMENTATION FROM HISTOLOGY IMAGES USING INFORMATIVE MORPHOLOGICAL SCALE SPACE 4121
Angshuman Paul, Dipti Prasad Mukherjee, Indian Statistical Institute, India

WPA.P8.4: AN AUTOMATIC 3D CT/PET SEGMENTATION FRAMEWORK FOR BONE MARROW PROLIFERATION ASSESSMENT 4126
Chuong Nguyen, Joseph Havlicek, University of Oklahoma, United States; Quyen Duong, Sara Vesely, University of Oklahoma Health Sciences Center, United States; Ronald Gress, Liza Lindenberg, Peter Choyke, National Cancer Institute, NIH, Bethesda, MD, United States; Jennifer Holter-Chakrabarty, University of Oklahoma Health Sciences Center, United States; Kirsten Williams, National Cancer Institute, NIH, Bethesda, MD, United States

WPA.P8.5: GLOBAL AND LOCAL ANOMALY DETECTORS FOR TUMOR SEGMENTATION IN DYNAMIC PET ACQUISITIONS 4131
Francesco Verdoja, Barbara Bonafè, Davide Cavagnino, Marco Grangetto, Università degli Studi di Torino, Italy; Christian Bracco, Teresio Varetto, Manuela Racca, Michele Stasi, Candiolo Cancer Institute, IRCCS-FPO, Italy

WPA.P8.6: TUMOR SEGMENTATION BY FUSION OF MRI IMAGES USING COPULA BASED STATISTICAL METHODS ..... N/A
Jérôme Lapuyade-Lahorgue, Su Ruan, LITIS, France; Hua Li, Washington university school of medicine, United States; Pierre Vera, LITIS, France

WPA.P8.7: STEM CELL MICROSCOPIC IMAGE SEGMENTATION USING SUPERVISED NORMALIZED CUTS 4140
Xinyu Huang, Chen Li, University of Siegen, Germany; Minmin Shen, University of Konstanz, Germany; Kimiaki Shirahama, University of Siegen, Germany; Johanna Nyffeler, Marcel Leist, University of Konstanz, Germany; Marcin Grzegorzek, University of Siegen, Germany; Oliver Deussen, University of Konstanz, Germany

WPA.P8.8: CELL SEGMENTATION WITH RANDOM FERNS AND GRAPH-CUTS 4145
Arnaud Browet, Christophe De Vleeschouwer, Laurent Jacques, Universite catholique de Louvain, Belgium; Navrita Mathiah, Bechara Saykali, Isabelle Migeotte, Universite libre de Bruxelles, Belgium

WPB.P1: ACTION RECOGNITION II

WPB.P1.1: PERSISTENT HOMOLOGY OF ATTRACTORS FOR ACTION RECOGNITION 4150
Vinay Venkataraman, Arizona State University, United States; Karthikeyan Natesan Ramamurthy, IBM Thomas J. Watson Research Center, United States; Pavan Turaga, Arizona State University, United States

WPB.P1.2: TOWARDS TEMPORAL ADAPTIVE REPRESENTATION FOR VIDEO ACTION RECOGNITION 4155
Junjie Cai, University of Texas at San Antonio, United States; Jie Yu, Francisco Imai, Canon USA Inc., United States; Qi Tian, University of Texas at San Antonio, United States

WPB.P1.3: HUMAN ACTION RECOGNITION USING TRAJECTORIES-BASED MOTION NEIGHBORHOOD FEATURE ..... N/A
Xiang Xiao, Wei Zhang, Haifeng Hu, Sun Yat-sen University, China

WPB.P1.4: MULTI-VIEW GAIT RECOGNITION USING 3D CONVOLUTIONAL NEURAL NETWORKS 4165
Thomas Wolf, Mohammadreza Babaee, Gerhard Rigoll, Institute for Human-Machine Communication, TU München, Germany

WPB.P1.5: HUMAN ACTION RECOGNITION VIA MULTIVIEW DISCRIMINATIVE ANALYSIS OF CANONICAL CORRELATIONS 4170
Nour El Din El Madany, Yifeng He, Ling Guan, Ryerson University, Canada

WPB.P1.6: LEARNING ZEROTH CLASS DICTIONARY FOR HUMAN ACTION RECOGNITION ..... N/A
Jia-xin Cai, Xiamen University of Technology, China; Xin Tang, Huazhong Agricultural University, China; Lifang Zhang, Guocan Feng, Sun Yat-sen University, China

WPB.P1.7: COMBINING MULTI-CLASS MAXIMUM MARGIN CLASSIFICATION WITH LINEAR DISCRIMINANT ANALYSIS FOR HUMAN ACTION RECOGNITION 4180
Alexandros Iosifidis, Moncef Gabbouj, Tampere University of Technology, Finland

WPB.P1.8: A FAST BINARY PAIR-BASED VIDEO DESCRIPTOR FOR ACTION RECOGNITION **4185**
Roberto Leyva, Victor Sanchez, Chang-Tsun Li, University of Warwick, United Kingdom

WPB.P1.9: EXPLORING SYNONYMS AS CONTEXT IN ZERO-SHOT ACTION RECOGNITION **4190**
Ioannis Alexiou, Tao Xiang, Shaogang Gong, Queen Mary University of London, United Kingdom

WPB.P1.10: RECOGNIZING UNSEEN ACTIONS IN A DOMAIN-ADAPTED EMBEDDING SPACE **4195**
Yikang Li, Sheng-hung Hu, Baoxin Li, Arizona State University, United States

WPB.P2: HEVC PROCESSING & CODING

WPB.P2.1: LEARNING CLUSTERING-BASED LINEAR MAPPINGS FOR QUANTIZATION NOISE REMOVAL **4200**
Martin Alain, INRIA / Technicolor, France; Christine Guillemot, INRIA, France; Dominique Thoreau, Philippe Guillotel, Technicolor, France

WPB.P2.2: A NOVEL SCREEN CONTENT FAST TRANSCODING FRAMEWORK BASED ON STATISTICAL STUDY AND MACHINE LEARNING **4205**
Fanyi Duanmu, New York University, United States; Zhan Ma, Nanjing University, China; Wei Wang, FutureWei Technologies Inc., United States; Meng Xu, Real Communications Inc., United States; Yao Wang, New York University, United States

WPB.P2.3: IMPROVED PALETTE INDEX MAP CODING ON HEVC SCC **4210**
Yu-Chen Sun, Tzu-Der Chuang, Jungsun Kim, Yi-Wen Chen, Shan Liu, Yu-Wen Huang, Shawmin Lei, MediaTek Inc., Taiwan

WPB.P2.4: HEVC ENHANCEMENT USING CONTENT-BASED LOCAL QP SELECTION **4215**
Fan Zhang, David R. Bull, University of Bristol, United Kingdom

WPB.P2.5: AN ADAPTIVE QP OFFSET DETERMINATION METHOD FOR HEVC **4220**
Miltiadis Alexios Papadopoulos, Fan Zhang, Dimitris Agrafiotis, David R. Bull, University of Bristol, United Kingdom

WPB.P2.6: TEMPORAL DISTORTION COSTS FOR SAMPLE ADAPTIVE OFFSET IN H.265/HEVC **4225**
Yao-Jen Chang, Industrial Technology Research Institute, Taiwan; Pei-Hsuan Tsai, National Cheng Kung University, Taiwan; Chun-Lung Lin, Industrial Technology Research Institute, Taiwan

WPB.P2.7: PCA-BASED ADAPTIVE COLOR DECORRELATION ALGORITHM FOR HEVC ..... **N/A**
Mengmeng Zhang, Yuhui Guo, North China University of Technology, China; Bin Li, Jizheng Xu, Microsoft Research, China

WPB.P2.8: ADAPTIVE QUANTIZATION PARAMETER CASCADING FOR RANDOM-ACCESS PREDICTION IN H.265/HEVC BASED ON DEPENDENT R-D MODELS **4235**
Yuan Yang, Shuai Wan, Yanchao Gong, Kaifang Yang, Northwestern Polytechnical University, China

WPB.P2.9: A NOVEL FRAMEWORK OF FRAME RATE UP CONVERSION INTEGRATED WITHIN HEVC CODING ..... **N/A**
Guo Lu, Xiaoyun Zhang, Zhiyong Gao, Shanghai Jiao Tong University, China

WPB.P2.10: PERCEPTUALLY-ADAPTIVE QUANTIZATION FOR STEREOSCOPIC VIDEO CODING **4245**
Sami Jaballah, InnovCom Laboratory, Tunisia; Mohamed-Chaker Larabi, XLIM - University of Poitiers, France; Jamel Belhadj Tahar, InnovCom Laboratory, Tunisia

WPB.P3: RE-IDENTIFICATION II

WPB.P3.1: SELECTIVE EXPERIENCE REPLAY IN REINFORCEMENT LEARNING FOR REIDENTIFICATION 4250
Ninad Thakoor, Bir Bhanu, University of California, Riverside, United States

WPB.P3.2: PERSON RE-IDENTIFICATION BASED ON HIERARCHICAL BIPARTITE GRAPH MATCHING 4255
Yan Huang, Hao Sheng, Zhang Xiong, Beihang University, China

WPB.P3.3: ROBUST OBJECT RE-IDENTIFICATION WITH GRASSMANN SUBSPACE FEATURE FOR KEY POINTS AGGREGATION 4260
Dewan Fahim Noor, Zhu Li, University of Missouri-Kansas City, United States; Abhishek Nagar, Samsung Electronics America, Dallas, United States

WPB.P3.4: DIVERSITY REGULARIZED METRIC LEARNING FOR PERSON RE-IDENTIFICATION 4264
Wenbin Yao, Zhenyu Weng, Yuesheng Zhu, Communication and Information Security Lab, Institute of Big Data Technologies, Shenzhen Graduate School, Peking University, China

WPB.P3.5: PERSON RE-IDENTIFICATION VIA ADABOOST RANKING ENSEMBLE 4269
Zhaoju Li, Zhenjun Han, Qixiang Ye, University of Chinese Academy of Sciences, China

WPB.P3.6: A FEATURE FUSION STRATEGY FOR PERSON RE-IDENTIFICATION 4274
Mu Gao, Haizhou Ai, Tsinghua University, China; Bo Bai, Huawei Technologies, China

WPB.P3.7: CONSISTENT MATCHING BASED ON BOOSTED SALIENCE CHANNELS FOR GROUP RE-IDENTIFICATION 4279
Feng Zhu, Qi Chu, Nenghai Yu, University of Science and Technology of China, China

WPB.P3.8: TEMPORALLY ALIGNED POOLING REPRESENTATION FOR VIDEO-BASED PERSON RE-IDENTIFICATION 4284
Changxin Gao, Jin Wang, Huazhong University of Science and Technology, China; Leyuan Liu, Central China Normal University, China; Jin-Gang Yu, University of Nebraska-Lincoln, United States; Nong Sang, Huazhong University of Science and Technology, China

WPB.P3.9: UNSUPERVISED PERSON RE-IDENTIFICATION WITH LOCALITY-CONSTRAINED EARTH MOVER'S DISTANCE 4289
Dan Wang, Chinese Academy of Sciences, China; Canxiang Yan, Baidu, China; Shiguang Shan, Xilin Chen, Chinese Academy of Sciences, China

WPB.P3.10: A FAST ADAPTIVE SPATIO-TEMPORAL 3D FEATURE FOR VIDEO-BASED PERSON RE-IDENTIFICATION 4294
Zheng Liu, Jiaxin Chen, Yunhong Wang, Beihang University, China

WPB.P4: TOTAL VARIATION AND LEVEL SETS

WPB.P4.1: DISJUNCTIVE NORMAL LEVEL SET: AN EFFICIENT PARAMETRIC IMPLICIT METHOD 4299
Fitsum Mesadi, University of Utah, United States; Mujdat Cetin, Sabanci University, Turkey; Tolga Tasdizen, University of Utah, United States

WPB.P4.2: ACTIVE CONTOURS DRIVEN BY TIME-VARYING FITTING ENERGY .....N/A
Xiaomeng Xin, Lingfeng Wang, Chunhong Pan, Institute of Automation, Chinese Academy of Sciences, China

WPB.P4.3: A FACTORIZATION BASED ACTIVE CONTOUR MODEL FOR TEXTURE SEGMENTATION 4309
Mingqi Gao, Hengxin Chen, Shenhai Zheng, Bin Fang, College of Computer Science of Chongqing University, China

WPB.P4.4: A WEIGHTED DIFFERENCE OF ANISOTROPIC AND ISOTROPIC TOTAL VARIATION FOR RELAXED MUMFORD-SHAH IMAGE SEGMENTATION 4314
Fredrick Park, Whittier College, United States; Yifei Lou, University of Texas Dallas, United States; Jack Xin, University of California, Irvine, United States

WPB.P4.5: MULTI-SCALE B-SPLINE LEVEL SET SEGMENTATION BASED ON GAUSSIAN KERNEL EQUALIZATION 4319
Shenhai Zheng, Bin Fang, College of Computer Science of Chongqing University, China; Patrick S P Wang, College of Computer and Information Science of Northeastern University, Boston, China; Laquan Li, Huazhong university of science and technology, China; Mingqi Gao, College of Computer Science of Chongqing University, China

WPB.P4.6: A VARIATIONAL MODEL FOR THIN STRUCTURE SEGMENTATION BASED ON A DIRECTIONAL REGULARIZATION 4324
Odyssée Merveille, Université Paris-Est / ESIEE-Paris, France; Olivia Miraucourt, Stéphanie Salmon, Nicolas Passat, Université de Reims Champagne-Ardenne, France; Hugues Talbot, Université Paris-Est / ESIEE-Paris, France

WPB.P4.7: A WEIGHTED TOTAL VARIATION APPROACH FOR THE ATLAS-BASED RECONSTRUCTION OF BRAIN MR DATA 4329
Mingli Zhang, Kuldeep Kumar, Christian Desrosiers, Ecole de Technologie Superieure, Canada

WPB.P4.8: FUZZY ENERGY BASED ACTIVE CONTOURS MODEL FOR HR-PQCT CORTICAL BONE SEGMENTATION 4334
Mohamed Hafri, Hechmi Toumi, University of Orléans, I3MTO Laboratory, France; Stephanie Boutroy, Roland Chapurlat, INSERM UMR 1033, Hopital Edouard Herriot, France; Eric Lespessailles, Hospital of Orleans, France; Rachid Jennane, University of Orléans, I3MTO Laboratory, France

WPB.P5: REMOTE SENSING AND MONITORING

WPB.P5.1: PANSHARPENING BY A NONLOCAL CHANNEL-DECOUPLED VARIATIONAL METHOD 4339
Joan Duran, Antoni Buades, Bartomeu Coll, Catalina Sbert, Universitat de les Illes Balears, Spain; Gwendoline Blanchet, Centre National d'Études Spatiales, France

WPB.P5.2: SIMULTANEOUS LINEAR SEPARATION AND UNMIXING OF FLUORESCENT AND REFLECTIVE COMPONENTS FROM A SINGLE HYPERSPECTRAL IMAGE 4344
Naoyuki Ohara, Tokyo Institute of Technology, Japan; Yinqiang Zheng, National Institute of Informatics, Japan; Imari Sato, National Institute of Informatics, Tokyo Institute of Technology, Japan; Tomoya Nakamura, Masahiro Yamaguchi, Tokyo Institute of Technology, Japan

WPB.P5.3: HYPERSPECTRAL UNMIXING BASED ON L1-L2 SPARSITY AND TOTAL VARIATION 4349
Le Sun, Nanjing University of Information Science and Technology, China; Byeungwoo Jeon, Sungkyunkwan University, Republic of Korea; Yuhui Zheng, Yunjie Chen, Nanjing University of Information Science and Technology, China

WPB.P5.4: SPECTRAL SLOPES FOR AUTOMATED CLASSIFICATION OF LAND COVER IN LANDSAT IMAGES 4354
Shashaank M Aswatha, Jayanta Mukhopadhyay, Prabir K Biswas, Indian Institute of Technology Kharagpur, India

WPB.P5.5: A NEW ALGORITHM FOR WATER INFORMATION EXTRACTION FROM HIGH RESOLUTION REMOTE SENSING IMAGERY 4359
Shijin Li, Shengte Wang, Zhan Zheng, Dingsheng Wan, Jun Feng, Hohai University, China

WPB.P5.6: AUTOMATED PREDICTION OF CRATER DEGRADATION DEGREE 4364
Pedro Pina, Jorge S. Marques, Instituto Superior Técnico, Portugal

WPB.P5.7: HORIZON BASED ORIENTATION ESTIMATION FOR PLANETARY SURFACE NAVIGATION 4368
Xavier Bouyssounouse, NASA, United States; Ara Nefian, SGT, United States; Anna Thomas, Stanford University, United States; Laurence Edwards, Matthew Deans, Terry Fong, NASA, United States

WPB.P5.8: WEAKLY-SUPERVISED LABELING OF SEISMIC VOLUMES USING REFERENCE EXEMPLARS 4373
Yazeed Alaudah, Ghassan AlRegib, Georgia Institute of Technology, United States

WPB.P6: ANALYSIS AND REPRESENTATION II

WPB.P6.1: COMPARATIVE ANALYSIS OF HOMOLOGOUS BUILDINGS USING RANGE IMAGING 4378
Li Ding, Ahmed Elliethy, Eitan Freedenberg, S. Alana Wolf-Johnson, Joshua Romphf, Peter Christensen, Gaurav Sharma, University of Rochester, United States

WPB.P6.2: SINGLE SEPARATION ANALYSIS FOR CLUSTERED-DOT HALFTONES 4383
Altyngul Jumabayeva, Purdue University, United States; Tal Frank, Yotam Ben-Shoshan, Hewlett-Packard Indigo Division, Israel; Robert Ulichney, Hewlett-Packard Laboratories, United States; Jan Allebach, Purdue University, United States

WPB.P6.3: QUANTIFYING CURB APPEAL 4388
Zachary Bessinger, Nathan Jacobs, University of Kentucky, United States

WPB.P6.4: ESTIMATING NOISE LEVEL FOR NATURAL IMAGES BASED ON SCALE-INVARIANT KURTOSIS AND PIECEWISE STATIONARITY 4393
Li Dong, Jiantao Zhou, University of Macau, Macao SAR of China

WPB.P6.5: ANOMALY DETECTION ON ARBITRARILY DISTORTED 2D PATTERNS BY COMPUTATION OF A VIRTUAL GOLDEN SAMPLE 4398
Matthias Haselmann, Dieter Paul Gruber, Polymer Competence Center Leoben GmbH, Austria

WPB.P6.6: EVALUATING FEATURES AND CLASSIFIERS FOR ROAD WEATHER CONDITION ANALYSIS 4403
Yiming Qian, Emilio Almazan, James Elder, York University, Canada

WPB.P6.7: LOW-POWER ANALOG SMART CAMERA SENSOR FOR EDGE DETECTION 4408
Christopher Soell, Lan Shi, Juergen Roeber, Marc Reichenbach, Robert Weigel, Amelie Hagelauer, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

WPB.P6.8: HAND GESTURE RECOGNITION USING VIEW PROJECTION FROM POINT CLOUD 4413
Chaoyu Liang, Yonghong Song, Yuanlin Zhang, Xi'an Jiaotong University, China

WPB.P6.9: PORNOGRAPHIC IMAGE RECOGNITION BY STRONGLY-SUPERVISED DEEP MULTIPLE INSTANCE LEARNING 4418
Yuhui Wang, Xin Jin, Xiaoyang Tan, Nanjing University of Aeronautics and Astronautics, China

WPB.P6.10: BOOTSTRAPPING DEEP FEATURE HIERARCHY FOR PORNOGRAPHIC IMAGE RECOGNITION 4423
Kai Li, Junliang Xing, Bing Li, Weiming Hu, Institute of Automation, Chinese Academy of Sciences, China

WPB.P7: STATISTICAL MODELS AND LEARNING III

WPB.P7.1: LEARNING A LOW-RANK SHARED DICTIONARY FOR OBJECT CLASSIFICATION 4428
Tiep Vu, Vishal Monga, The Pennsylvania State University, United States

WPB.P7.2: LEARNING A PERCEPTUAL MANIFOLD FOR IMAGE SET CLASSIFICATION 4433
Sriram Kumar, Andreas Savakis, Rochester Institute of Technology, United States

WPB.P7.3: WEIGHTED SVM WITH CLASSIFICATION UNCERTAINTY FOR SMALL TRAINING SAMPLES 4438
Min-Kook Choi, Hyun-Gyu Lee, Sang-Chul Lee, Inha University, Republic of Korea

WPB.P7.4: DEEP NEURAL NETWORKS UNDER STRESS 4443
Micael Carvalho, Matthieu Cord, Université Pierre et Marie Curie, France; Sandra Avila, Universidade Estadual de Campinas, Brazil; Nicolas Thome, Université Pierre et Marie Curie, France; Eduardo Valle, Universidade Estadual de Campinas, Brazil

WPB.P7.5: A PARALLEL-FUSION RNN-LSTM ARCHITECTURE FOR IMAGE CAPTION GENERATION 4448
Minsi Wang, Li Song, Xiaokang Yang, Shanghai Jiao Tong University, China; Chuanfei Luo, Shanghai Research Institute of China Telecom, China

WPB.P7.6: UNSUPERVISED FEATURE LEARNING FOR ILLUMINATION ROBUSTNESS 4453
Lloyd Windrim, Arman Melkumyan, Richard Murphy, Anna Chlingaryan, University of Sydney, Australia; Juan Nieto, ETH-Zurich, Switzerland

WPB.P7.7: DOMAIN ADAPTATION BY ITERATIVE IMPROVEMENT OF SOFT-LABELING AND MAXIMIZATION OF NON-PARAMETRIC MUTUAL INFORMATION 4458
Mohammad Nazmul Alam Khan, Douglas Heisterkamp, Oklahoma State University, United States

WPB.P7.8: KNOWING WHO TO LISTEN TO: PRIORITIZING EXPERTS FROM A DIVERSE ENSEMBLE FOR ATTRIBUTE PERSONALIZATION 4463
Shrenik Lad, Virginia Tech, United States; Bernardino Romera Parades, Julien Valentin, Philip Torr, University of Oxford, United Kingdom; Devi Parikh, Virginia Tech, United States

WPB.P7.9: BAYESIAN JOINT ESTIMATION OF THE MULTIFRACTALITY PARAMETER OF IMAGE PATCHES USING GAMMA MARKOV RANDOM FIELD PRIORS 4468
Sébastien Combrexelle, Herwig Wendt, University of Toulouse, France; Yoann Altmann, Heriot-Watt University, France; Jean-Yves Tourneret, University of Toulouse, France; Stephen McLaughlin, Heriot-Watt University, France; Patrice Abry, Ecole Normale Supérieure de Lyon, France

WPB.P7.10: ANCHORED KERNEL METRIC LEARNING 4473
Meng Wu, Kai Luo, Jianjun Dang, Northwestern Polytechnical University, China; Jun Zhou, Department of Electronic Engineering, Shanghai Jiao Tong University, China

WPB.P8: OPTICAL FLOW AND REGISTRATION

WPB.P8.1: ROBUST LOCAL OPTICAL FLOW: LONG-RANGE MOTIONS AND VARYING ILLUMINATIONS 4478
Tobias Senst, Jonas Geistert, Thomas Sikora, Technische Universität Berlin, Germany

WPB.P8.2: LOW COMPLEXITY OPTICAL FLOW USING NEIGHBOR-GUIDED SEMI-GLOBAL MATCHING 4483
Jiang Xiang, Arizona State University, United States; Ziyun Li, David Blaauw, Hun-Seok Kim, University of Michigan, United States; Chaitali Chakrabarti, Arizona State University, United States

WPB.P8.3: A DECOUPLED VIRTUAL CAMERA USING SPHERICAL OPTICAL FLOW 4488
Sarthak Pathak, Alessandro Moro, Atsushi Yamashita, Hajime Asama, The University of Tokyo, Japan

WPB.P8.4: MOTION ESTIMATION FOR FISHEYE VIDEO SEQUENCES COMBINING PERSPECTIVE PROJECTION WITH CAMERA CALIBRATION INFORMATION 4493
Andrea Eichenseer, Michel Bätz, André Kaup, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

WPB.P8.5: SELF-SIMILARITY MEASURE FOR MULTI-MODAL IMAGE REGISTRATION 4498
Keyvan Kasiri, Paul Fieguth, David A. Clausi, University of Waterloo, Canada

WPB.P8.6: JOINT PRE-ALIGNMENT AND ROBUST RIGID POINT SET REGISTRATION 4503
Vladislav Golyanik, Bertram Taetz, Didier Stricker, DFKI GmbH, Germany

WPB.P8.7: DIFFERENTIAL EVOLUTION ALGORITHM-BASED RANGE IMAGE REGISTRATION WITH SCALING PARAMETERS **4508**
Taifeng Li, Liang Gao, Quanke Pan, Peigen Li, Huazhong University of Science and Technology, China