

IEEE TRANSACTIONS ON IMAGE PROCESSING

A PUBLICATION OF THE IEEE SIGNAL PROCESSING SOCIETY



www.signalprocessingsociety.org

Indexed in PubMed® and MEDLINE®, products of the United States National Library of Medicine



NOVEMBER 2018

VOLUME 27

NUMBER 11

IIPRE4

(ISSN 1057-7149)

PAPERS

Statistical-Model Based Methods

Discriminant Analysis via Joint Euler Transform and $\ell_{2,1}$ -Norm	<i>S. Liao, Q. Gao, Z. Yang, F. Chen, F. Nie, and J. Han</i>	5668
--	--	------

Structural-Model Based Methods

Low-Rank Matrix Recovery Via Robust Outlier Estimation	<i>X. Guo and Z. Lin</i>	5316
--	--------------------------	------

Image and Video Representation

Semi-supervised Deep Domain Adaptation via Coupled Neural Networks	<i>Z. Ding, N. M. Nasrabadi, and Y. Fu</i>	5214
Attentive Linear Transformation for Image Captioning	<i>S. Ye, J. Han, and N. Liu</i>	5514
Low-Rank Sparse Preserving Projections for Dimensionality Reduction	<i>L. Xie, M. Yin, X. Yin, Y. Liu, and G. Yin</i>	5261
Investigating Nuisances in DCNN-Based Face Recognition	<i>C. Ferrari, G. Lisanti, S. Berretti, and A. Del Bimbo</i>	5638

Perception and Quality Models for Images and Video

Deep Visual Discomfort Predictor for Stereoscopic 3D Images	<i>H. Oh, S. Ahn, S. Lee, and A. C. Bovik</i>	5420
Opinion-Unaware Blind Quality Assessment of Multiply and Singly Distorted Images via Distortion Parameter Estimation	<i>Y. Zhang and D. M. Chandler</i>	5433

Linear and Nonlinear Filtering of Images and Video

Color Contrast-Preserving Decolorization	<i>W. Wang, Z. Li, and S. Wu</i>	5464
--	----------------------------------	------

(Contents Continued on Page 5212)

IEEE TRANSACTIONS ON IMAGE PROCESSING (ISSN 1057-7149) is published monthly by the Institute of Electrical and Electronics Engineers, Inc. Responsibility for the contents rests upon the authors and not upon the IEEE, the Society/Council, or its members. **IEEE Corporate Office:** 3 Park Avenue, 17th Floor, New York, NY 10016-5997. **IEEE Operations Center:** 445 Hoes Lane, Piscataway, NJ 08854-4141. **NJ Telephone:** +1 732 981 0060. **Price/Publication Information:** Individual copies: IEEE Members \$20.00 (first copy only), nonmembers \$641.00 per copy. (Note: Postage and handling charge not included.) Member and nonmember subscription prices available upon request. Available in print, electronic, and CD-ROM. **Copyright and Reprint Permissions:** Abstracting is permitted with credit to the source. Libraries are permitted to photocopy for private use of patrons, provided the per-copy fee of \$31.00 is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. For all other copying, reprint, or republication permission, write to Copyrights and Permissions Department, IEEE Publications Administration, 445 Hoes Lane, Piscataway, NJ 08854-4141 Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc. All rights reserved. **Postmaster:** Send address changes to IEEE TRANSACTIONS ON IMAGE PROCESSING, IEEE, 445 Hoes Lane, Piscataway, NJ 08854-4141. GST Registration No. 125634188. CPC Sales Agreement #40013087. Return undeliverable Canada addresses to: Pitney Bowes IMEX, P.O. Box 4332, Stanton Rd., Toronto, ON M5W 3J4, Canada. IEEE prohibits discrimination, harassment and bullying. For more information visit <http://www.ieee.org/nondiscrimination>. Printed in U.S.A.

A Robust Edge Detection Approach in the Presence of High Impulse Noise Intensity Through Switching Adaptive Median and Fixed Weighted Mean Filtering	<i>M. Mafi, H. Rajaei, M. Cabrerizo, and M. Adjouadi</i>	5475
Class-Aware Fully Convolutional Gaussian and Poisson Denoising	<i>T. Remez, O. Litany, R. Giryes, and A. M. Bronstein</i>	5707
<i>Multiresolution Processing of Images and Video</i>		
Photo Realistic Image Completion via Dense Correspondence	<i>J.-J. Huang and P. L. Dragotti</i>	5234
<i>Restoration and Enhancement</i>		
Robust Single-Shot Fringe Projection Profilometry Based on Morphological Component Analysis	<i>Budianto, D. P. K. Lun, and Y.-H. Chan</i>	5393
<i>Interpolation, Super-Resolution, and Mosaicing</i>		
Hyperspectral Image Super-Resolution With a Mosaic RGB Image	<i>Y. Fu, Y. Zheng, H. Huang, I. Sato, and Y. Sato</i>	5539
<i>Formation and Reconstruction</i>		
Building Descriptors From Local Feature Neighborhoods for Applications in Semi-Dense 3D Reconstruction	<i>B. J. Schmid and R. Adhami</i>	5491
<i>Biomedical and Biological Image Processing</i>		
Structurally Incoherent Low-Rank Nonnegative Matrix Factorization for Image Classification	<i>Y. Lu, C. Yuan, W. Zhu, and X. Li</i>	5248
<i>Lossy Coding of Images and Video</i>		
Machine Learning-Based Fast Angular Prediction Mode Decision Technique in Video Coding	<i>S. Ryu and J.-W. Kang</i>	5525
Convolutional Neural Network-Based Synthesized View Quality Enhancement for 3D Video Coding	<i>L. Zhu, Y. Zhang, S. Wang, H. Yuan, S. Kwong, and H. H.-S. Ip</i>	5365
<i>Error Resilience and Channel Coding for Image and Video Systems</i>		
Recovery of Lost Color and Depth Frames in Multiview Videos	<i>T.-L. Lin, C.-J. Wang, T.-L. Ding, G.-X. Huang, W.-L. Tsai, T.-E. Chang, and N.-C. Yang</i>	5449
<i>Stereoscopic and Multiview Processing and Display</i>		
Adaptive Effective Wiener Filter- and Regression-Based Upsampling for Asymmetric Resolution Stereoscopic Video Coding	<i>K.-L. Chung, S.-B. Tsai, Y.-L. Tseng, and C.-C. Huang</i>	5696
<i>Tomographic Imaging</i>		
A Simple Measure for Acuity in Medical Images	<i>F. Kruggel</i>	5225
<i>Radar Imaging, Remote Sensing, and Geophysical Imaging</i>		
Self-Similarity Constrained Sparse Representation for Hyperspectral Image Super-Resolution	<i>X.-H. Han, B. Shi, and Y. Zheng</i>	5625
<i>Region, Boundary, and Shape Analysis</i>		
Subpixel Edge Localization Based on Adaptive Weighting of Gradients	<i>S. Seo</i>	5501
<i>Image and Video Mid Level Analysis</i>		
Spontaneous Expression Recognition Using Universal Attribute Model	<i>N. Perveen, D. Roy, and C. K. Mohan</i>	5575
Fast Piecewise-Affine Motion Estimation Without Segmentation	<i>D. Fortun, M. Storath, D. Rickert, A. Weinmann, and M. Unser</i>	5612
<i>Image and Video Interpretation and Understanding</i>		
Efficient Recovery of Essential Matrix From Two Affine Correspondences	<i>D. Barath and L. Hajder</i>	5328
Cross-View Discriminative Feature Learning for Person Re-Identification	<i>A. Borgia, Y. Hua, E. Kodirov, and N. M. Robertson</i>	5338
Multi-Oriented and Multi-Lingual Scene Text Detection With Direct Regression	<i>W. He, X.-Y. Zhang, F. Yin, and C.-L. Liu</i>	5406
Video Captioning by Adversarial LSTM	<i>Y. Yang, J. Zhou, J. Ai, Y. Bin, A. Hanjalic, H. T. Shen, and Y. Ji</i>	5600
Information Fusion for Human Action Recognition via Biset/Multiset Globality Locality Preserving Canonical Correlation Analysis	<i>N. E. D. Elmadany, Y. He, and L. Guan</i>	5275
Recognition From Web Data: A Progressive Filtering Approach	<i>J. Yang, X. Sun, Y.-K. Lai, L. Zheng, and M.-M. Cheng</i>	5303

Quality Robust Mixtures of Deep Neural Networks	<i>S. F. Dodge and L. J. Karam</i>	5553
Vision-Based Parking-Slot Detection: A DCNN-Based Approach and a Large-Scale Benchmark Dataset	<i>L. Zhang, J. Huang, X. Li, and L. Xiong</i>	5350
A Better Way to Attend: Attention With Trees for Video Question Answering	<i>H. Xue, W. Chu, Z. Zhao, and D. Cai</i>	5563
<i>Image and Video Biometric Analysis</i>		
Video-Based Person Re-Identification by Simultaneously Learning Intra-Video and Inter-Video Distance Metrics	<i>X. Zhu, X.-Y. Jing, X. You, X. Zhang, and T. Zhang</i>	5683
<i>Image and Video Storage and Retrieval</i>		
Dynamic Match Kernel with Deep Convolutional Features for Image Retrieval	<i>J. Yang, J. Liang, H. Shen, K. Wang, P. L. Rosin, and M.-H. Yang</i>	5288
Modality-Specific Cross-Modal Similarity Measurement With Recurrent Attention Network	<i>Y. Peng, J. Qi, and Y. Yuan</i>	5585
Hadamard Coding for Supervised Discrete Hashing	<i>G. Koutaki, K. Shirai, and M. Ambai</i>	5378
A Unified Approach for Conventional Zero-Shot, Generalized Zero-Shot, and Few-Shot Learning	<i>S. Rahman, S. Khan, and F. Porikli</i>	5652
