

IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE

A publication of the IEEE Computer Society

AUGUST 2018

VOLUME 40

NUMBER 8

ITPIDJ

(ISSN 0162-8828)

REGULAR PAPERS

<i>3D Reconstruction in the Presence of Glass and Mirrors by Acoustic and Visual Fusion</i> Y. Zhang, M. Ye, D. Manocha, and R. Yang.....	1785
<i>Best-Buddies Similarity—Robust Template Matching Using Mutual Nearest Neighbors</i> S. Oron, T. Dekel, T. Xue, W.T. Freeman, and S. Avidan.....	1799
<i>Deep Learning Markov Random Field for Semantic Segmentation</i> Z. Liu, X. Li, P. Luo, C.C. Loy, and X. Tang.....	1814
<i>Discriminatively Trained Latent Ordinal Model for Video Classification</i> K. Sikka, and G. Sharma.....	1829
<i>Faceness-Net: Face Detection through Deep Facial Part Responses</i> S. Yang, P. Luo, C.C. Loy, and X. Tang.....	1845
<i>Gaussian Process Morphable Models</i> M. Lüthi, T. Gerig, C. Jud, and T. Vetter.....	1860
<i>Jointly Learning Deep Features, Deformable Parts, Occlusion and Classification for Pedestrian Detection</i> W. Ouyang, H. Zhou, H. Li, Q. Li, J. Yan, and X. Wang.....	1874
<i>Kronecker-Basis-Representation Based Tensor Sparsity and Its Applications to Tensor Recovery</i> Q. Xie, Q. Zhao, D. Meng, and Z. Xu.....	1888
<i>Learning Spatial-Semantic Context with Fully Convolutional Recurrent Network for Online Handwritten Chinese Text Recognition</i> Z. Xie, Z. Sun, L. Jin, H. Ni, and T. Lyons.....	1903
<i>Piecewise-Planar StereoScan: Sequential Structure and Motion Using Plane Primitives</i> C. Raposo, M. Antunes, and J.P. Barreto.....	1918
<i>Reflectance and Natural Illumination from Single-Material Specular Objects Using Deep Learning</i> S. Georgoulis, K. Rematas, T. Ritschel, E. Gavves, M. Fritz, L.V. Gool, and T. Tuytelaars.....	1932
<i>Scalable Joint Models for Reliable Uncertainty-Aware Event Prediction</i> H. Soleimani, J. Hensman, and S. Saria.....	1948
<i>Simultaneous Clustering and Model Selection: Algorithm, Theory and Applications</i> Z. Li, L.-F. Cheong, S. Yang, and K.-C. Toh.....	1964

(Contents continued on back cover)

Published in cooperation with: **Aerospace & Electronic Systems Society, Control Systems Society, Engineering in Medicine & Biology Society, Information Theory Society, Systems, Man & Cybernetics Society, Ultrasonics, Ferroelectrics, & Frequency Control Society**

Indexed in MEDLINE®/PubMed®
and indexed in ISI



www.computer.org
tpami@computer.org



<i>Simultaneous Local Binary Feature Learning and Encoding for Homogeneous and Heterogeneous Face Recognition</i> J. Lu, V.E. Liong, and J. Zhou.....	1979
<i>Tracking-by-Detection of 3D Human Shapes: From Surfaces to Volumes</i> C.-H.P. Huang, B. Allain, E. Boyer, J.-S. Franco, F. Tombari, N. Navab, and S. Ilic.....	1994
<i>Zero-Shot Learning on Semantic Class Prototype Graph</i> Z. Fu, T. Xiang, E. Kodirov, and S. Gong.....	2009

SHORT PAPERS

<i>A Probabilistic Active Learning Algorithm Based on Fisher Information Ratio</i> J. Sourati, M. Akcakaya, D. Erdogmus, T.K. Leen, and J.G. Dy.....	2023
<i>Visual Recognition in RGB Images and Videos by Learning from RGB-D Data</i> W. Li, L. Chen, D. Xu, and L.V. Gool.....	2030

IEEE computer society

PURPOSE: The IEEE Computer Society is the world's largest association of computing professionals and is the leading provider of technical information in the field.

MEMBERSHIP: Members receive the monthly magazine *Computer*, discounts, and opportunities to serve (all activities are led by volunteer members). Membership is open to all IEEE members, affiliate society members, and others interested in the computer field.

OMBUDSMAN: Email ombudsman@computer.org.

COMPUTER SOCIETY WEBSITE: www.computer.org

Next Board Meeting: 1-2 February 2018, Anaheim, CA, USA

EXECUTIVE COMMITTEE

President: Hironori Kasahara; **President-Elect:** Cecilia Metra; **Past President:** Jean-Luc Gaudiot; **First VP, Publications:** Greg T. Byrd; **Second VP, Secretary:** Dennis J. Frailey; **VP, Member & Geographic Activities:** Forrest Shull; **VP, Professional & Educational Activities:** Andy T. Chen; **VP, Standards Activities:** Jon Rosdahl; **VP, Technical & Conference Activities:** Hausi A. Müller; **2017-2018 IEEE Division VIII Director:** Dejan S. Milojičić; **2018-2019 IEEE Division V Director:** John W. Walz; **2018 IEEE Director-Elect Division VIII Director-Elect:** Elizabeth L. Burd

BOARD OF GOVERNORS

Term Expiring 2018: Ann DeMarle, Sven Dietrich, Fred Douglass, Vladimir Getov, Bruce M. McMillin, Kunio Uchiyama, Stefano Zanero
Term Expiring 2019: Saurabh Bagchi, Leila De Florian, David S. Ebert, Jill I. Gostin, William Gropp, Sumi Helal, Avi Mendelson
Term Expiring 2020: Andy Chen, John Johnson, Sy-Ken Kuo, David Lomet, Dimitrios Serpanos, Forrest Shull, Hayato Yamana

EXECUTIVE STAFF

Executive Director: Angela R. Burgess; **Director, Governance & Associate Executive Director:** Anne Marie Kelly; **Director, Finance & Accounting:** Sunny Hwang; **Director, Information Technology & Services:** Sumit Kacker; **Director, Membership Development:** Eric Berkowitz; **Director, Products & Services:** Evan M. Butterfield

COMPUTER SOCIETY OFFICES

Washington, D.C.: 2001 L St., Ste. 700, Washington, D.C. 20036-4928 **Phone:** +1 202 371 0101 • **Fax:** +1 202 728 9614 • **Email:** hq.ofc@computer.org **Los Alamitos:** 10662 Los Vaqueros Circle, Los Alamitos, CA 90720 **Phone:** +1 714 821 8380 • **Email:** help@computer.org

MEMBERSHIP & PUBLICATION ORDERS

Phone: +1 800 272 6657 • **Fax:** +1 714 821 4641 • **Email:** help@computer.org
Asia/Pacific: Watanabe Building, 1-4-2 Minami-Aoyama, Minato-ku, Tokyo 107-0062, Japan • **Phone:** +81 3 3408 3118 • **Fax:** +81 3 3408 3553 • **Email:** tokyo.ofc@computer.org

IEEE BOARD OF DIRECTORS

President & CEO: James Jefferies; **President-Elect:** Jose M.F. Moura; **Past President:** Karen Bartleson; **Secretary:** William Walsh; **Treasurer:** Joseph V. Little; **Director & President, IEEE-USA:** Sandra "Candy" Robinson; **Director & President, Standards Association:** Forrest D. Wright; **Director & VP, Educational Activities:** Witold M. Kinsner; **Director & VP, Membership & Geographic Activities:** Martin Bastiaans; **Director & VP, Publication Services and Products:** Samir El-Ghazaly; **Director & VP, Technical Activities:** Susan "Kathy" Land; **Director & Delegate Division V:** John W. Walz; **Director & Delegate Division VIII:** Dejan S. Milojičić