

IEEE TRANSACTIONS ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE

A publication of the IEEE Computer Society

JUNE 2016

VOLUME 38

NUMBER 6

ITPIDJ

(ISSN 0162-8828)

REGULAR PAPERS

<i>A Clearer Picture of Total Variation Blind Deconvolution</i> D. Perrone and P. Favaro	1041
<i>A Deep and Autoregressive Approach for Topic Modeling of Multimodal Data</i> Y. Zheng, Y.-J. Zhang, and H. Larochelle	1056
<i>A Multi-Task Learning Framework for Head Pose Estimation under Target Motion</i> Y. Yan, E. Ricci, R. Subramanian, G. Liu, O. Lanz, and N. Sebe	1070
<i>Approximate Fisher Kernels of Non-iid Image Models for Image Categorization</i> R.G. Cinbis, J. Verbeek, and C. Schmid	1084
<i>Coherency Sensitive Hashing</i> S. Korman and S. Avidan	1099
<i>Co-Labeling for Multi-View Weakly Labeled Learning</i> X. Xu, W. Li, D. Xu, and I.W. Tsang	1113
<i>Connected Filtering on Tree-Based Shape-Spaces</i> Y. Xu, T. Géraud, and L. Najman	1126
<i>Contour Tracking with a Spatio-Temporal Intensity Moment</i> M. Demi	1141
<i>Depth Estimation and Specular Removal for Glossy Surfaces Using Point and Line Consistency with Light-Field Cameras</i> M.W. Tao, J.-C. Su, T.-C. Wang, J. Malik, and R. Ramamoorthi	1155
<i>Fast Coding of Feature Vectors Using Neighbor-to-Neighbor Search</i> N. Inoue and K. Shinoda	1170
<i>Hierarchical Spatio-Temporal Probabilistic Graphical Model with Multiple Feature Fusion for Binary Facial Attribute Classification in Real-World Face Videos</i> M. Demirkus, D. Precup, J.J. Clark, and T. Arbel	1185
<i>Learning SVM in Kreĭn Spaces</i> G. Loosli, S. Canu, and C.S. Ong	1204
<i>Local Feature Selection for Data Classification</i> N. Armanfard, J.P. Reilly, and M. Komeili	1217

(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



IEEE  computer society

CELEBRATING 70 YEARS

www.computer.org • tpami@computer.org



(Contents continued from front cover)

<i>Multi-Graph Matching via Affinity Optimization with Graduated Consistency Regularization</i> J. Yan, M. Cho, H. Zha, X. Yang, and S.M. Chu.....	1228
<i>Pedestrian Detection with Spatially Pooled Features and Structured Ensemble Learning</i> S. Paisitkriangkrai, C. Shen, and A. van den Hengel.....	1243
<i>Scale Space Graph Representation and Kernel Matching for Non Rigid and Textured 3D Shape Retrieval</i> V. Garro and A. Giachetti.....	1258

SHORT PAPERS

<i>A 3D Feature Descriptor Recovered from a Single 2D Palmprint Image</i> Q. Zheng, A. Kumar, and G. Pan.....	1272
--	------

IEEE  computer society | CELEBRATING 70 YEARS

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: 6–10 June 2016, Buckhead, Atlanta, GA, USA

EXECUTIVE COMMITTEE

President: Roger U. Fujii

President-Elect: Jean-Luc Gaudiot; **Past President:** Thomas M. Conte;

Secretary: Gregory T. Byrd; **Treasurer:** Forrest Shull; **VP, Member &**

Geographic Activities: Nita K. Patel; **VP, Publications:** David S. Ebert;

VP, Professional & Educational Activities: Andy T. Chen; **VP, Standards**

Activities: Mark Paulk; **VP, Technical & Conference Activities:** Hausi A.

Müller; **2016 IEEE Director & Delegate Division VIII:** John W. Walz; **2016**

IEEE Director & Delegate Division V: Harold Javid; **2017 IEEE Director-**

Elect & Delegate Division V: Dejan S. Milojičić

BOARD OF GOVERNORS

Term Expiring 2016: David A. Bader, Pierre Bourque, Dennis J. Frailey, Jill I. Gostin, Atsuhiko Goto, Rob Reilly, Christina M. Schober

Term Expiring 2017: David Lomet, Ming C. Lin, Gregory T. Byrd, Alfredo Benso, Forrest Shull, Fabrizio Lombardi, Hausi A. Müller

Term Expiring 2018: Ann DeMarle, Fred Douglass, Vladimir Getov, Bruce M. McMillin, Cecilia Metra, Kunio Uchiyama, Stefano Zanero

EXECUTIVE STAFF

Executive Director: Angela R. Burgess; **Director, Governance & Associate**

Executive Director: Anne Marie Kelly; **Director, Finance & Accounting:**

Sunny Hwang; **Director, Membership:** Eric Berkowitz; **Director, Products**

& Services: Evan M. Butterfield; **Director, Sales & Marketing:** Chris Jensen

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: Barry L. Shoop; **President-Elect:** Karen Bartleson; **Past**

President: Howard E. Michel; **Secretary:** Parviz Famouri; **Treasurer:**

Jerry L. Hudgins; **Director & President, IEEE-USA:** Peter Alan Eckstein;

Director & President, Standards Association: Bruce P. Kraemer; **Director**

& VP, Educational Activities: S.K. Ramesh; **Director & VP, Membership**

and Geographic Activities: Wai-Choong (Lawrence) Wong; **Director &**

VP, Publication Services and Products: Sheila Hemami; **Director & VP,**

Technical Activities: Jose M.F. Moura; **Director & Delegate Division V:**

Harold Javid; **Director & Delegate Division VIII:** John W. Walz

revised 6 April 2016

