PROCEEDINGS
IS&T | ELECTRONIC
SPIE. | IMAGING

Imaging and Multimedia Analytics in a Web and Mobile World 2015

Qian Lin
Jan P. Allebach
Zhigang Fan
Editors

11–12 February 2015
San Francisco, California, United States

Sponsored by
IS&T—The Society for Imaging Science and Technology
SPIE

Published by
SPIE

Volume 9408

Imaging and Multimedia Analytics in a Web and Mobile World 2015, edited by Qian Lin, Jan P. Allebach, Zhigang Fan, Proc. of SPIE-IS&T Electronic Imaging, Vol. 9408, 940801
© 2015 SPIE-IS&T · CCC code: 0277-786X/15/$18 · doi: 10.1117/12.2192396

The papers included in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. The papers published in these proceedings reflect the work and thoughts of the authors and are published herein as submitted. The publishers are not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from this book:
Author(s), "Title of Paper," in *Imaging and Multimedia Analytics in a Web and Mobile World 2015*, edited by Qian Lin, Jan P. Allebach, Zhigang Fan, Proceedings of SPIE-IS&T Electronic Imaging, SPIE Vol. 9408, Article CID Number (2015)

ISSN: 0277-786X
ISBN: 9781628414981

Copublished by
SPIE
P.O. Box 10, Bellingham, Washington 98227-0010 USA
Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445
SPIE.org
and
IS&T—The Society for Imaging Science and Technology
7003 Kilworth Lane, Springfield, Virginia, 22151 USA
Telephone +1 703 642 9090 (Eastern Time) · Fax +1 703 642 9094
imaging.org

Copyright © 2015, Society of Photo-Optical Instrumentation Engineers and The Society for Imaging Science and Technology.

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by the publishers subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is $18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 0277-786X/15/$18.00.

Printed in the United States of America.

Paper Numbering: Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print. Papers are published as they are submitted and meet publication criteria. A unique citation identifier (CID) number is assigned to each article at the time of the first publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online, print, and electronic versions of the publication. SPIE uses a six-digit CID article numbering system in which:

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

The CID Number appears on each page of the manuscript. The complete citation is used on the first page, and an abbreviated version on subsequent pages.

Contents

v *Authors*
vii *Conference Committee*

SESSION 1 IMAGE, VIDEO, AND MULTIMEDIA ANALYTICS I

9408 02 **Recent progress in wide-area surveillance: protecting our pipeline infrastructure (Keynote Paper)** [9408-1]

9408 03 **Resolution-adaptive face alignment with head pose correction** [9408-2]

SESSION 2 IMAGE, VIDEO, AND MULTIMEDIA ANALYTICS II

9408 04 **Piecewise linear dimension reduction for nonnegative data** [9408-3]

9408 05 **Boundary fitting based segmentation of fluorescence microscopy images** [9408-4]

9408 06 **Robust textural features for real time face recognition** [9408-5]

9408 07 **Autonomous color theme extraction from images using saliency** [9408-6]

SESSION 3 IMAGE, VIDEO, AND MULTIMEDIA ANALYTICS III

9408 08 **m-BIRCH: an online clustering approach for computer vision applications** [9408-7]

9408 09 **Enhanced features for supervised lecture video segmentation and indexing** [9408-8]

9408 0A **Characterizing the uncertainty of classification methods and its impact on the performance of crowdsourcing** [9408-9]

9408 0B **Object tracking on mobile devices using binary descriptors (Invited Paper)** [9408-10]

SESSION 4 LARGE-SCALE MULTIMEDIA SYSTEMS

9408 0C **Comparing humans to automation in rating photographic aesthetics (Invited Paper)** [9408-11]

9408 0D **Service-oriented workflow to efficiently and automatically fulfill products in a highly individualized web and mobile environment** [9408-12]

9408 0E **An interactive web-based system using cloud for large-scale visual analytics** [9408-13]

9408 0F **Proposed color workflow solution from mobile and website to printing** [9408-14]

9408 0G **On-line content creation for photo products: understanding what the user wants** [9408-15]

SESSION 5 MOBILE MULTIMEDIA SERVICES AND APPLICATIONS I

9408 0H **Driving into the future: how imaging technology is shaping the future of cars (Invited Paper)** [9408-16]

9408 0I **Worldview and route planning using live public cameras** [9408-17]

9408 0J **Musical examination to bridge audio data and sheet music** [9408-18]

9408 0K **Instant wine recognition on mobile devices: Delectable, the social wine app** [9408-19]

SESSION 6 MOBILE MULTIMEDIA SERVICES AND APPLICATIONS II

9408 0M **A scheme for automatic text rectification in real scene images** [9408-22]

Authors

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

Agam, Gady, 09
Agrawal, Abhishek, 0C
Allebach, Jan P., 03, 04, 07
Asari, Vijayan K., 02, 06
Berry, Everett, 0E
Bontrager, Seth, 0E
Braun, Andrew D., 06
Chen, Wenyi, 0I
Cross, Timothy J., 0J
Cui, Chen, 02, 06
Dana, Kristin J., 08
Delp, Edward J., 05, 0A, 0E
Ding, Xiaoqing, 0M
Dunn, Kenneth W., 05
Fageth, Reiner, 0G
Farrell, Kevin, 0K
Gingade, Ganesh, 0I
Hei, Xiali, 0J
Jahanian, Ali, 07
Kakarala, Ramakrishna, 0C
Kang, Derick, 0K
Kaseb, Ahmed S., 0E, 0I
Koh, Youngsol, 0E
Lee, Soonam, 05
Lin, Qian, 03
Liu, Changsong, 0M
Lu, Yung-Hsiang, 0E, 0I
Ma, Di, 09
Madan, Siddharth K., 08
McNulty, Kyle, 0E
Minnehan, Breton, 0B
Morales, Sandino, 0C
Paes-Leme, Cassio, 0K
Paheding, Sidike, 02
Pan, Xunyu, 0J
Qiao, Mu, 0D, 0F
Quraishi, Mohammad Faiz, 0B
Ribera, Javier, 0A
Rozolis, Erik, 0E
Salama, Paul, 05
Santhaseelan, Varun, 02
Savakis, Andreas, 0B
Shen, Bin, 04
Tahboub, Khalid, 0A
Vishwanathan, S. V. N., 07
Wang, Baokang, 0M
Wang, Qifan, 04
Wang, Wiley, 0K
Wang, Xianwang, 03
Wild, Jevon, 0K
Wyse, Terry, 0F
Xiao, Liangliang, 0J
Zhang, Buyue, 0H
Zhang, Lu, 03

Conference Committee

Symposium Chair

Sheila S. Hemami, Northeastern University (United States)

Symposium Co-Chair

Choon-Woo Kim, Inha University (Korea, Republic of)

Conference Chairs

Qian Lin, Hewlett-Packard Company (United States)
Jan P. Allebach, Purdue University (United States)
Zhigang Fan, SKR Laboratories (United States)

Conference Program Committee

Patricia Albanese, Rochester Institute of Technology (United States)
Vijayan K. Asari, University of Dayton (United States)
Susanne C. Boll, Carl von Ossietzky Universität Oldenburg (Germany)
Reiner Fageth, CEWE Stifung & Company KGaA (Germany)
Yuli Gao, Google (United States)
Michael J. Gormish, Ricoh Innovations, Inc. (United States)
Meichun Hsu, Hewlett-Packard Company (United States)
Andrew A. Hunter, Hewlett-Packard Laboratories (United Kingdom)
Xiaofan Lin, A9.com, Inc. (United States)
Jerry Liu, Hewlett-Packard Laboratories (United States)
Mu Qiao, Shutterfly (United States)
Alastair M. Reed, Digimarc Corporation (United States)
Yonghong Tian, Peking University (China)
Shengjin Wang, Tsinghua University (China)
Wiley Wang, Delectable, Inc. (United States)
Rong Yan, Facebook Inc. (United States)
Yonghui Zhao, Apple Inc. (United States)

Session Chairs

1 Image, Video, and Multimedia Analytics I
Qian Lin, Hewlett-Packard Company (United States)

2 Image, Video, and Multimedia Analytics II
Wiley Wang, Delectable, Inc. (United States)

3 Image, Video, and Multimedia Analytics III
Mu Qiao, Shutterfly (United States)

4 Large-Scale Multimedia Systems
Alastair M. Reed, Digimarc Corporation (United States)

5 Mobile Multimedia Services and Applications I
Mu Qiao, Shutterfly (United States)

6 Mobile Multimedia Services and Applications II
Jan P. Allebach, Purdue University (United States)