

Multimedia on Mobile Devices 2009

Reiner Creutzburg David Akopian Editors

19–20 January 2009 San Jose, California, United States

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

Volume 7256

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 Multimedia on Mobile Devices 2009, edited by Reiner Creutzburg, David Akopian, Proceedings of SPIE-IS&T Electronic Imaging, SPIE Vol. 7256, Article CID Number (2009).

ISSN 0277-786X ISBN 9780819475060

Copublished by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445

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 © 2009, 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/09/\$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 and on CD-ROM. Papers are published as they are submitted and meet publication criteria. A unique, consistent, permanent 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 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. Numbers in the index correspond to the last two digits of the six-digit CID number.

Contents

νii Conference Committee SESSION 1 SECURITY AND SERVICES FOR MOBILE DEVICES 7256 02 A secure wireless mobile-to-server link (Invited Paper) [7256-01] A. Kumar, D. Akopian, S. Agaian, The Univ. of Texas at San Antonio (United States); R. Creutzburg, Fachhochschule Brandenburg (Germany) 7256 03 Image encryption based on edge information [7256-02] Y. Zhou, K. Panetta, Tufts Univ. (United States); S. Agaian, The Univ. of Texas at San Antonio (United States) SESSION 2 MOBILE MEDIA CODING AND PROCESSING 7256 05 On-demand learning system using 4K video source [7256-04] A. Yutani, Y. Manabe, H. Sunahara, K. Chihara, Nara Institute of Science and Technology (Japan) 7256 06 Adaptive timeline aware client controlled HTTP streaming [7256-05] S. Deshpande, Sharp Labs. of America (United States) 7256 07 Progressive raster imagery beyond a means to overcome limited bandwidth [7256-06] R. Rosenbaum, H. Schumann, Univ. of Rostock (Germany) 7256 08 H.264/AVC intra-only coding (iAVC) techniques for video over wireless networks [7256-07] M. Yang, M. Trifas, Jacksonville State Univ. (United States); G. Xiong, Huanyu Autolighting Co., Ltd. (China); J. Rogers, Jacksonville State Univ. (United States) 7256 09 New side information-generation method based on multiple reference frames for distributed video coding [7256-08] R. K. Liu, Z. Yue, W. Hu, Beijing Univ. (China) SESSION 3 LARGE MEDIA PROCESSING Resource-saving image browsing based on JPEG2000, blurring, and progression [7256-09] 7256 0A R. Rosenbaum, H. Schumann, Univ. of Rostock (Germany) 7256 OC Adaptation of web pages and images for mobile applications [7256-11] S. Kopf, B. Guthier, H. Lemelson, W. Effelsberg, Univ. of Mannheim (Germany) 7256 0D Graphics hardware accelerated panorama builder for mobile phones [7256-12] M. Bordallo López, J. Hannuksela, O. Silvén, Univ. of Oulu (Finland); M. Vehviläinen, Nokia Research Ctr. (Finland)

SESSION 4	SAFETY AND LOCATION			
7256 OE	An affordable wearable video system for emergency response training (Invited Paper) [7256-13] D. King-Smith, A. Mikkilineni, D. Ebert, T. Collins, E. J. Delp, Purdue Univ. (United States)			
7256 OF	Development of mobile preventive notification system (PreNotiS) [7256-14] A. Kumar, D. Akopian, P. Chen, The Univ. of Texas at San Antonio (United States)			
7256 0G	An assisted GPS support for GPS simulators for embedded mobile positioning [7256-15] P. Kashyap, The Univ. of Texas at San Antonio (United States); A. Samant, National Instruments (India); P. K. Sagiraju, D. Akopian, The Univ. of Texas at San Antonio (United States)			
7256 OH	Contextual interaction for geospatial visual analytics on mobile devices [7256-16] A. Pattath, D. S. Ebert, Purdue Univ. (United States); W. Pike, R. A. May, Pacific Northwest National Lab. (United States)			
SESSION 5	3D VIDEO DELIVERY FOR MOBILE DEVICES			
7256 OJ	Mobile 3D television: development of core technological elements and user-centered evaluation methods toward an optimized system (Invited Paper) [7256-18] A. Gotchev, Tampere Univ. of Technology (Finland); A. Smolic, Fraunhofer HHI (Germany); S. Jumisko-Pyykkö, Tampere Univ. of Technology (Finland); D. Strohmeier, Ilmenau Univ. of Technology (Germany); G. Bozdagi Akar, Middle East Technical Univ. (Turkey); P. Merkle, Fraunhofer HHI (Germany); N. Daskalov, Multi-Media Solutions, Ltd. (Bulgaria)			
7256 OK	Verification of 3D mobile broadcasting service based on depth-image based rendering technique in terrestrial-DMB [7256-19] G. Lee, H. Lee, K. Yun, B. Lee, N. Hur, J. W. Kim, Electronics and Telecommunications Research Institute (Korea, Republic of); K. Jung, Y. K. Park, J. K. Kim, Sungkyunkwan Univ. (Korea, Republic of)			
7256 OL	Use scenarios: mobile 3D television and video [7256-20] D. Strohmeier, Ilmenau Univ. of Technology (Germany); M. Weitzel, S. Jumisko-Pyykkö, Tampere Univ. of Technology (Finland)			
7256 0M	Imaging and display systems for 3D mobile phone application [7256-21] MC. Park, Korea Institute of Science and Technology (Korea, Republic of); JY. Son, Daeg Univ. (Korea, Republic of)			
7256 ON	Efficient stereoscopic contents file format on the basis of ISO base media file format [7256-22] K. Kim, J. Lee, D. Y. Suh, G. H. Park, Kyunghee Univ. (Korea, Republic of)			

INTERACTIVE PAPER SESSION

7256 OP	Perceptual quality measurement for scalable video at low spatial resolution in mobile environments [7256-24] H. Sohn, H. Yoo, C. S. Kim, W. De Neve, Y. M. Ro, Information and Communications Univ. (Korea, Republic of)
7256 0Q	A location-based notification- and visualization-system indicating social activities [7256-25] S. David, S. Edlich, TFH Berlin (Germany)
7256 OR	An Android based location service using GSMCellID and GPS to obtain a graphical guide to the nearest cash machine [7256-26] J. Jacobsen, S. Edlich, TFH Berlin (Germany)

Author Index

Conference Committee

Symposium Chairs

Nitin Sampat, Rochester Institute of Technology (United States) **Jan P. Allebach**. Purdue University (United States)

Conference Chairs

Reiner Creutzburg, Fachhochschule Brandenburg (Germany) **David Akopian**, The University of Texas at San Antonio (United States)

Program Committee

Sos S. Agaian, The University of Texas at San Antonio (United States)
Alan Chalmers, University of Bristol (United Kingdom)
Linda Breitlauch, Mediadesign Hochschule Düsseldorf (Germany)
Jianfei Cai, Nanyang Technological University (Singapore)
Surendar Chandra, University of Notre Dame (United States)
Chang Wen Chen, Florida Institute of Technology (United States)
Kenneth J. Crisler, Motorola, Inc. (United States)
David Scott Doermann, University of Maryland, College Park
(United States)

Uwe Dummann, Siemens AG (Germany)

Elizabeth Dykstra-Erickson, Kinoma, Inc. (United States)

Stefan Edlich, Technische Fachhochschule Berlin (Germany)

Lajos Hanzo, University of Southampton (United Kingdom)

Zhihai He, University of Missouri, Columbia (United States)

Hendrik O. Knoche, University College London (United Kingdom)

Xin Li, West Virginia University (United States)

Manzur M. Murshed, Monash University (United States)

Sethuraman Panchanathan, Arizona State University (United States)

Kari A. Pulli, Nokia Research Ctr. Palo Alto (United States)

Matthias Rauterberg, Technische Universiteit Eindhoven (Netherlands)

Phillip A. Regalia, Institut National des Télécommunications (France)

Thomas Schwotzer, Fachhochschule Brandenburg (Germany)

Olli J. Silvén, University of Oulu (Finland)

Jarmo H. Takala, Tampere University of Technology (Finland)

Kaisa Anneli Väänänen-Vainio-Mattila, Tampere University of Technology (Finland)

Haitao Zheng, University of California, Santa Barbara (United States)

Session Chairs

- Security and Services for Mobile Devices
 Sos S. Agaian, The University of Texas at San Antonio (United States)
 David Akopian, The University of Texas at San Antonio (United States)
- 2 Mobile Media Coding and Processing Reiner Creutzburg, Fachhochschule Brandenburg (Germany)
- Large Media Processing
 Olli J. Silvén, University of Oulu (Finland)
 Reiner Creutzburg, Fachhochschule Brandenburg (Germany)
- Safety and Location
 David Akopian, The University of Texas at San Antonio (United States)
 Helmar Burkhart, University of Basel (Switzerland)
- 3D Video Delivery for Mobile Devices
 Namho Hur, Electronics and Telecommunications Research Institute (Korea, Republic of)
 Atanas P. Gotchev, Tampere University of Technology (Finland)