PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 8386

, "Front Matter: Volume 8386," Proc. SPIE 8386, Full Motion Video (FMV) Workflows and Technologies for Intelligence, Surveillance, and Reconnaissance (ISR) and Situational Awareness, 838601 (7 June 2012); doi: 10.1117/12.979144

Event: SPIE Defense, Security, and Sensing, 2012, Baltimore, Maryland, United States

PROCEEDINGS OF SPIE

Full Motion Video (FMV) Workflows and Technologies for Intelligence, Surveillance, and Reconnaissance (ISR) and Situational Awareness

Donnie Self
Editor

23–24 April 2012
Baltimore, Maryland, United States

Sponsored and Published by
SPIE

Volume 8386

Proceedings of SPIE, 0277-786X, v. 8386

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

Full Motion Video (FMV) Workflows and Technologies for Intelligence, Surveillance, and Reconnaissance (ISR) and Situational Awareness, edited by Donnie Self, Proc. of SPIE Vol. 8386, 838601 · © 2012 SPIE · CCC code: 0277-786X/12/\$18 · doi: 10.1117/12.979144

Proc. of SPIE Vol. 8386 838601-1

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 publisher is 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 *Full Motion Video (FMV) Workflows and Technologies for Intelligence, Surveillance, and Reconnaissance (ISR) and Situational Awareness*, edited by Donnie Self, Proceedings of SPIE Vol. 8386 (SPIE, Bellingham, WA, 2012) Article CID Number.

ISSN 0277-786X

ISBN 9780819490643

Published 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

Copyright © 2012, Society of Photo-Optical Instrumentation Engineers

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 SPIE 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/12/\$18.00.

Printed in the United States of America.

Publication of record for individual papers is online in the SPIE Digital Library.

SPIDigitalLibrary.org

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 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. Numbers in the index correspond to the last two digits of the six-digit CID number.

Contents

v *Conference Committee*

THE FUTURE: CONVERGING MOTION IMAGERY AND INTELLIGENCE

- 8386 03 **Transformational motion imagery processing, exploitation, and dissemination (PED) technologies** [8386-02]
G. S. Creech, National Geospatial-Intelligence Agency (United States); M. Brennan, Moriarty and Associates (United States)
- 8386 04 **Convergence in full motion video processing, exploitation, and dissemination and activity based intelligence** [8386-03]
M. Phipps, G. Lewis, General Dynamics Advanced Information Systems (United States)

CHALLENGES AND SOLUTIONS WITH MOTION IMAGERY

- 8386 05 **Improving usability for video analysis using gaze-based interaction** [8386-04]
J. Hild, E. Peinsipp-Byma, E. Klaus, Fraunhofer Institute of Optronics, System Technologies and Image Exploitation (Germany)
- 8386 06 **Georegistration of motion imagery with error propagation** [8386-05]
M. D. Pritt, K. J. LaTourette, Lockheed Martin Information Systems and Global Services (United States)
- 8386 07 **Full-motion video georegistration for accuracy improvement, accuracy assessment, and robustness** [8386-06]
C. R. Taylor, R. J. Settergren, BAE Systems (United States)
- 8386 08 **Dealing with the data deluge: file systems and storage technologies** [8386-07]
D. H. Denson, NetApp U.S. Public Sector (United States)

THE CLOUD AND MOTION IMAGERY PLUS VIDEO TEST DATA

- 8386 09 **Motion/imagery secure cloud enterprise architecture analysis** [8386-08]
J. L. DeLay, Harris Corp. (United States)
- 8386 0A **Transitioning ISR architecture into the cloud** [8386-09]
T. D. Lash, SAIC (United States)

ACTIVITY-BASED INTELLIGENCE I

- 8386 0D **Activity-based exploitation of Full Motion Video (FMV)** [8386-12]
S. Kant, Cognika Corp. (United States)

- 8386 OE **Automated motion imagery exploitation for surveillance and reconnaissance** [8386-13]
S. Se, F. Laliberte, V. Kotamraju, M. Dutkiewicz, MacDonald, Dettwiler and Associates Ltd. (Canada)
- 8386 OF **Unsupervised visual landmark extraction for place recognition** [8386-14]
E. Sariyanidi, H. Temeltaş, Istanbul Technical Univ. (Turkey)
- 8386 OG **Placement of Full Motion Video (FMV) frames in geographic context using pursuer** [8386-15]
C. N. Taylor, D. Uppenkamp, Air Force Research Lab. (United States); K. Shannon, Intelligent Software Solutions (United States)

ACTIVITY-BASED INTELLIGENCE II

- 8386 OH **Automated FMV SMART camera using dynamically updated LUTs** [8386-16]
H. Jaenisch, The Johns Hopkins Univ. (United States) and Licht Strahl Engineering Inc. (United States); J. Handley, Licht Strahl Engineering Inc. (United States)
- 8386 OI **Real-time anomaly detection in full motion video** [8386-17]
G. Konowicz, J. Li, Old Dominion Univ. (United States)
- 8386 OJ **Emerging standards suite for wide-area ISR** [8386-18]
P. F. Maenner, Motion Imagery Standards Board (United States)
- 8386 OK **Increased ISR operator capability utilizing a centralized 360 degree full motion video display** [8386-19]
K. Andryc, J. Chamberlain, T. Eagleson, G. Gottschalk, B. Kowal, P. Kuzdeba, D. LaValley, E. Myers, S. Quinn, M. Rose, B. Rusiecki, L-3 KEO (United States)

PANEL DISCUSSION ON STANDARDS: THE FOUNDATION OF THE FUTURE

- 8386 OM **OGC observations and measurements standard to support feature-based motion imagery tracking** [8386-21]
L. S. Randall, H. J. Antonisse, Motion Imagery Standards Board (United States)
- 8386 ON **Image-based tracking: a new emerging standard** [8386-22]
J. Antonisse, S. Randall, Motion Imagery Standards Board (United States)

TACTICAL AND WIRELESS DISSEMINATION

- 8386 OO **The evolution of wireless video transmission technology for surveillance missions** [8386-23]
C. M. Durso, E. McCulley, Vislink Surveillance (United States)
- 8386 OP **Salience-based compression: providing FMV over low-bit rate channels** [8386-24]
M. A. Isnardi, A. Kopansky, S. Chai, SRI International Sarnoff (United States)

Author Index

Conference Committee

Symposium Chair

Kevin P. Meiners, Office of the Secretary of Defense (United States)

Symposium Cochair

Kenneth R. Israel, Lockheed Martin Corporation (United States)

Conference Chair

Donnie Self, National Geospatial-Intelligence Agency (United States)

Program Committee

Mark A. Aitken, Sinclair Broadcast Group, Inc. (United States)

Lawrence Brody, Communications Engineering, Inc. (United States)

John Marino, National Association of Broadcasters (United States)

Gary Nadler, Consultant, Commercial Broadcast Industry
(United States)

James Snyder, U.S. Library of Congress (United States)

Norman S. Stein, TASC, Inc. (United States)

Peter Symes, Society of Motion Picture and Television Engineers
(United States)

Kevin L. West, Office of the Under Secretary of Defense for Intelligence
(United States)

Session Chairs

The Future: Converging Motion Imagery and Intelligence

Gregory S. Creech, National Geospatial-Intelligence Agency
(United States)

Challenges and Solutions with Motion Imagery

Gary Nadler, Consultant, Commercial Broadcast Industry
(United States)

The Cloud and Motion Imagery Plus Video Test Data

Randy L. Richard, Defense Information Systems Agency (United States)

Activity-Based Intelligence I

Gregory S. Creech, National Geospatial-Intelligence Agency
(United States)

Activity-Based Intelligence II

Gary Nadler, Consultant, Commercial Broadcast Industry
(United States)

Tactical and Wireless Dissemination

Gary Nadler, Consultant, Commercial Broadcast Industry
(United States)

Panel Discussion: Standards—The Foundation of the Future

Donnie Self, *Moderator*, National Geospatial-Intelligence Agency
(United States)

Randy L. Richard, Defense Information Systems Agency (United States)

Jim Antonisse, Booz Allen Hamilton Inc. (United States)

Scott Randall, Booz Allen Hamilton Inc. (United States)