PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 6961

, "Front Matter: Volume 6961," Proc. SPIE 6961, Intelligent Computing: Theory and Applications VI, 696101 (2 May 2008); doi: 10.1117/12.798096

SPIE.

Event: SPIE Defense and Security Symposium, 2008, Orlando, Florida, United States

PROCEEDINGS OF SPIE

Intelligent Computing: Theory and Applications VI

**Kevin L. Priddy
Emre Ertin**
Editors

**17–18 March 2008
Orlando, Florida, USA**

Sponsored and Published by
SPIE

Volume 6961

Proceedings of SPIE, 0277-786X, v. 6961

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

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 *Intelligent Computing: Theory and Applications VI*, edited by Kevin L. Priddy, Emre Ertin, Proceedings of SPIE Vol. 6961 (SPIE, Bellingham, WA, 2008) Article CID Number.

ISSN 0277-786X

ISBN 9780819471529

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 © 2008, 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/08/\$18.00.

Printed in the United States of America.

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

SPIE
Digital Library

SPIEDigitalLibrary.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 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*

SESSION 1 INTELLIGENT SENSOR NETWORKS

- 6961 02 **Computation and design of autonomous intelligent systems** [6961-02]
R. L. Fry, Systems Engineering Group, Inc. (USA)
- 6961 03 **Localized construction of aggregation trees in sensor networks** [6961-03]
A. Kalyan, R. Bhatnagar, Univ. of Cincinnati (USA)
- 6961 04 **Dynamic landscape maps for path planning and target assignment** [6961-04]
M. L. Larsen, N. F. Rulkov, Information Systems Labs. (USA)
- 6961 05 **Unsupervised learning in persistent sensing for target recognition by wireless ad hoc networks of ground-based sensors** [6961-01]
W. S. Hortos, Associates in Communications Engineering Research and Technology (USA)

SESSION 2 SENSOR APPLICATIONS

- 6961 06 **Position-adaptive explosive detection concepts for swarming micro-UAVs** [6961-05]
R. R. Selmic, Louisiana Tech Univ. (USA); A. Mitra, Air Force Research Lab. (USA)
- 6961 07 **Combining and displaying results from aeronautical Smart Nodes** [6961-06]
R. Kölle, EUROCONTROL (Belgium) and Univ. of Lancaster (United Kingdom); A. Tarter, Ultra Electronics (United Kingdom) and Univ. of Lancaster (United Kingdom)
- 6961 08 **Human activity recognition in video using two methods for matching shape contexts of silhouettes** [6961-07]
N. Kholgade, A. Savakis, Rochester Institute of Technology (USA)
- 6961 09 **Onboard system for synchronizing video and telemetry on a small UAV** [6961-08]
A. Rodríguez, C. Taylor, Brigham Young Univ. (USA); Y. Aregawi, R. Dennis, T. Jenkins, Air Force Research Lab. (USA)
- 6961 0A **Analytical approach to cross-layer protocol optimization in wireless sensor networks** [6961-09]
W. S. Hortos, Associates in Communications Engineering Research and Technology (USA)

SESSION 3 THEORY

- 6961 0B **From sensor networks to sensor organizations** [6961-11]
E. Matson, Wright State Univ. (USA) and Univ. of Cincinnati (USA); R. Bhatnagar, Univ. of Cincinnati (USA)

- 6961 OD **Distributed caching strategy** [6961-13]
K. J. Kim, Dartmouth College (USA); E. E. Santos, Virginia Polytechnic Institute and State Univ. (USA); E. Santos, Jr., Dartmouth College (USA)
- 6961 OE **Multi-threat containment with dynamic wireless neighborhood networks** [6961-14]
N. A. Ransom, Harris Corp. (USA); S. J. Yang, Rochester Institute of Technology (USA)
- 6961 OF **Internalizing intelligent activity** [6961-10]
J. Brander, Interactive Engineering (Australia)
- 6961 OG **A self-adapting heuristic for automatically constructing terrain appreciation exercises** [6961-15]
S. Nanda, SDS International, Inc. (USA); C. L. Lickteig, P. S. Schaefer, Army Research Institute (USA)
- 6961 OH **A heuristic for deriving the optimal number and placement of reconnaissance sensors** [6961-16]
S. Nanda, SDS International, Inc. (USA); J. Weeks, Air Force Research Labs. (USA); M. Archer, SDS International, Inc. (USA)
- 6961 OI **Problems in data registration for persistent sensing** [6961-17]
S. Jwa, Ü. Özgüner, The Ohio State Univ. (USA)
- 6961 OJ **Exploring approaches to layered image registration** [6961-18]
P.-F. Chen, H. Krim, North Carolina State Univ. (USA); O. L. Mendoza, Air Force Research Lab. (USA)

SESSION 4 APPLICATIONS I

- 6961 OK **Intelligent computer-aided diagnosis system for breast MRI combining kinetic and morphological aspects** [6961-19]
A. Wismüller, Univ. of Rochester (USA); A. Meyer-Bäse, O. Lange, Florida State Univ. (USA)
- 6961 OM **Neural network internal model process control** [6961-21]
L. McLauchlan, Texas A&M Univ., Kingsville (USA); M. Mehrübeoğlu, Texas A&M Univ., Corpus Christi (USA)

SESSION 5 APPLICATIONS II

- 6961 ON **Development of a small-scale computer cluster** [6961-22]
J. Wilhelm, J. T. Smith, J. E. Smith, West Virginia Univ. (USA)

Author Index

Conference Committee

Symposium Chair

Larry B. Stotts, Defense Advanced Research Projects Agency (USA)

Symposium Cochair

Ray O. Johnson, Lockheed Martin Corporation (USA)

Program Track Chairs

Grant R. Gerhart, U.S. Army Tank-Automotive Research, Development and Engineering Center (USA)

Steve K. Rogers, Air Force Research Laboratory (USA)

Conference Chairs

Kevin L. Priddy, Air Force Research Laboratory (USA)

Emre Ertin, The Ohio State University (USA)

Program Committee

Gianfranco Basti, Pontificia Università Lateranense (Italy)

William S. Hortos, Associates in Communication Engineering Research and Technology (USA)

Anke Meyer-Bäse, Florida State University (USA)

Mark E. Oxley, Air Force Institute of Technology (USA)

Todd V. Rovito, Air Force Research Laboratory (USA)

Eugene Santos, Jr., Dartmouth College (USA)

Robert L. Williams, Air Force Research Laboratory (USA)

Session Chairs

- 1 Intelligent Sensor Networks
Kevin L. Priddy, Air Force Research Laboratory (USA)
- 2 Sensor Applications
William S. Hortos, Associates in Communication Engineering Research and Technology (USA)
- 3 Theory
Emre Ertin, The Ohio State University (USA)
- 4 Applications I
Anke Meyer-Bäse, Florida State University (USA)
- 5 Applications II
Anke Meyer-Bäse, Florida State University (USA)