

PROCEEDINGS OF SPIE

***Geospatial InfoFusion Systems  
and Solutions for Defense and  
Security Applications***

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**28–29 April 2011  
Orlando, Florida, United States**

*Sponsored and Published by*  
SPIE

**Volume 8053**

Proceedings of SPIE, 0277-786X, v. 8053

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 *Geospatial InfoFusion Systems and Solutions for Defense and Security Applications*, edited by Matthew F. Pellechia, Richard Sorensen, Shiloh L. Dockstader, Rudy G. Benz II, Bernard V. Brower, Proceedings of SPIE Vol. 8053 (SPIE, Bellingham, WA, 2011) Article CID Number.

ISSN 0277-786X  
ISBN 9780819486271

Published by

**SPIE**

P.O. Box 10, Bellingham, Washington 98227-0010 USA  
Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445  
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Printed in the United States of America.

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## Introduction

A Geospatial Information System (GIS) describes any information system that collects, integrates, stores, edits, analyzes, shares, and displays geographic information. GIS systems are fundamental to today's information networks and inherently encompass techniques that transform "raw bits and bytes" into "actionable information," also termed *InfoFusion*. GIS applications incorporate tools that allow users to create interactive queries (user-created searches), analyze spatial information, edit data, maps, and present the results of all these operations. In the commercial sector, GIS systems are used in cartography, remote sensing, land surveying, utility management, geographical strategic natural resource planning, photogrammetric science, geography, urban planning, emergency management, navigation, and localized search engines. For example, defense and security applications, such as Unmanned Aerial Systems and Airport Security Systems, are rapidly transforming from basic sensor collection systems that "take pictures" to fully-capable GIS systems that incorporate multi-sensor collections, perform advanced processing and correlations in real-time, initiate sensor cross-cueing, and allow multiple users to instantly retrieve and disseminate information. GIS is critical to defense and security providers in order to enable satisfying emerging demands and rapid access to information for situational awareness and forensic back-tracking missions.

These proceedings provide the SPIE community with a collection of perspectives, advancements, learnings, and new solutions from a range of global industry, government, and academic authors. The motivation of this conference track is simple: to expand the awareness of advanced GIS architectures and enabling technologies that address emerging and adaptive security threats through the use of information fusion.

We hope you find these proceedings useful in the advancement of using GIS to solve today's challenging problems within defense and security applications.

**Matthew F. Pellechia**  
**Richard Sorensen**

