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Geospatial InfoFusion Systems and Solutions for Defense and Security Applications

Matthew F. Pellechia
Richard Sorensen
Shiloh L. Dockstader
Rudy G. Benz II
Bernard V. Brower
Editors

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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