



## Topical Thread

# Sensors & Exploitation



Our research in the **Sensors & Exploitation** thread addresses technical issues in *Intelligent Information Processing* (e.g., new technologies, tools, and processes that support the discovery, processing, exploitation, and dissemination of information and knowledge) and *Sensors and Environment* (e.g., new processing and exploitation techniques for sensor data). Eight projects have been highlighted that address challenges associated with Sensors & Exploitation. A **one-hour guided tour** (starting at **Thread Central** at **9 am** and repeated at **11:30 am**) provides an overall orientation of the work being done in each technical area plus in-depth presentations by four projects. Please visit the remaining projects using the map provided (over).

## Intelligent Information Processing

### IIP-01 Structured ISR Fusion

Many ISR requirements can only be achieved by fusing data from multiple platforms and sensing modalities. This MSR uses formal mathematical methods to design, implement, and predict fusion system performance.

Tour

### IIP-04 ISR Forensics: Retrospective Analysis of ISR Data

Forensic analysts need easy-to-use tools to access, navigate, and process archived sensor data. We are developing visualization tools to support forensic analysis and feed back lessons learned to future operational systems.

## Sensors and Environment

### SE-02 Adaptive Sensor Tasking and Control

Most operational multi-sensor and multi-platform surveillance systems lack an analytically tractable approach to target ID or automated target recognition (ATR). Theoretical approaches to target ID/ATR can provide the ability to analyze and predict performance, thereby allowing sensor systems developed for one application to be readily assessed in other problem domains.

### SE-03 Three Dimensional (3-D) Sensor Exploitation

Existing military target recognition systems fail to meet many desired operational objectives. This MSR will develop a systems level methodology for the design, analysis, and implementation of highly capable 3-D target recognition systems.

Tour

### SE-04 Tracking via Keystoning

Current radars cannot reliably track slowly moving targets due to confusers and random target stops and starts. This project will develop a radar mode that quickly detects and tracks slowly moving targets over tactically actionable timelines.

Tour

### SE-06 Netted Sensors

This project will perform research on critical technology required to make netted sensors viable (e.g., power management, ad hoc network formation, distributed processing and data management), build a testbed and demonstrate NS technology and concepts in a set of applications-oriented experiments.

### SE-08 Next-Generation Analyst Environment for Geospatial Intelligence

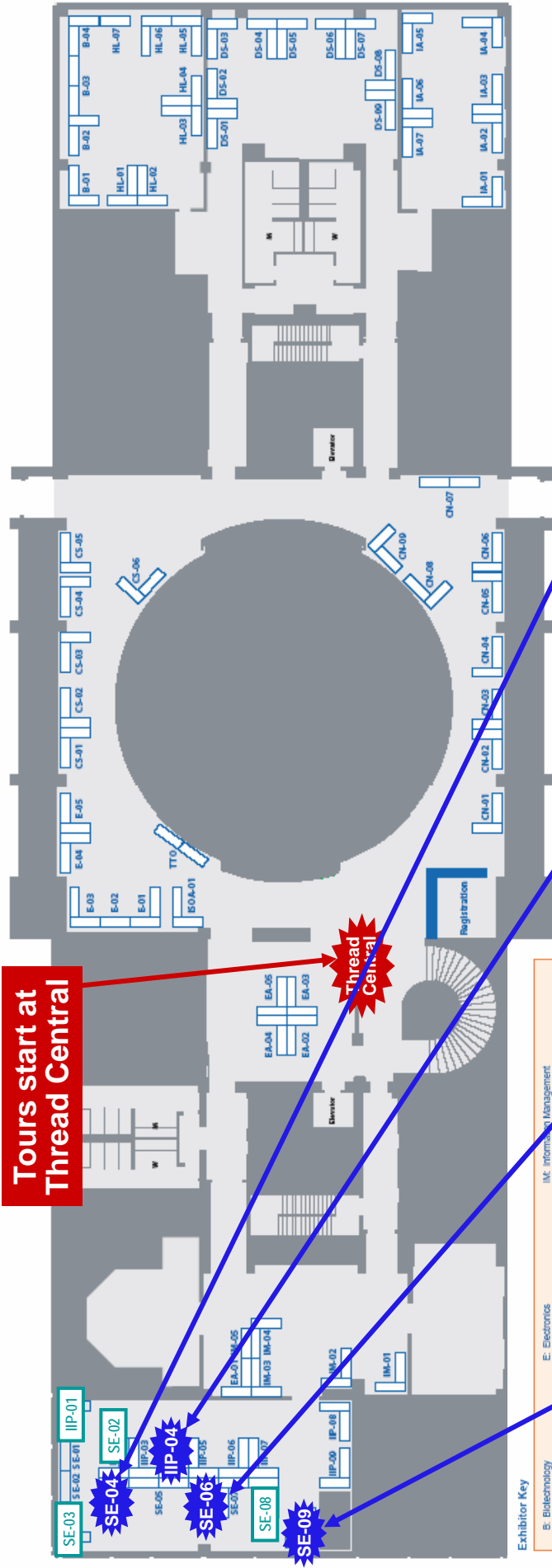
Geospatial intelligence analysts need a new environment to handle the large volumes of imagery available. This research seeks to define a new environment for geospatial intelligence, including automated preprocessing of imagery and an easy-to-use interface.

Tour

### SE-09 Kaleidoscope: Multi-Sensor GMTI-VMTI Track Fusion and Visualization

We seek to improve video-derived moving target tracking algorithms, introduce a mobile target ontology, and render composite ground moving target tracks.

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**Tours start at Thread Central**

**Thread Central**

- Exhibitor Key**
- B: Biotechnology
  - E: Electronics
  - EA: Enterprise Architectures
  - ISDA: Investment Strategies and Operational Analysis
  - IM: Information Management
  - CM: Communications and Networks
  - ISQA: Investment Strategies and Operational Analysis
  - HL: Human Language
  - MST: Modeling, Simulation, and Training
  - CS: Computing and Software
  - IA: Information Assurance
  - SE: Sensors and Environment
  - IP: Intelligent Information Processing
  - DS: Decision Support

<b>SE-09</b> Kaleidoscope: Multi-Sensor GMTI-VMTI Track Fusion and Visualization	<b>SE-06</b> Netted Sensors	<b>IIP-04</b> ISR Forensics: Retrospective Analysis of ISR Data	<b>SE-04</b> Tracking via Keystoning
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## Thread Tour

**Please also visit**

<b>IIP-01</b> Structured ISR Fusion	<b>SE-02</b> Adaptive Sensor Tasking and Control	<b>SE-03</b> Three Dimensional (3-D) Sensor Exploitation	<b>SE-08</b> Next-Generation Analyst Environment for Geospatial Intelligence
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