CALL FOR PAPERS

The 1st International Workshop on Collaborative Trusted Sensing

Submission Deadline: January 15, 2009

Motivations and Scope:

The daunting challenges of counter-terrorism and homeland defense drive a capabilities-based research strategy focused on the need to detect, mitigate, and prevent bold, asymmetric attacks or natural disasters. Decision makers need to be able to find and resolve <u>what</u> is needed <u>when</u> it is needed in the minimum cognitive bandwidth (*Universal Situational Awareness)*.

Universal Situational Awareness can be defined as "the ability to detect and understand the capabilities, intents, and locations – as well as the ability to cause harm – of any entity, no matter where it is, what its nature is, or how it is organized."

This level of situational awareness requires a robust, multi-layer space (for global access, episodic events), air (regional, persistent surveillance and reconnaissance, continuous forensics), ground (proximate and varied), and cyberspace (anticipatory and forensic) sensing architecture with fused knowledge delivery enabling proactive/anticipatory/predictive/forensic capabilities.

These capabilities, in turn, establish an "unblinking eye" over the area of interest, providing *anticipatory and persistent decision support* to a wide range of users in preparation for application of a wide range of tailored effects supporting a wide range of contingencies.

In terms of the community's widely accepted situational awareness components:

- *Sensors* provide the "sensing" component (data collection – detection and identification of relevant objects, states, values, action)
- *Collaborative, advanced exploitation* provides:
  - Comprehension (the interpretation and synthesis of data that gives *meaning* in a given situation)
  - Projection (prediction and simulation aimed at possible outcomes, future scenarios)
  - Resolution (intentions, courses of action supporting decisions and planning)

One organization that is aggressively pursuing research in this area, the Air Force Research Laboratory's Sensors Directorate, uses the term *"Layered Sensing"* to describe the combination of sensors, infrastructure, and collaborative exploitation techniques to:

> "provide decision makers at all levels with *timely, actionable, trusted, and relevant situation awareness* to ensure their decisions achieve the desired effects. Layered Sensing is characterized by the appropriate sensor or combination of sensors/platforms, collaborative infrastructure and exploitation capabilities to generate that awareness."

Description:

This workshop on Collaborative Trusted Sensing – to be held as part of the 2009 International Symposium on Collaborative Technologies and Systems (CTS'09) – will focus on assessing the state of the art in all phases (sensing, routing and storing, discovery, transformation, analysis, visualization, and exploitation) of Layered Sensing products. The objective is to highlight key issues, and possible solution spaces, to use collaboration techniques, tools and principles to realize the Layered Sensing situational awareness vision. We invite original contributions from researchers and practitioners in academia, government, and industry in this emerging collaboration specialty. The workshop scope covers **all aspects of sensor technology, wireless sensor networking, and applications of networked sensor systems**.

Topics of Interest include (but are not limited to):

- Distributed collaborative trusted sensor systems design and infrastructure
- Service models and architectures for layered sensing
- Trusted and reputation-based collaboration in sensor-based networks
- Modeling and simulation of sensor nets collaboration
- Addressing heterogeneity (integration of multiple sensor types)
- Collaboration in sensor net-based autonomous systems and vehicles
- Uniform access to sensor data across multiple heterogeneous networks
- Management of system trustworthiness and trust
- Detecting, reacting, and responding to cyber attacks
- Responding to changing conditions within sensor nodes, the network, or the environment
- Routing and storing of sensor data in collaborative operations
- Protocols for layered sensing systems
- Collaborative information discovery
- Collaborative exploitation in sensor nets for decision making

- Intelligent spaces using networked layered sensing
- Layered sensing systems evaluation
- Applications using layered sensing systems

Instructions for Authors:

Authors are invited to submit original papers to the special session organizer by **January 15, 2009**. Electronic (pdf) submissions are encouraged and should be sent to Michael.Nowak@wpafb.af.mil and zywienm@saic.com. For other review electronic formats, please check with the organizer. Papers submitted for review should not exceed 10 pages in IEEE single-spaced, double-column format. Include up to 6 keywords and an abstract of no more than 350 words. Submissions should also include the title, authors name, affiliation, e-mail address, fax number and postal address. In case of multiple authors, an indication of which author is responsible for correspondence should also be included. If accepted, the final manuscript will follow the CTS 2009 format that is available on the conference Web site at http://cisedu.us/cis/cts/09/main/callForPapers.jsp.

Consistent with standard practice, each submitted paper will receive a minimum of three reviews. Papers will be selected based on their originality, timeliness, significance, relevance, and clarity of presentation. Initial selection will be based on full papers. Instructions for final manuscript format and requirements will be posted on the CTS 2009 Symposium web site later. Submission implies the willingness of at least one of the authors to register and present the paper, once accepted. All accepted papers are required to be presented and will be included in the conference proceedings.

Workshop Organizers:

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Technical Program Committee:

All submitted papers will be rigorously reviewed by the workshop technical program committee members.

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Important Dates:

Paper Submission Deadline	**January 15, 2009**
Notification of Acceptance	**February 7, 2009**
Registration & Camera-Ready Paper Due	**March 3, 2009**

For information or questions about the full Symposium's program, tutorials, exhibits, demos, panel and special sessions organization, please consult the conference web site at URL: http://cisedu.us/cis/cts/09/main/callForPapers.jsp or contact the symposium co-chairs: Bill McQuay at AFRL/RYT, WPAFB (William.McQuay@wpafb.af.mil) or Waleed W. Smari at the Dept. of Electrical and Computer Engineering, University of Dayton (Waleed.Smari@notes.udayton.edu).