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Call for Papers

Intelligent Computing Theory and Applications to Layered and Persistent Sensing Systems (DS118)

Part of the SPIE International Symposium on Defense, Security + Sensing
13-17 April 2009 • Orlando World Center Marriott Resort & Convention Center • Orlando, FL United States

Conference Chairs: **Kevin L. Priddy**, Air Force Research Lab. (United States); **Emre Ertin**, The Ohio State Univ. (United States)

Program Committee: **Gianfranco Basti**, Pontificia Univ. Lateranense (Italy); **William S. Hortos**, Associates in Communication Engineering Research and Technology (United States); **Anke Meyer-Baese**, Florida State Univ. (United States); **Mark E. Oxley**, Air Force Institute of Technology (United States); **Todd V. Rovito**, Air Force Research Lab. (United States); **Eugene Santos, Jr.**, Dartmouth College (United States); **Robert L. Williams**, Air Force Research Lab. (United States)

The focus of the conference is on applying intelligent computing techniques to layered persistent sensing systems. Persistent sensing consists of capturing data over long time periods and then using the time domain to determine what is occurring. The advent of large, ~70 M pixel, video images has placed a premium on fast computational techniques to detect anomalous events and to alert operators when these events are to occur. Layered sensing systems combine data from persistent stand off sensors such as EO and SAR with data from ground-based camera networks and unattended non-imaging ground sensors to provide continuous target tracking, fingerprinting, and identification. It is critical in layered sensing systems to communicate information between the sensor layers to focus the processing of sensor data to relevant targets.

Layered persistent sensing is of great interest to DARPA and the rest of the DoD and we encourage paper submissions that address problems in this area. In addition, this conference is interested in other real-world applications and recent theoretical developments in the area of intelligent computing, including but not limited to, neural networks, expert systems, Bayesian networks, fuzzy logic, and evolutionary computation. The goal is to provide a forum for interaction between researchers and industrial/government agencies with advanced or complex information processing requirements. Sessions containing papers from the different disciplines in related applications will be the highlight of this conference. Papers that investigate advantages/disadvantages of intelligent computing solutions in specific real-world applications will be published in the conference proceedings and presented at the conference orally or as a poster.

The conference will feature special sessions on application of intelligent computing on real-world data from layered persistent sensing systems. Two such challenge problem data sets are available from AFRL at:
https://www.sdms.afrl.af.mil/datasets/clif2007/
 https://www.sdms.afrl.af.mil/datasets/gotcha/

Regular Sessions will concentrate on:

- comparative performance in applications requiring intelligent computing such as target recognition, object recognition, speech processing, speaker identification, signal processing in realistic environments, robotics, process control, and image processing
- sensor networks
- demonstrations of properties and limitations of existing or new intelligent computing methods
- software development environments for development of intelligent computing algorithms
- related hardware implementation technologies that are either general purpose or application specific
- data mining and classical machine learning methods
- knowledge acquisition and representation
- physiologically and biologically motivated information processing and representation
- homeland defense applications
- multi-agent learning
- neural network, fuzzy logic, support vector machine techniques.

Special Instructions to Authors
In addition, authors who wish to create special sessions should contact the chairman directly: Emre Ertin, ertin.1@osu.edu

Due to the limited number of oral sessions, we cannot accommodate requests for oral-only presentations without the prior approval of the Conference Chair. It has been the goal of this conference to allow for as many oral sessions as practical given time and space limitations. Any program committee member can guarantee acceptance of brief oral overviews followed by poster interactive presentations. There will be no differentiation between poster and oral papers in the proceedings.

Abstract Due Date: 29 September 2008
On-Site Manuscript Due Date: 26 January 2009

Submission of Abstracts for Defense, Security + Sensing

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On-Site Proceedings Manuscript Due Date: 26 January 2009

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- Please also submit a 100-word abstract suitable for early release. If accepted, this abstract text will be published prior to the meeting in online or printed programs promoting the conference.
- A full-length manuscript (8-12 pages) for any accepted oral or poster presentation (including keynote, invited, and solicited presentations) will be submitted for publication in the SPIE Digital Library, printed conference Proceedings, and CD-ROM.

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- Have all contact information (full names, affiliations, addresses, phone numbers, and emails) for your coauthors ready.
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- Commercial papers, papers with no new research/development content, and papers where supporting data or a technical description cannot be given for proprietary reasons should not be submitted, and will not be accepted for presentation in this conference.

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