

2011 IEEE First International Multi-Disciplinary Conference on Cognitive Methods in Situation Awareness and Decision Support

(CogSIMA '4233)

**Miami Beach, Florida, USA
22-24 February 2011**



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Conference Program

Monday, February 21

Registration

Welcome Reception - Pool Deck North

Tuesday, February 22

Breakfast

Keynote Session: Keynote by Gary Toth, Program Manager, C2 and Knowledge Management, Office of Naval Research - "Directions for Higher-Level Fusion Research: Capabilities & Needs"

S1: Situation Awareness and Decision Support I

Heuristic Methods for Automating Event Detection on Sensor Data in Near Real-Time

Daniel Mauer (The MITRE Corporation, USA); Barry Lai (The MITRE Corporation, USA); Jennifer Casper (The MITRE Corporation, USA); Peter Leveille (The MITRE Corporation, USA); Jing Hu (The MITRE Corporation, USA); Ronald Albuquerque (The MITRE Corporation, USA); Eddy Cheung (The MITRE Corporation, USA)

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Situation Awareness in Context-Aware Case-Based Decision Support

Nuka Nwiabu (Robert Gordon University, United Kingdom); Ian Allison (Robert Gordon University, United Kingdom); Patrik Holt (Robert Gordon University, United Kingdom); Peter Lowit (Robert Gordon University, United Kingdom); Babs Oyeneyin (Robert Gordon University, United Kingdom)

pp. 9-16

Augmenting the Analyst Via Situation-Dependent Reasoning with Trust-Annotated Facts

Brian Ulicny (VISTology, Inc., USA); Gerald M. Powell (U.S. Army Research Laboratory, USA); Chester F. Brown (US Army Intelligence Center of Excellence, Fort Huachuca, AZ, USA); Mieczyslaw Kokar (Northeastern University, USA); Christopher J Matheus (Bell Labs Ireland, Ireland); Jerzy Letkowski (Western New England College, USA)

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Coffee Break

S2: Situation Modeling and Learning

Applying Time-Dependent Algebraic Systems for Describing Situations

Peeter Lorents ((NATO) Cooperative Cyber Defence Centre of Excellence, Estonia); Erika Matsak (Tallinn University, Institute of Informatics, Estonia)

pp. 25-3F

Dynamic Logic Learning in Cognitive-Based Situation Models

Roman Ilin (AFRL, USA); Leonid Perlovsky (Air Force Research Laboratory, USA)

pp. 32-39

Improving Situation Awareness in Cognitive Networks Using the Self-Organizing Map

Anssi P Kärkkäinen (Aalto University, Finland)

pp. 40-47

Lunch (on own)

S3: Threat Situation Modeling

Extending Situation Modeling with Inference of Plausible Future Cyber Situations

Gabriel E. Jakobson (Altusys Corp., USA)
pp. 48-55

Deception Robust Control for Automated Cyber Defense Resource Allocation

Jamie Lawson (Lockheed Martin, USA); Rajdeep Singh (Lockheed Martin, USA); Michael Hultner (Lockheed Martin, USA); Kartik B. Ariyur (Purdue University, USA)
pp. 56-59

A Perceptually-Relevant Model-Based Cyber Threat Prediction Method for Enterprise Mission Assurance

Tahia Infantes Morris (Harris Corporation, USA); Liam M Mayron (Harris Corporation, USA); Wayne Smith (Harris Corporation, USA); Margaret Knepper (Harris Corporation, USA); Reg Ita (Harris Corporation, USA); Kevin Fox (Harris Corporation, USA)
pp. 60-65

Coffee Break

S4: Modeling Human Situational Behavior

Simulating Situated Work

Amy Pritchett (Georgia Institute of Technology, USA); So Young Kim (Georgia Tech, USA); Suresh Kannan (Georgia Tech, USA); Karen Feigh (Georgia Tech, USA)
pp. 66-73

Towards Context-Aware Hard/Soft Information Fusion: Incorporating Situationally Qualified Human Observations Into a Fusion Process for Intelligence Analysis

Michael P Jenkins (University at Buffalo, USA); Geoff Gross (University at Buffalo, USA); Ann Bisantz (University at Buffalo, USA); Rakesh Nagi (University at Buffalo, USA)
pp. 74-81

Modeling a Robotics Operator Manager in a Tactical Battlefield

Varun Dutt (Carnegie Mellon University, USA); Daniel Cassenti (U.S. Army Research Laboratory, USA); Cleotilde Gonzalez (Carnegie Mellon University, USA)
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Poster Session

Object-Event Graph Matching for Complex Activity Recognition

Alexander Bauer (Fraunhofer IOSB, Germany); Yvonne Fischer (Karlsruhe Institute of Technology (KIT), Germany)
pp. 88-93

Ubiquitous Computing in Emergency: Role-Based Situation Response Based on Self-Organizing Resource Network

Alexander Smirnov (SPIIRAS, Russia); Tatiana Levashova (St.Petersburg for Informatics and Automation of the Russian Academy of Sciences, Russia); Nikolay Shilov (SPIIRAS, Russia)
pp. 94-101

Uncertainty Reasoning for Service-based Situational Awareness Information on the Semantic Web

Stephen Dinkel (Nova Southeastern University, USA); William Hafner (Nova Southeastern University, USA); Paulo C.G. Costa (George Mason University, USA); Sumitra Mukherjee (Nova Southeastern University, USA)
pp. 102-105

Competency Awareness in Strategic Decision Making

Amr S Ghoneim (University of New South Wales at the Australian Defence Force Academy UNSW@ADFA, Australia); Daryl Essam (University of New South Wales at the Australian Defence Force Academy UNSW@ADFA, Australia); Hussein Abbass (University of New South Wales at the Australian Defence Force Academy UNSW@ADFA, Australia)

pp. 106-109

Emergency-Management Situational-Awareness Prototype (EMSAP)

Kevin Adams (SSC Pacific, USA); Alexander Wassell (Space and Naval Warfare Systems Center, San Diego (SSC-SD), USA); Marion G. Ceruti (Space and Naval Warfare Systems Center Pacific, USA); Ernesto Castro (SSC Pacific, USA); Sandi Lehan (Space and Naval Warfare Systems Center, San Diego (SSC-SD), USA); John Mitchell (SSC Pacific, USA)

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An Interactive Approach to Solve a Multi-Objective Covering-Routing Problem Considering Critical Areas

Maria José Pinto Lamosa (Institute for Advanced Studies, Brazil); Daniel Lamosa (Universidade de Taubaté (UNITAU), Brazil); Monica De Marchi (Institute for Advanced Research, Brazil)

pp. 115-118

A Multi-Perspective Approach to the Evaluation of a Portable Situation Awareness Support System in a Simulated Infantry Operation

Sébastien Tremblay (Université Laval, Canada); Patrick Jeuniaux (C3 s.e.n.c., Canada); Paul Romano (Thales Canada, Canada); Jacques Lowe (Thales Canada, Canada); Richard Grenier (Thales Canada, Canada)

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Situation Awareness for Networked Systems

Jürjo S Preden (Tallinn University of Technology, Estonia); Leo Motus (Estonian Academy of Science, Estonia); Merik Meriste (Tallinn University of Technology, Estonia); Andri Riid (Tallinn University of Technology, Estonia)

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Determining the Role of Geospatial Technologies for Stigmergic Coordination in Situation Management

Janet Marsden (Syracuse University, USA)

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A Simulation Engine to Predict Multi-Agent Work in Complex, Dynamic, Heterogeneous Systems

Amy Pritchett (Georgia Institute of Technology, USA); Hans Claus Christmann (Georgia Institute of Technology, USA); Matthew Bigelow (Georgia Tech, USA)

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Simulating First-Principles Models of Situated Human Performance

Amy Pritchett (Georgia Institute of Technology, USA); Karen Feigh (Georgia Tech, USA)

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Simulating Situational Awareness with User-Defined Operating Picture (UDOP) Devices Using Rules

James Niehaus (Charles River Analytics, USA); Scott Neal Reilly (Charles River Analytics, USA)

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Predicting an Adequate Ratio of Unmanned Vehicles Per Operator Using a System with a Mission Definition Language

Olinda Rodas (SPAWAR SSC Pacific, USA); Christian X Szatkowski (SPAWAR SSC Pacific, USA); Mark Veronda (SPAWAR Systems Center Pacific, USA)

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Assessing Team Workload and Situational Awareness in an Intelligence, Surveillance, and Reconnaissance (ISR) Simulation Exercise

James C Won (MIT Lincoln Laboratory, USA); Gary Condon (MIT Lincoln Laboratory, USA); Benjamin Landon (MIT Lincoln Laboratory, USA); Andrew Wang (MIT Lincoln Laboratory, USA); Daniel Hannon (Tufts University, USA)

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The Perceptual Cognitive Mapping for Missile Defense Command and Control Displays

Richard Steinberg (Northrop Grumman, USA)

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COAction: Collaborative Option Awareness Impact on Collaborative Decision Making

Gary Klein (The MITRE Corporation, USA); Jill Drury (The MITRE Corporation, USA); Mark Pfaff (Indiana University Purdue University Indianapolis, USA)

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Antecedents of Trust in Human-Robot Collaborations

Kristin Oleson (University of Central Florida, USA); Deborah Billings (University of Central Florida, USA); Vivien Kocsis (University of Central Florida, USA); Jessie Chen (U. S. Army Research Laboratory, USA); Peter Hancock (University of Central Florida, USA)

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Cognitive Cyber Situational Awareness Using Virtual Worlds

Kay Michel (Harris Corporation, USA); Nathan Helmick (Harris Corporation, USA); Liam M Mayron (Harris Corporation, USA)

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Development of Information Fusion Model for Layered Sensing Systems Using Computing with Words

Salaeh Zein-Sabatto (Ten State U, USA)

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Gesture Recognition Application with Parametric Hidden Markov Model for Activity-Based Personalized Service in APRiME

KyoJoong Oh (Korea Advanced Institute of Science and Technology, Korea); Young-Seob Jeong (KAIST, Korea); Sung-Suk Kim (Korea Advanced Institute of Science and Technology (KAIST), Korea); Ho-Jin Choi (Korea Advanced Institute of Science and Technology (KAIST), Korea)

pp. 189-193

Context Awareness of Social Group by Topic Mining on Visiting Logs of Mobile Users in Two Dimensions

Young-Seob Jeong (KAIST, Korea); KyoJoong Oh (Korea Advanced Institute of Science and Technology, Korea); Sung-Suk Kim (Korea Advanced Institute of Science and Technology (KAIST), Korea); Ho-Jin Choi (Korea Advanced Institute of Science and Technology (KAIST), Korea)

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Metacognition: Enhancing the Performance of a Cognitive Radio

Manik Gadhiok (Virginia Tech, USA); Ashwin Amanna (Virginia Tech, USA); Matthew J Price (Virginia Tech, USA); Jeffrey Reed (Virginia Tech, USA)

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Flexible Autonomous Support to Aid Context and Task Switching

Kevin Durkee (Aptima, Inc., USA); Charlotte Shabarekh (Aptima, Inc., USA); Cullen Jackson (Aptima, Inc., USA); Gabriel Ganberg (Aptima, Inc., USA)

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Applying the Scenario Planning Approach to Support Multicriterial Strategic Assessment

Marcelo Zawadzki (Institute for Advanced Studies, Brazil); Danielle Araujo (Institute for Advanced Studies, Brazil)

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An Event-Driven Multi-Agent Middleware Architecture and Protocol Design for Intelligent Geographically Distributed Battlefield Training, Modeling and Simulation

Dalila B. Megherbi (University of Massachusetts, Lowell, USA); Devaki Pandit (CMINDS Research Center, USA)

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Breakfast

Keynote Session: Keynote by Dr. Mica R. Endsley, President, SA Technologies - "Building Models of Situation Awareness: From Humans to Computers"

S5: Conceptual Situation Awareness Architecture

A Framework for Representing Agent and Human Situation Awareness

Rashaad Jones (SA Technologies, USA); Erik Connors (SA Technologies, USA); Mica Endsley (SA Technologies, USA)
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A Conceptual Framework for Automatic Situation Assessment

Yvonne Fischer (Karlsruhe Institute of Technology (KIT), Germany); Alexander Bauer (Fraunhofer IOSB, Germany); Jürgen Beyerer (Fraunhofer IOSB, Germany)
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Tactical Management in Near Real-Time Systems

Tapio Saarelainen (National Defence University, Finland); Jussi Timonen (National Defense University, Finland)
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Coffee Break

S6: Panel: Building Synergistic Human/Machine Systems to Support Situation Awareness and Decision Making

Lunch (on own)

S7: Enhancing Human Performance

Interaction Modeling in Automotive Applications: A Cognitive Approach

Lorenzo Ciardelli (University of Genova, Italy); Luca Bixio (University of Genoa, Italy); Carlo S Regazzoni (University Of Genova, Italy)
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Visualizing the Field of Safe Travel Increases Performance in a Naval Movement Task

Christofer Waldenström (Stockholm University, Sweden)
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Somatic Situation Awareness: A Model for SA Acquisition Under Imminent Threat and Severe Time Stress

Moin Rahman (Motorola Solutions, USA)
pp. 257-263

Coffee Break

S8: Situation Awareness and Decision Support II

Switch and Deliver: Display Layouts for MOMV (Multiple Operator Multiple Video Feed) Environments

Talya Porat (Ben-Gurion University, Israel); Tal Oron-Gilad (Ben-Gurion University, Israel); Jacob Silbiger (Synergy Integration Ltd., Israel); Michal Rotem-Hovev (Israel Air Force, Israel)
pp. 264-267

Decision Infrastructure for Counterinsurgency Operational Planning

Elan Freedy (Perceptronics Solutions Inc., USA); Lou Lartigue (United States Army, USA); Lisa Chung (Perceptronics Solutions Inc., USA); Raj Ratwani (Perceptronics Solutions Inc., USA);

Gershon Weltman (Perceptronics Solutions Inc., USA); James Zanol (Zanol Consulting Inc., USA); Brian Pierce (Raytheon, USA); Marvin Cohen (Perceptronics Solutions Inc., USA)
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A Framework of Data Processing for Decision Making in Railway Intelligent Infrastructure

Nastaran Dadashi (University of Nottingham, United Kingdom); John Wilson (University of Nottingham, Network Rail, United Kingdom); Sarah Sharples (University of Nottingham, United Kingdom); David Golightly (University of Nottingham, United Kingdom); Theresa Clarke (Network Rail, United Kingdom)
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Conference Banquet

Thursday, February 24

Breakfast

Keynote Session: Keynote by Prof John F. Sowa, President and a Co-founder of VivoMind Research, LLC - Situations: Cognitive, Theoretical and Computational

S9: Situation Awareness and Decision Support III

Supporting Situation Awareness: A Tradeoff Between Benefits and Overhead

Francois Vachon (Universite Laval, Canada); Daniel Lafond (Defence R&D Canada, Canada); Benoit Vallières (Universite Laval, Canada); Robert Rousseau (Neosapiens Inc, Canada); Sébastien Tremblay (Universite Laval, Canada)
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Collaborative Filtering of Spatial-Temporal Information for Crisis Informatics

Jimmy Secretan (Ad summos, USA)
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Augmenting Cognition in Complex Situation Management: Projection of Outcomes Improves Strategy Efficiency

Daniel Lafond (Defence R&D Canada, Canada); Michel DuCharme (Defence R&D Canada, Canada); Marie-Ève St-Louis (Universite Laval, Canada); Sébastien Tremblay (Universite Laval, Canada)
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Coffee Break

S10: Agent-Based Situation Awareness

A System That Uses Verb Frames for Situation Awareness of an Agent's Activities

Roland Johnson (North Carolina A&T State University, USA); Albert Esterline (North Carolina A&T State University, USA)
pp. 301-304

A Practical Situation Based Agent Architecture for Social Simulations

Jonathan Alt (Naval Postgraduate School, USA); Francisco Baez (TRADOC Analysis Center, Monterey, USA); Christian Darken (Naval Postgraduate School, USA)
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