

# **2014 IEEE International Inter-Disciplinary Conference on Cognitive Methods in Situation Awareness and Decision Support**

**(CogSIMA 2014)**

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## Program

### Conference Registration

**Tutorial 1 "Challenges of and Approaches to Hard - Soft Information Fusion"**

**Tutorial 2 "Designing for Situational Awareness in Virtual Environments"**

**Tutorial 3 "Introduction to Social Network Analysis"**

**Tutorial 4 "Threat Assessment with Technical Intelligence Applications"**

**Welcome Reception**

**Breakfast**

**Keynote: Dr. Mica Endsley, Chief Scientist, USA Air Force, "Integrating Humans and Autonomous Systems: Achieving Smooth, Simple, & Seamless"**

### Session S1: Decision-Making

***Reexamining Information Fusion--Decision Making Inter-dependencies***

James Llinas (University at Buffalo, USA)  
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***Accuracy and Effort of Decision Making Strategies with Incomplete Information***

Marc Canellas (Georgia Institute of Technology, USA); Karen Feigh (Georgia Tech, USA); Zarrin Chua (Georgia Institute of Technology, USA)  
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***Influence of Meta-Information on Decision-Making: Lessons Learned From Four Case Studies***

Maria Riveiro (University of Skövde, Sweden); Tove Helldin (University of Skövde, Sweden); Göran Falkman (University of Skövde, Sweden)  
pp. 14-20

### Coffee Break

### Session S2: User Interfaces

***Decision-making in Abstract Trust Games: A User Interface Perspective***

Emrah Onal (SA Technologies, USA); James Schaffer (UCSB, USA); John O'Donovan (University of California, Santa Barbara, USA); Laura Marusich (Army Research Laboratory, USA); Michael Yu (Carnegie Mellon University, USA); Cleotilde Gonzalez (Carnegie Mellon University & Dynamic Decision Making Laboratory, USA); Tobias Höllerer (University of California, Santa Barbara, USA)  
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***Truth, Lies, and Data: Credibility Representation in Data Analysis***

James Schaffer (UCSB, USA); Tarek Abdelzaher (University of Illinois, Urbana Champaign, USA); Cleotilde Gonzalez (Carnegie Mellon University & Dynamic Decision Making Laboratory, USA); Debra Jones (SA Technologies, USA); Tobias Höllerer (University of California, Santa Barbara, USA); Jason Harman (Carnegie Mellon University, USA); John O'Donovan (University of California, Santa Barbara, USA)  
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***Analysis on Visual Ergonomics of Instrument Display System Through Event-related-potential***

Ying Jiang (Xi'an Jiaotong University, P.R. China); Jun Hong (Xi'an Jiaotong University, P.R. China); Xiaoling Li (Xi'an Jiaotong University, P.R. China); Jue Qu (Air Force Engineering University, P.R. China)  
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## Lunch

## Session S3: Human Perception

***Visual Estimation of Human Attributes: An Empirical Study of Context-Dependent Human Observation Capabilities***

Dana Kerker (University at Buffalo, USA); Michael P Jenkins (Charles River Analytics, USA); Geoff Gross (University at Buffalo, USA); Ann Bisantz (University at Buffalo, USA); Rakesh Nagi (University of Illinois at Urbana-Champaign, USA)  
pp. 40-46

***The Use of Visual Cues to Determine the Intent of Cyclists in Traffic***

Paul Hemeren (University of Skövde, Sweden); Mikael Johannesson (University of Skövde, Sweden); Mikael Lebram (University of Skövde, Sweden); Fredrik Eriksson (University of Skövde, Sweden); Kristoffer Ekman (University of Skövde, Sweden); Peter Veto (University of Skövde, Sweden)  
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***The Apparent Intelligence of a System as a Factor in Situation Awareness***

Serge Thill (University of Skövde, Sweden); Paul Hemeren (University of Skövde, Sweden); Maria Nilsson (Viktoria Swedish ICT, Sweden)  
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## Coffee Break

## Session S4: Human-Machine Systems

***Adaptive Real-Time Threat Assessment Under Uncertainty and Conflict***

Galina L. Rogova (Encompass Consulting, University at Buffalo, USA)  
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***Evaluation and Extension of the Cognitive Assistant System (COGAS) for User-Oriented Support of Air Target Identification***

Emre Oez yurt (Fraunhofer Institute for Communication, Information Processing and Ergonomics (FKIE), Germany)  
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***Hybrid Cognitive Model for Semantic Discovery and Selection of Services***

Shailja Sharma (National Institute of Technology Kurukshetra, India); Jagdeep Singh Lather (National Institute of Technology Kurukshetra, India); Mayank Dave (National Institute of Technology Kurukshetra, India)  
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## Poster Session

***Introducing a Task Prioritization Tool to a Complex Supervisory Control Environment***

Olinda Rodas (SPAWAR SSC Pacific, USA)  
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***Dealing with Poorly Mapped Entities in Adaptive Object-Oriented World Modeling***

Achim Kuwertz (Karlsruhe Institute of Technology, Germany); Jürgen Beyerer (Fraunhofer IOSB, Germany)

***Situation Awareness for Violence Prevention on Campuses***

Nuka Nwiabu (Massachusetts Institute of Technology, USA)  
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***Task Models for Human-Computer Collaboration in Supervisory Control of Teams of Autonomous Systems***

Douglas S Lange (Space and Naval Warfare Systems Center - Pacific, USA); Robert Gutzwiller (Colorado State University, USA); Phillip Verbancsics (Space and Naval Warfare Systems Center Pacific, USA); Terence Sin (Space and Naval Warfare Systems Center Pacific, USA)  
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***Work Domain Analysis for Network Management Revisited: Infrastructure, Teams and Situation Awareness***

Diana Paterson (Dalhousie University, Canada)  
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***Weather-Monitoring Sensor Web for Supporting Situation Awareness***

Albert Esterline (North Carolina A&T State University, USA); William Wright (North Carolina A&T State University, USA); Jules Chenou (North Carolina A&T State University, USA)  
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***Reducing Ambiguity in Indoor Tracking Using Point of Interest***

Samer Fayssal (GFI USA Inc., USA)  
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***Measurement of Situation Awareness Among Diverse Agents in Cyber Security***

Ashley Cain (San Jose State University, USA); David Schuster (San Jose State University, USA)  
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***Dynamic Bandwidth Provisioning Using Markov Chain Based RSVP for Unmanned Ground Networks***

Preetha Thulasiraman (Naval Postgraduate School, USA); Yavuz Sagir (Naval Postgraduate School, USA)  
pp. 130-136

***Distributed Spectrum Sensing Using Belief Propagation Framework***

Riheng Wu (Shandong Aerospace Electronic Technology Institute, P.R. China)  
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***Digital Policy Management Requirements and Architecture***

Abdur Rahim Choudhary (Vaheda Inc., USA); Bel Raggad (Seidenberg School of CS & IS, USA)  
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***Distinguishing Analysis on Workload Peak and Overload Under Time Pressure with Pupil Diameter***

Xueli He (Beihang University, P.R. China)  
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***The Influence of Modality and Transparency on Trust in Human-Robot Interaction***

Tracy Sanders (University of Central Florida & Florida, USA); Tarita Wixon (University of Central Florida, USA); Kathryn Schafer (University of Central Florida, USA); Jessie Chen (U. S. Army Research Laboratory, USA); Peter Hancock (University of Central Florida, USA)  
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***On Modeling Context in Situation Management***

Gabriel E. Jakobson (Altusys Corp., USA)  
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## Breakfast

**Keynote: Dr. Peter Hancock, Provost Distinguished Research Professor, University of Central Florida, "2. The Antecedents of Situation Awareness and its Future"**

## Session S5: Situation Awareness

### ***Textual Risk Mining for Maritime Situational Awareness***

Amir Hossein Razavi (University of Ottawa, Canada); Diana Inkpen (University of Ottawa, Canada); Rafael Falcon (Larus Technologies Corporation, Canada); Rami Abielmona (Larus Technologies Corporation, Canada)  
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### ***Situation Awareness in Airport Environment Based on Semantic Web Technologies***

Gabriele Tamea (Universtà di Roma "La Sapienza", Italy); Antonio Cimmino (Zurich University of Applied Sciences, Switzerland); Francesco Delli Priscoli (University of Rome, "La Sapienza", Italy); Matteo Cusmai (Vitrociset, Italy); Andi Palo (University of Rome "La Sapienza", Italy); Donato Macone (University of Rome, "La Sapienza", Italy)  
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### ***Modeling Impact of Attacks, Recovery, and Attackability Conditions for Situational Awareness***

Hasan Cam (Army Research Laboratory, USA); Pierre Mouallem (US Army Research Laboratory, USA); Bruno Sinopoli (Carnegie Mellon University, USA); Yilin Mo (Caltech, USA); Benjamin Nkrumah (Stevens Institute of Technology, USA)  
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## Coffee Break

## Panel 1: "Situation Awareness in Security Domains"

The aim of this panel discussion is to provide a better understanding of the key elements of situation awareness (SA) for those tasked with providing security. Panelists will address the three key components of SA envisioned by Dr. Mica Endsley (1995): perception of elements in the environment, the comprehension of their meaning, and projection to the near future. Panelists will address a number of topics ranging from the current state of security technology, including the current and potential benefits of incorporating SA principles, to recommendations for enhancing the field. Panelists range from experience in physical security (protection of property or personnel) to cyber security. Examples include providing security for a warehouse/apartment complex, an operating base in Afghanistan, a bank, or an information system

## Lunch

## Session S6: Understanding Situations

### ***Inferring Relations and Individuals Relevant to a Situation: An Example***

Mieczyslaw Kokar (Northeastern University, USA); Seokchul Shin (Agency for Defense Development, Korea); Brian Ulicny (VISTology, Inc., USA); Jakub Moskal (VISTology, Inc., USA)  
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### ***Staying Aware in an Evolving World – Specifying and Tracking Evolving Situations***

Andrea Salfinger (Johannes Kepler University Linz, Austria); Werner Retschitzegger (Johannes Kepler University Linz, Austria); Wieland Schwinger (University of Linz, Austria)  
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### ***An Infrastructure for Distributed Rule-Based Situation Management***

Caroline Rizzi Raymundo (University of Kent, United Kingdom); Patricia Dockhorn Costa (Federal University of Espirito Santo, Brazil); Joao Paulo Almeida (Federal University of Espirito Santo, Brazil); Isaac Pereira (Federal University of Espirito Santo, Brazil)

## Coffee Break

### Session S7: Monitoring & Surveillance

#### ***Modeling and Recognizing Situations of Interest in Surveillance Applications***

Yvonne Fischer (Karlsruhe Institute of Technology (KIT), Germany); Andreas Reiswich (Fraunhofer IOSB, Germany); Jürgen Beyerer (Fraunhofer IOSB, Germany)  
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#### ***A Confabulation Model for Abnormal Vehicle Events Detection in Wide-Area Traffic Monitoring***

Qiuwen Chen (Syracuse University, USA); Qinru Qiu (Syracuse University, USA); Qing Wu (USAF Research Laboratory, USA); Morgan Bishop (USAF Research Laboratory, USA); Mark Barnell (USAF Research Laboratory, USA)  
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#### ***Mobility Estimation Using an Extended Kalman Filter for Unmanned Ground Vehicle Networks***

Preetha Thulasiraman (Naval Postgraduate School, USA); Grace Clark (Lawrence Livermore National Laboratory, USA); Timothy Beach (Naval Postgraduate School, USA)  
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## Conference Banquet

## Breakfast

### **Keynote: Prof. Leo Motus, Tallinn University of Technology, Some Situation Awareness Issues in Complex Cognitive Systems, their Sources and Potential Antidote**

### Session S8: Data Analysis

#### ***RankAOH: Context-driven Similarity-based Retrieval of Experiences in Cyber Analysis***

Chen Zhong (Pennsylvania State University, USA); Deepak Samuel (Pennsylvania State University, USA); John Yen (The Pennsylvania State University, USA); Peng Liu (Pennsylvania State University, USA); Robert F. Erbacher (US Army Research Laboratory, USA); Steve Hutchinson (ICF International Inc, USA); Renee Etoty (Army Research Lab, USA); Hasan Cam (Army Research Laboratory, USA); William Glodek (US Army Research Laboratory, USA)  
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#### ***Ontology Building for Cognitive Bias Assessment in Intelligence***

Gaëlle Lortal (Thales R&T, France); Philippe Capet (EKTIMO, France); Alain Bertone (Consultant in Cognitive Engineering, France)  
pp. 237-243

#### ***Behavior Modeling in Physical and Adaptive Intelligent Services***

Kunihiko Hiraishi (Japan Advanced Institute of Science and Technology, Japan); Koichi Kobayashi (Japan Advanced Institute of Science and Technology, Japan); Sunseong Choe (Japan Advanced Institute of Science and Technology, Japan); Naoshi Uchihiro (Japan Advanced Institute of Science and Technology, Japan)  
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#### ***A Cognitive Group Hierarchy Game Theoretic Framework for Bandwidth Management***

Mark D Rahmes (Harris Corporation, USA); Jay Hackett (Harris Corporation, USA); Kevin Fox (Harris Corporation, USA); Rick Pemble (Harris Corporation, USA); George Lemieux (Harris Corporation, USA); Howard Gans (Harris Corp, USA)  
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## Coffee Break

### **Panel 2: "Situation Awareness in Extreme Environments: Humanitarian Assistance and Disaster Relief"**

The aim of this panel discussion is to explore the key elements of situation awareness (SA) within extreme environments. Extreme environments are considered to be complex, high stress, and/or demanding environments or occupations that often utilize human-technology systems. This panel will focus on the integration of SA as a means to advance humanitarian assistance and disaster relief. Examples include development of technology (e.g., robotics, automation, virtual reality, threat assessment technology), environmental risk and assessment (e.g., forest fires, hurricane relief, etc.), and communication of information including big data (e.g., cognitive radio networks, information fusion, network science, etc.).