



Dear Colleague,

I am delighted on behalf of the IEEE Finland COMSOC Chapter Board to inform you that we will organize a lecture of *Dr. Gabriel Jakobson* from Altusys Corp on **June 23** lecture in Oulu. The lecture is at **room TS101 10:00 - 12am** including 90 min lecture and room for discussions. The more precise address is the street level of Tietotalo, University of Oulu.

The title of the lecture is “*Introduction to Cognitive Situation Management for Tactical Operations*”. The abstract can be found below.

Dr. Jakobson’s biography is also below. He will make lectures also in Tallinn, Göteborg and Aalborg during this distinguished lecturer tour (DLT). Exact timing and places will be published on www.ieee.se at VT/COM Chapter Tag.

If you have further questions, please don’t hesitate to contact me.

Yours truly,
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Introduction to Cognitive Situation Management for Tactical Operations

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Abstract

Modern wars are characterized by high mobility of troops and weapon systems, increasing operational tempo, and asymmetric and often hardly predictable situations. Such new characteristics predicate the need for comprehensive and effective methods of battlespace situation management. Situation Management (SM) is as a synergistic goal-directed process of situation awareness, control, and prediction in dynamic operational spaces. The essential components of SM include sensing and intelligence gathering, information fusion and event correlation, modelling of the domain entities and their inter-relations, detecting and reasoning about the situations, threat situation prediction, and action planning affecting the situations. This course gives an overview of a new direction in situation management called cognitive (intelligent) situation management, i.e. on SM, which is associated with the meaning of situations and the logical methods of reasoning about the situations. In order to exhibit such intelligent capabilities, the systems should possess fairly elaborated conceptual knowledge about the domain (domain ontology).

This is an introductory course; however several novel models and technological solutions will be described in sufficient depth to lead the students to practical engineering methods and tools. The first section of the course describes the domain of cognitive situation management, reviews the issues, and gives introductory notions of modeling complex dynamic systems and operational situation management. The second section introduces the basic elements of the formal framework of cognitive situation management, including entities, entity relations, dynamic systems, events, situations, situation awareness, decision awareness and ontology for situation management. The third section gives examples of situation management. In addition to defense applications the course

briefly describes other examples of situation management including: cyber security monitoring and attack impact assessment, post-disaster emergency, rescue and relief operations coordination, and fault management in networks and systems. The fourth section describes the core technologies of building situation management systems, including, situation modeling, real-time event correlation, case-based reasoning, ontology-based situation management, and system topology modeling. The fifth section presents a distributed architecture of a situation management system based on a multi-agent approach, describes the software system architecture based on component services, and refers to a several tools of building the situation management applications. The course concentrates on practical aspects, requirements, basic concepts, architecture, design and key enabling technologies of building cognitive situation management systems. The last section discuss some advanced topics of situation management and outline future research and development directions.

The lecture is be based on a tutorial given at SPIE 2008 Conference on Defence and Security, Orlando, FL, March 18-20, 2008

Dr. Gabriel Jakobson Biography

Dr. Gabriel Jakobson is the Chief Scientist at Altusys Corp., a consulting firm specializing in the development of intelligent Situation Management technologies for defence, cyber security and disaster situation management applications. During his more than 20 years tenure at Verizon (formerly GTE) he had increasing responsibilities of leading advanced database, expert systems, artificial intelligence, and telecommunication network management programs. Prior to that he was Senior Researcher at Institute of Cybernetics, Tallinn, Estonia conducting research on knowledge-based systems. Dr. Jakobson has authored 90 technical publications, has awarded 4 US patents on innovative real-time event correlation methods, and has 4 US patents pending on situation management. He received PhD degree in Computer Science from the Institute of Cybernetics, Estonia.

Dr. Jakobson is an IEEE Senior Member and Distinguished IEEE ComSoc Lecturer. He has extensively traveled giving lectures and tutorials in Latin America, Europe, Asia and Australia. He is the chair of the Workshop on Situation Management SIMA 2005-2008 held in-conjunction with MILCOM 2005-2008, chair of the Special Sessions on Situation Management at International Conference of Information Fusion 2006-2007, TPC co-chair of the Symposium on Selected Areas of Communication at ICC 2009 and General Chair of the International Conferences of Enterprise Networking and Services (EntNet) 2002-2007. Dr. Jakobson is the vice-chair of the Tactical Communications and Operations Technical Committee of IEEE ComSoc, chair of the IEEE ComSoc Sub-Committee on Situation Management, IEEE ComSoc Board member, Director of North America Region of ComSoc and IEEE ComSoc Membership Development Board member.