



## First International Workshop on Self-managing Solutions for Smart Environments (S<sup>3</sup>E 2011)

organized in association with the  
GPC 2011 6<sup>th</sup> International Conference on Grid and Pervasive Computing (GPC 2011)  
11 May 2011, Oulu, Finland  
<http://www.cse.oulu.fi/GPC2011>

### Program

9:00- 10:00	<b>Keynote : Global Understanding Environment : Towards Self-Managed Web of Everything</b>
	Prof. Vagan Terziyan, University of Jyväskylä
10:00 – 10:20	Coffee break
10:20 – 12:00	<b>Session 1: Self-managing Solutions</b>
	Chair: Artem Katasonov
	<b>Smart Solutions for Risk Prevention through Analysis of Persons' Movements</b> , M. Fugini, S. Pinardi, C. Raibulet
	<b>Supporting Situation-awareness in Smart Spaces</b> , S. Pantsar-Syvaniemi, J. Kuusijärvi, E. Ovaska
	<b>A Model for Using Machine Learning in Smart Environments</b> , S. Stenudd
	Discussion moderated by the chair
12:00 – 13:00	Lunch break
13:00 – 14:40	<b>Session 2: Self-managing Smart Spaces</b>
	Chair: Eila Ovaska
	<b>Flexible Security Deployment in Smart Spaces</b> , J. Suomalainen
	<b>Using semantic transformers to enable interoperability between media devices in a ubiquitous computing environment</b> , G. Niezen, B. Van der Vlist, J. Hu
	Discussion moderated by the chair
14:40- 15:00	Coffee break
15:00 – 16:15	<b>Session 3: Demonstrators</b>
	Chair: Antti Evesti
	Presentations of demonstrators
16:15	Closing words

# Keynote: “Global Understanding Environment: Towards Self-Managed Web of Everything”

**Abstract:** Current Web grows rapidly to several directions (from the Web of Documents to the Webs of Humans, Things, Services, Knowledge, Intelligence, etc.). Consequently the recent and future Web-based applications, systems and frameworks (like, e.g., Social and Ubiquitous Computing, SOA and Cloud Computing, etc.) should take into account challenges related to extremely high heterogeneity of components and exponentially increased complexity of a business logic connecting and making them interoperable. Enabling self-management enhanced with semantic technology seems to be an only option to handle that. We suggest adding a “virtual representative” to every resource in the Web to solve the global interoperability problem. Intelligent agent (a kind of “software robot”) will act, communicate and collaborate as a proxy on behalf of each Web resource. It will be connected with its resource via “semantic adapter”, will communicate with other agents via “semantic communication” and will be coordinated via “semantic business logic”. The relevant “Global Understanding Environment” (GUN) vision of Industrial Ontologies Group will be briefly presented. It can be considered as a kind of ubiquitous eco-system, which will be such proactive, self-managed evolutionary Semantic Web of Everything where all kinds of entities are assumed to understand, interact, serve, develop and learn from each other. The key set of enabling technologies for the GUN vision implementation includes: Artificial Intelligence; Semantic and Agent technologies; SOA and Cloud Computing. Some activities and projects, results and lessons learned by Industrial Ontologies Group on their way towards GUN will be briefly discussed.



**Prof. Vagan Terziyan, Industrial Ontologies Group (University of Jyväskylä, Finland)**

**Speaker Bio:** Vagan Terziyan is a Professor in Distributed Systems working at the Department of Mathematical Information Technology, Faculty of Information Technology in University of Jyväskylä. Formerly he was a Professor in Software Engineering and Head of AI Department in Kharkov National University of Radioelectronics (Ukraine). Vagan Terziyan is also a creator and the Head (since 2002) of the Industrial Ontologies Group (<http://www.mit.jyu.fi/ai/OntoGroup/>) and the leader of several research projects of the group. His research interest is related to self-managed and semantically-enhanced Web applications, services, systems and ecosystems. Vagan Terziyan has co-authored more than 150 academic publications.

**About Industrial Ontologies Group (IOG):** The IOG has been created in 2002 by initiative of international researchers and students from Agora Center and Department of Mathematical Information Technology in University of Jyväskylä. The major concept developed by the group is “Global Understanding Environment” (GUN) and the major activities are related to the “Roadmap towards GUN”. Among those there are: SmartResource project (2004-2007) - “Proactive Self-Maintained Resources in Semantic Web” funded by TEKES and investigating industrial applications of semantic and agent technologies; and more recent TEKES project called UBIWARE

(2007-2010) - “Smart Semantic Middleware for Ubiquitous Computing”, in which a platform and a set of tools has been developed for creation and operation of self-managed complex industrial systems consisting of distributed, heterogeneous components of different nature. Currently the group takes part in the project within Cloud Software TIVIT (ICT-SHOK) Program, in which the group utilizes UBIWARE for various tasks within cloud environments.