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Engineering Societies in the Agents World VI

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Revised Selected and Invited Papers



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Preface

ESAW 2005 took place at the Pine Bay Hotel in Kusadasi, Turkey at the end of the October 2005. It was organized as a stand-alone event as were ESAW 2004 and ESAW 2003. Following the initial ESAW vision, which was set in 1999, by the members of the working group on “Communication, Coordination and Collaboration” of Agentlink, ESAW 2005 continued to focus on the engineering of complex software systems in terms of multi-agent societies, especially the social and environmental aspects of such societies. The number of participants (40 researchers from 10 countries) and the highly interactive discussions held during the workshop showed the augmented importance of the initial vision as well as the effectiveness of ESAW as a well-established research forum.

It is obvious that today’s interconnected world increases the importance of approaches concerning the engineering of complex and distributed software systems. These kinds of large scale systems, made up of massive numbers of autonomous components, force us to discover new and novel approaches to model and engineer such systems as agent societies. It is very likely that such innovations will exploit lessons from a variety of different scientific disciplines, such as sociology, economics, organizational science and biology: ESAW 2005 included presentations from these domains in addition to its traditional research topics.

The following themes were addressed during the three-day meeting:

- *Agent Oriented System Development*. The presentations of this session focused on the environment concept and the role of the environment was discussed from applied and historical perspectives throughout the session.
- *Methodologies for Agent Societies*. This session hosted presentations and discussions on the two critical concepts of agent societies, which are role models and artifacts, in terms of the usage of these concepts within the methodologies of agent system development.
- *Deliberative Agents and Social Aspects*. The papers of this session concentrated on the employment of deliberative agents from an architectural perspective, such as in detecting inconsistencies in reasoning, and from an applied perspective, such as in realizing human-centric systems using deliberative agents.
- *Agent Oriented Simulation*. This session covered the presentations on the methodological and architectural issues of specific simulation areas such as crowd simulation and the evaluation of a population of sexual agents.
- *Adaptive Systems*. This session elaborated on the techniques and infrastructures that are designed to make an agent society adaptable against unpredictable events in its environment and illustrated some case studies of adaptive systems.

- *Coordination, Negotiation, Protocols*. This session collected the presentations about the applications of traditional topics of research on agent societies, such as coordination, negotiation and interaction protocols.
- *Agents, Networks and Ambient Intelligence*. This session focused on the usage of intelligent agents within two flourishing areas: mobile ad-hoc networks (MANETs) and ambient intelligence.

Three invited presentations underlined the interdisciplinary nature of research on agent societies by considering social insects, human economical and social systems, and privacy issues of MASs. The first invited talk was given by Guy Theraulaz, who is a professor at the Centre de Recherche sur la Cognition Animale group of the Université Paul Sabatier, Toulouse, France. In his talk, he presented some of the basic coordination mechanisms used by social insects to collectively make a decision or to build a nest architecture, paying particular attention to information processing within a colony.

The second invited talk was presented by Peter McBurney, who is a faculty member of the Agent Applications, Research and Technology (Agent ART) Group of the Department of Computer Science at the University of Liverpool, Liverpool, UK. During the talk, he first defined the properties of the anticipatory and reflective systems and then explored the use of recent MAS technologies for representing and designing anticipatory and reflective complex, adaptive systems.

The third invited presentation by Federico Bergenti, now senior researcher at CNIT (Consorzio Nazionale Interuniversitario per le Telecomunicazioni), Parma, Italia, discussed the latest studies related to management of security, trust and privacy in real-world multi-agent systems.

The original contributions, the slides of the presentations and more information about the workshop are available online on the ESAW 2005 Web site¹. These post-proceedings continue the series published by Springer (ESAW 2000: LNAI 1972, ESAW 2001: LNAI 2203, ESAW 2002: LNAI 2577, ESAW 2003: LNAI 3071, ESAW 2004: LNAI 3451). This volume contains the revised, reworked and extended versions of selected papers from ESAW 2005.

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- Agentlink III
- EBILTEM (Ege University of Science and Technology Applications and Research Center)
- EMO (Chamber of Turkish Electrical Engineers)
- TUBITAK (Turkish Scientific and Technical Research Organization)
- Netsis, Turkey.

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¹ <http://esaw05.ege.edu.tr>

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March 2006

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