From Agents to Electronic Order

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ABSTRACT

Trust, reputation, norms and organisations are all relevant to the effective operation of open and dynamic multiagent systems. Inspired by human systems, yet not constrained by them, these concepts provide a means to establish a sense of order in computational environments (and mixed human-machine ones). In this talk I will review previous work across a range of areas in support of the need to develop theories and systems that provide the computational analogue of common social coordination mechanisms used by humans, in addition to those that might only find favour in computational systems. I will focus on particular examples that illustrate different approaches, including through the use of norms and contracts, and suggest some key challenges that need to be addressed to drive the field forward.

Categories and Subject Descriptors

I.2.11 [Artificial Intelligence]: Distributed Artificial Intelligence — Multiagent systems

Keywords

Multiagent systems; Coordination; Norms and contracts.

Bio

Michael Luck is Professor of Computer Science and Head of the School of Natural and Mathematical Sciences at King's College London. He was Deputy Head of NMS in 2013, and Head of the Department of Informatics from 2011 to 2013, where he also works in the Agents and Intelligent Systems group, undertaking research into agent technologies and intelligent systems. He is Scientific Advisor to the Board for Aerogility.

His work has sought to take a principled approach to the development of practical agent systems, and spans: formal models for intelligent agents and multi-agent systems; formalisation of existing practical agent systems and theories; information-based agent applications in domains such as genome analysis; norms and institutions; trust and reputation; agent infrastructure; declarative programming of agent systems; agent-oriented software engineering; application to Grid computing; and industrial deployment and technology forecasting. He led work at King's on the IST CONTRACT project, concerned with distributed electronic business systems on the basis of dynamically generated, cross-organisational contracts, on a BAe Systems Defence Technology Centre project on norm and organisaton based practical reasoning, and on an EPSRC Bridging the Gaps project in Interdisciplinary Informatics.

He is a director of the International Foundation for Autonomous Agents and Multi-Agent Systems (IFAAMAS), co-founder of the European Multi-Agent Systems (EUMAS) workshop series (and served as its Steering Committee's first Chair), co-founder and Chair of the steering committee of the UK Multi-Agent Systems Workshops (UKMAS), and a Steering Committee member for the Central and Eastern European Conference on Multi-Agent Systems (CEEMAS). Professor Luck was a member of the Executive Committee of AgentLink III, the European Network of Excellence for Agent-Based Computing, having previously been the Director of AgentLink II. He is an editorial board member of Autonomous Agents and Multi-Agent Systems, the International Journal of Agent-Oriented Software Engineering, Web Intelligence and Agent Systems, and ACM Transactions on Autonomous and Adaptive Systems, as well as for the SpringerBriefs in Intelligent Systems series, having previously been series editor for Artech House's Agent Oriented Systems book series. He was also general co-chair of the Ninth International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2010), held in Toronto, Canada in May 2010.

From 2000 through 2006, Professor Luck was based in the School of Electronics and Computer Science at the University of Southampton, and from 1993 until 2000 in the Department of Computer Science at the University of Warwick. He studied in the Departments of Computer Science at University College London and the University of Illinois at Urbana-Champaign.