

Multi-Agent Systems: Theory and Application in Organization Modeling



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Brief Bio

Joaquim Filipe is a Coordinator Professor in the Department of Systems and Informatics of the School of Technology of the Polytechnic Institute of Setúbal (EST-Setúbal), currently Head of Department and also Member of the Board of the Interdisciplinary Institute for Collaboration and Research on Enterprise Systems and Technology (IICREST– <http://www.iicrest.eu>). He holds an M.Sc. degree awarded by the Technical University of Lisbon, Portugal, in 1984, an MBA degree, awarded by the New University of Lisbon in 1995, and a PhD degree, awarded by the School of Computing of Staffordshire University, UK, in 2001. His main areas of research are situated in the Informatics field, especially in Artificial Intelligence and Multi-Agent System applications with an emphasis on the study of social issues in activity coordination, including agent-based organizational modeling and simulation, where he has been actively involved in several national and international R&D projects. He is also interested in applying Organizational Semiotics to the analysis and development of Information Systems, having participated in several projects for developing e-learning systems and web-based information systems. Professor Filipe has published over 50 technical papers in the areas of Artificial Intelligence, Agents and Organizational Modeling. He has edited more than 20 books and he is a member of the editorial board of 7 journals. He has been an invited keynote speaker and also served as a member of the program committee, or as a member of the organizing committee, as conference chair or program chair, in more than 30 conferences.

Abstract

Agents and multi-agent systems have evolved as a promising technology, partly from the distributed artificial intelligence field and partly from the software engineering field. As usual this was not the mythical silver bullet that some would expect to solve all the problems in developing distributed autonomic software systems. Furthermore, when attempting to develop software based on this paradigm, it became evident that there is a need for a good theory to support the concepts of agent and multi-agent system in order for agents to be useful and widely accepted. Organizational agency, including problems of normative and communicative coordination, is analyzed and discussed and some agency notions are introduced in order to define a framework that can be used to theoretically support the development of software multi-agent systems in practice, with a particular focus on organization modeling.