

# Requirements Analysis of Agent-Based Simulation Platforms: State of the Art and New Prospects

Maria Bruno Marietto<sup>1,†</sup>, Nuno David<sup>1,2,‡</sup>,  
Jaime Simão Sichman<sup>1,¥</sup> and Helder Coelho<sup>3</sup>

<sup>1</sup> Intelligent Techniques Laboratory, University of São Paulo, Brazil  
gracas.marietto@poli.usp.br    <http://www.lti.pcs.usp.br/~graca>  
jaime.sichman@poli.usp.br    <http://www.pcs.usp.br/~jaime>  
<sup>2</sup> Department of Information Science and Technology, ISCTE/DCTI, Lisbon, Portugal  
Nuno.David@iscte.pt    <http://www.iscte.pt/~nmcd>  
<sup>3</sup> Department of Informatics, University of Lisbon, Portugal  
hcoelho@di.fc.ul.pt    <http://www.di.fc.ul.pt/~hcoelho>

**Abstract.** In this paper we propose a preliminary reference model for the requirements specification of agent-based simulation platforms. We give the following contributions: (i) aid the identification of general principles to develop platforms; (ii) advance the analysis and prospection of technical-operational and high-level requirements; (iii) promote the identification of shared requirements, addressing them to the development of an integrated work. We present our reference model and make a comparative analysis between three well-known platforms, resulting in an unambiguous and schematic characterisation of computational systems for agent-based simulation.

## 1 Introduction

Computational platforms and test-beds are becoming increasingly important in Multi-agent Systems (MAS). A first goal of these systems is to release the researchers from low-level technical-operational issues, allowing the researcher to concentrate his/her efforts on the relevant domain application logic. In the area of Multiagent-Based Simulation (MABS) (see [22]), computational platforms are important methodological tools that aid the researcher in the processes of modelling and development of simulation programs. They are especially valuable to conciliate different interdisciplinary perspectives, which in MABS typically involve researchers from various scientific areas, such as social psychology, artificial intelligence, computer engineering, artificial life, social biology, sociology and economics. The interdisciplinary character of

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