1. Record Nr. UNINA9910298981803321

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Titolo	Modeling and Simulation of Complex Systems : A Framework for Efficient Agent-Based Modeling and Simulation / / by Robert Siegfried
Pubbl/distr/stampa	Wiesbaden : , : Springer Fachmedien Wiesbaden : , : Imprint : Springer Vieweg, , 2014
ISBN	3-658-07529-5
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (233 p.)
Disciplina	004 005.1 006
Soggetti	Artificial intelligence Software engineering Artificial Intelligence Software Engineering/Programming and Operating Systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Preliminaries and related work: Agent-based modeling and simulation, Parallel and distributed multi-agent simulation, Summary -- Eective and ecient model development: The need for a reference model for agent-based modeling and simulation, GRAMS – General Reference Model for Agent-based Modeling and Simulation, Summary -- Eective model execution: Model partitioning and multi-level parallelization, Example implementation of GRAMS, Summary -- Conclusions.
Sommario/riassunto	Robert Siegfried presents a framework for efficient agent-based modeling and simulation of complex systems. He compares different approaches for describing structure and dynamics of agent-based models in detail. Based on this evaluation the author introduces the “General Reference Model for Agent-based Modeling and Simulation” (GRAMS). Furthermore he presents parallel and distributed simulation approaches for execution of agent-based models – from small scale to very large scale. The author shows how agent-based models may be executed by different simulation engines that utilize underlying

hardware resources in an optimized fashion. Contents Basics of agent-based modeling and simulation Parallel and distributed multi-agent simulation General Reference Model for Agent-Based Modeling and Simulation Model partitioning and multi-level parallelization Example implementation and benchmarks Target Groups Scientists and students in the field of modeling and simulation Practitioners in modeling and simulation About the Author Robert Siegfried is Senior Consultant for IT/M&S projects. He earned his doctorate in modeling and simulation at the Universität der Bundeswehr München. His research areas are agent-based modeling and simulation, distributed simulation, and quality management. He has worked on topics like model documentation and management, distributed simulation test beds, and process models. He is active member of the NATO Modeling and Simulation Group and the Simulation Interoperability Standards Organization.