

1. Record Nr.	UNINA9910139541803321
Titolo	Agent-directed simulation and systems engineering [[electronic resource] /] / Levent Yilmaz and Tuncer Oren
Pubbl/distr/stampa	Weinheim, : Wiley-VCH, 2009
ISBN	1-282-38053-2 9786612380532 3-527-62778-2 3-527-62779-0
Descrizione fisica	1 online resource (551 p.)
Collana	Wiley series in systems engineering and management
Altri autori (Persone)	OrenTuncer I YilmazLevent <1971->
Disciplina	620.00113
Soggetti	Computer simulation Intelligent agents (Computer software) Systems engineering - Data processing Electronic books.
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 and index.
Nota di contenuto	Agent-Directed Simulation and Systems Engineering; Foreword; Contents; Preface; List of Contributors; Part One Background; 1 Modeling and Simulation: a Comprehensive and Integrative View; 1.1 Introduction; 1.2 Simulation: Several Perspectives; 1.2.1 Purpose of Use; 1.2.2 Problem to Be Solved; 1.2.3 Connectivity of Operations; 1.2.4 M&S as a Type of Knowledge Processing; 1.2.5 M&S from the Perspective of Philosophy of Science; 1.3 Model-Based Activities; 1.3.1 Model Building; 1.3.2 Model-Base Management; 1.3.3 Model Processing; 1.3.4 Behavior Generation 1.4 Synergies of M&S: Mutual and Higher-Order Contributions 1.5 Advancement of M&S; 1.6 Preeminence of M&S; 1.6.1 Physical Tools; 1.6.2 Knowledge-Based or Soft Tools; 1.6.3 Knowledge Generation Tools; 1.7 Summary and Conclusions; 2 Autonomic Introspective Simulation Systems; 2.1 Introduction; 2.2 Perspective and Background on Autonomic Systems; 2.3 Decentralized Autonomic Simulation Systems: Prospects and Issues; 2.3.1 Motivating Scenario: Adaptive

Experience Management in Distributed Mission Training; 2.3.2 An Architectural Framework for Decentralized Autonomic Simulation Systems
2.3.3 Challenges and Issues
2.4 Symbiotic Adaptive Multisimulation: An Autonomic Simulation System; 2.4.1 Metamodels for Introspection Layer Design; 2.4.2 Local Adaptation: First-Order Change via Particle Swarm Optimizer; 2.4.3 The Learning Layer: Genetic Search of Potential System Configurations; 2.4.4 SAMS Component Architecture; 2.5 Case Study: UAV Search and Attack Scenario; 2.5.1 Input Factors; 2.5.2 Agent Specifications; 2.6 Validation and Preliminary Experimentation with SAMS; 2.6.1 Face Validity of the UAV Model; 2.6.2 Experiments with the Parallel SAMS Application; 2.7 Summary
Part Two Agents and Modeling and Simulation
3 Agents: Agenthood, Agent Architectures, and Agent Taxonomies; 3.1 Introduction; 3.2 Agenthood; 3.2.1 Defining Agents; 3.2.2 Situated Environment and Agent Society; 3.3 Agent Architectures; 3.3.1 Realizing Situatedness; 3.3.2 Realizing Autonomy; 3.3.3 Realizing Flexibility; 3.3.4 Architectures and Characteristics; 3.4 Agenthood Implications for Practical Applications; 3.4.1 Systems Engineering, Simulation, and Agents; 3.4.2 Modeling and Simulating Human Behavior for Systems Engineering; 3.4.3 Simulation-Based Testing in Systems Engineering; 3.4.4 Simulation as Support for Decision Making in Systems Engineering; 3.4.5 Implications for Modeling and Simulation Methods; 3.5 Agent Taxonomies; 3.5.1 History and Application-Specific Taxonomies; 3.5.2 Categorizing the Agent Space; 3.6 Concluding Discussion; 4 Agent-directed Simulation; 4.1 Introduction; 4.2 Background; 4.2.1 Software Agents; 4.2.2 Complexity; 4.2.3 Complex Systems of Systems; 4.2.4 Software Agents within the Spectrum of Computational Paradigms; 4.3 Categorizing the Use of Agents in Simulation; 4.3.1 Agent Simulation; 4.3.2 Agent-Based Simulation; 4.3.3 Agent-Supported Simulation

Sommario/riassunto

The only book to present the synergy between modeling and simulation, systems engineering, and agent technologies expands the notion of agent-based simulation to also deal with agent simulation and agent-supported simulation. Accessible to both practitioners and managers, it systematically addresses designing and building agent systems from a systems engineering perspective.
