Simulation Foundations, Methods and Applications

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Distributed Simulation
A Model Driven Engineering Approach

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Distributed Simulation
A Model Driven Engineering Approach

Series: Simulation Foundations, Methods and Applications

- ▶ **Presents a modeling-driven software engineering approach for distributed simulation**
- ▶ **Provides synergies between model-driven SWE, simulation, intelligent agents, and computer systems development**
- ▶ **Supports exposition with three medium-to-large-scale case studies in the field, as well as new updates on high-level computer architecture**

This unique text/reference provides a comprehensive review of distributed simulation (DS) from the perspective of Model Driven Engineering (MDE), illustrating how MDE affects the overall lifecycle of the simulation development process. Numerous practical case studies are included to demonstrate the utility and applicability of the methodology, many of which are developed from tools available to download from the public domain.

Topics and features:

- Provides a thorough introduction to the fundamental concepts, principles and processes of modeling and simulation, MDE and high-level architecture
- Describes a road map for building a DS system in accordance with the MDE perspective, and a technical framework for the development of conceptual models
- Presents a focus on federate (simulation environment) architectures, detailing a practical approach to the design of federations (i.e., simulation member design)
- Discusses the main activities related to scenario management in DS, and explores the process of MDE-based implementation, integration and testing
- Reviews approaches to simulation evolution and modernization, including architecture-driven modernization for simulation modernization
- Examines the potential synergies between the agent, DS, and MDE methodologies, suggesting avenues for future research at the intersection of these three fields

Distributed Simulation – A Model Driven Engineering Approach is an important resource for all researchers and practitioners involved in modeling and simulation, and software engineering, who may be interested in adopting MDE principles when developing complex DS systems.