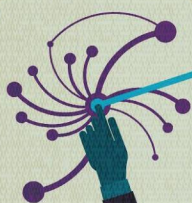


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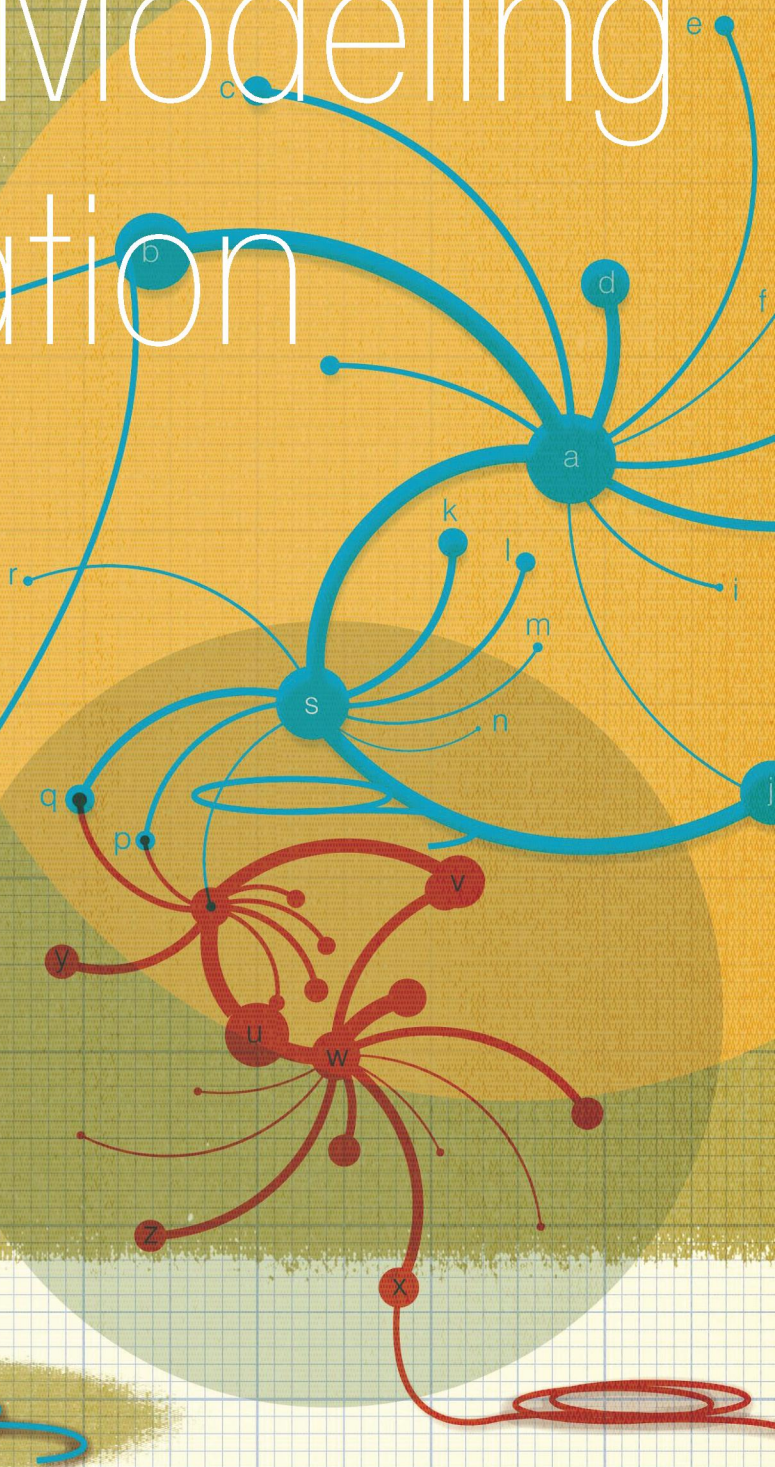
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Discrete Modeling & Simulation



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DISCRETE MODELING AND SIMULATION

8 Guest Editors' Introduction

Georgios Ch. Sirakoulis, Jarosław Wąs, and Gabriel A. Wainer

Discrete Modeling and Simulation

11 Eliciting Characteristics of H5N1 in High-Risk Regions Using Phylogeography and Phylodynamic Simulations

Neil Girdharan and Dhananjai M. Rao

To design vaccines and mitigate epidemics, evolutionary characteristics of avian influenza viruses are typically studied through longitudinal surveillance and serological assays. However, such in vivo analysis is often reactive and limited due to the complexities and costs of long-term, multinational surveillance. A novel in silico approach combines two different agent-based simulation methods to help inform vaccine design.

25 A Scalable Modeling and Simulation Environment for Chemical Gas Emergencies

Moon Gi Seok, Tag Gon Kim, Changbeom Choi, and Daejin Park

A scalable, hybrid agent-based simulation model incorporates an interactive computational fluid dynamics gas flow model to reflect human movement under chemical gas exposure. The proposed environment provides a simulator-level interface to integrate a continuous and discrete-event simulator by resolving data/event interaction and time synchronization among heterogeneous simulation models.

34 Agent-Based Creation and Simulation of Artificial Social Networks and the Analysis of Their Properties

Marek Zachara and Cezary Piskor-Ignatowicz

With the correct model, a wide range of social networks can be created and their properties investigated. Such networks can be used to test and validate various hypotheses. An agent-based model allows for the building of networks that have properties similar to those observed in the real world.

42 A Conceptual Modeling and Simulation Framework for System Design

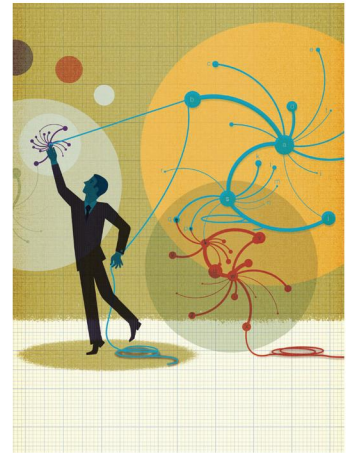
Eric Coatanéa, Ric Roca, Hossein Mokhtarian, Faisal Mokammel, and Kimmo Ikkala

The dimensional analysis conceptual modeling (DACM) framework is a conceptual modeling mechanism for lifecycle systems engineering. Originally developed for military projects, the DACM framework is now available for other applications, too. This powerful approach handles the specifying, discovering, validating, and reusing of building blocks as well as system behavior analysis in early development stages.

HIGH-PERFORMANCE COMPUTING

53 Speedup of Micromagnetic Simulations with C++ AMP on Graphics Processing Units

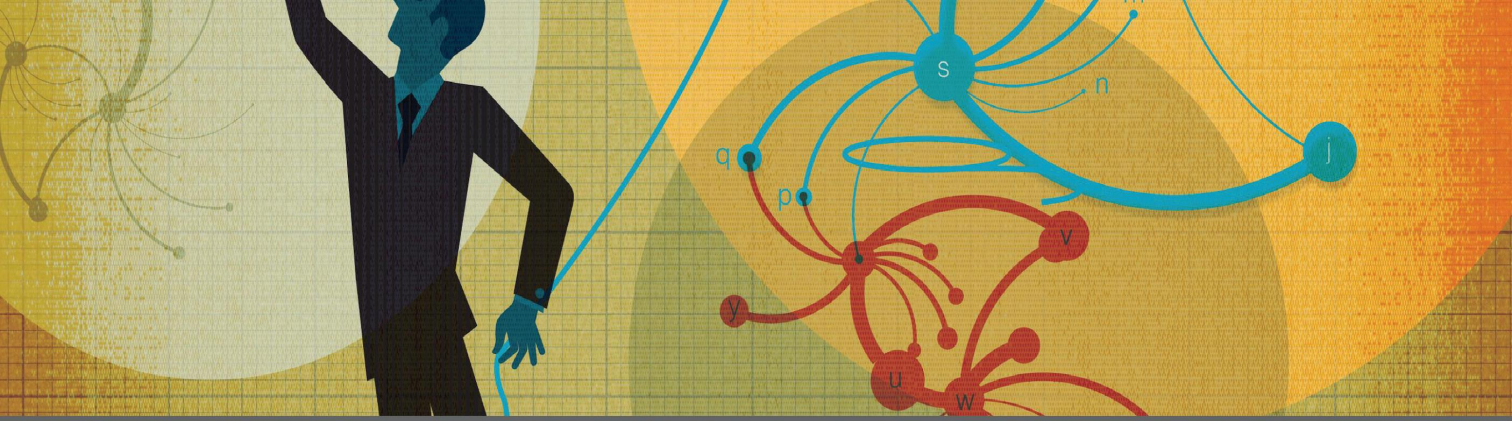
Ru Zhu



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