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Collana	Modeling and Simulation in Science, Engineering and Technology, , 2164-3725
Altri autori (Persone)	GibelliLivio
Disciplina	003.3
Soggetti	Mathematical models Mathematics - Data processing Operations research Management science Differential equations System theory Control theory Mathematical Modeling and Industrial Mathematics Computational Science and Engineering Operations Research, Management Science Differential Equations Systems Theory, Control
Lingua di pubblicazione	Inglese
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Nota di contenuto	Behavioral Human Crowds and Society (Gibelli) -- The mathematical theory of Hughes' model: a survey of results (Rosini) -- Time-continuous microscopic pedestrian models: an overview (Totzeck) -- Empirical investigations on the role of psychological factors in pedestrian route choice (Tong) -- Social human collective decision-making (Melnik) -- Single-file pedestrian dynamics: a review of agent-following models (Schadschneider) -- State-of-the-art passengers survey examining passengers' crowd behavior in emergencies at train stations (Shiwakoti) -- On a kinetic modeling of crowd dynamics with

several interacting groups (Liao) -- Coupling pedestrian flow and disease contagion models (Klar).

Sommario/riassunto

This contributed volume explores innovative research in the modeling, simulation, and control of crowd dynamics. Chapter authors approach the topic from the perspectives of mathematics, physics, engineering, and psychology, providing a comprehensive overview of the work carried out in this challenging interdisciplinary research field. The volume begins with an overview of analytical problems related to crowd modeling. Attention is then given to the importance of considering the social and psychological factors that influence crowd behavior – such as emotions, communication, and decision-making processes – in order to create reliable models. Finally, specific features of crowd behavior are explored, including single-file traffic, passenger movement, modeling multiple groups in crowds, and the interplay between crowd dynamics and the spread of disease. Crowd Dynamics, Volume 4 is ideal for mathematicians, engineers, physicists, and other researchers working in the rapidly growing field of modeling and simulation of human crowds.
