

Crowd Dynamics, Volume 3

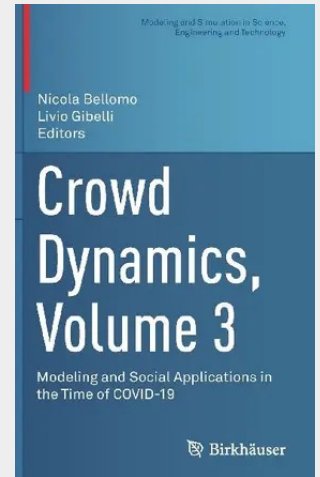
Modeling and Social Applications in the Time of COVID-19

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. In light of the recent COVID-19 pandemic, special consideration is given to applications of crowd dynamics to the prevention of the spreading of contagious diseases. Some of the specific topics covered in this volume include:

- Impact of physical distancing on the evacuation of crowds-
- Generalized solutions of opinion dynamics models-
- Crowd dynamics coupled with models for infectious disease spreading-
- Optimized strategies for leaders in controlling the dynamics of a crowd

Crowd Dynamics, Volume 3 is ideal for mathematicians, engineers, physicists, and other researchers working in the rapidly growing field of modeling and simulation of human crowds.

N. Bellomo, L. Gibelli, Behavioral human crowds: Recent results and new research frontiers.- F. Ceragioli, P. Frasca, B. Piccoli, F. Rossi, Generalized solutions to opinion dynamics models with discontinuities.- Z. Sabeur, B. Arbab-Zavar, Crowd behaviour understanding using computer vision and statistical mechanics principles.- L. Li, H. Liu, Y. Han, G. Zhang, D. Lu, Applications of crowd dynamic models: Feature analysis and process optimization.- G. Albi, F. Ferrarese, C. Segala, Optimized leaders strategies for crowd evacuation in unknown environments with multiple exits.- E. Ronchi, D. Nilsson, R. Lovreglio, M. Register, K. Marshall, The impact of physical distancing on the evacuation of crowds.- D. Kim, A. Quaini, A kinetic theory approach to model crowd dynamics with disease contagion.- M. Colangeli, A. Muntean, Towards a quantitative reduction of the SIR epidemiological model.- G. Pescarmona, P. Terna, A. Acquadro, P. Pescarmona, G. Russo, E. Sulis, S. Terna, An agent-based model of COVID-19 Diffusion to plan and evaluate intervention policies.



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