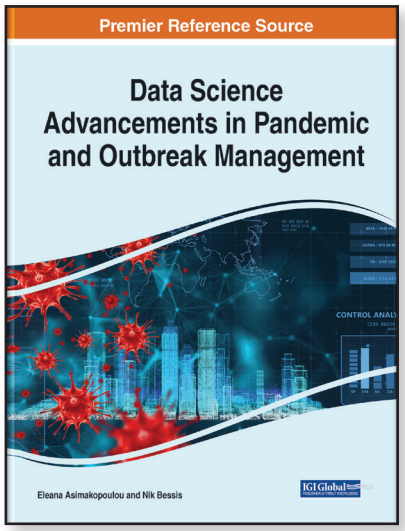
Data Science Advancements in Pandemic and Outbreak Management



Part of the Advances in Data Mining and Database Management Book Series

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Description:

Pandemics are disruptive. Thus, there is a need to prepare and plan actions in advance for identifying, assessing, and responding to such events to manage uncertainty and support sustainable livelihood and wellbeing. A detailed assessment of a continuously evolving situation needs to take place, and several aspects must be brought together and examined before the declaration of a pandemic even happens. Various health organizations; crisis management bodies; and authorities at local, national, and international levels are involved in the management of pandemics. There is no better time to revisit current approaches to cope with these new and unforeseen threats. As countries must strike a fine balance between protecting health, minimizing economic and social disruption, and respecting human rights, there has been an emerging interest in lessons learned and specifically in revisiting past and current pandemic approaches. Such approaches involve strategies and practices from several disciplines and fields including healthcare, management, IT, mathematical modeling, and data science. Using data science to advance in-situ practices and prompt future directions could help alleviate or even prevent human, financial, and environmental compromise, and loss and social interruption via state-of-the-art technologies and frameworks.

Data Science Advancements in Pandemic and Outbreak Management demonstrates how strategies and state-of-the-art IT have and/or could be applied to serve as the vehicle to advance pandemic and outbreak management. The chapters will introduce both technical and non-technical details of management strategies and advanced IT, data science, and mathematical modelling and demonstrate their applications and their potential utilization within the identification and management of pandemics and outbreaks. It also prompts revisiting and critically reviewing past and current approaches, identifying good and bad practices, and further developing the area for future adaptation. This book is ideal for data scientists, data analysts, infectious disease experts, researchers studying pandemics and outbreaks, IT, crisis and disaster management, academics, practitioners, government officials, and students interested in applicable theories and practices in data science to mitigate, prepare for, to, and recover from future pandemics and outbreaks.

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Topics Covered:

- Artificial Intelligence
- Big Data
- Data Analytics
- Data Science
- E-Healthcare
- Emergency Medicine
- Epidemic Modellings
- Internet of Things
- Machine Learning
- Mobile Sensors
- Pandemic and Outbreak Management
- Pandemic
- Misinformation
- Social Media Analytics

Subject: Computer Science and Information Technology

Classification: Edited Reference

Readership Level: Advanced-Academic Level (Research Recommended)

Research Suitable for: Advanced Undergraduate Students; Graduate Students; Researchers; Academicians; Professionals; Practitioners