Utilizing AI and Machine Learning for Natural Disaster Management

Part of the Advances in Computational Intelligence and Robotics Book Series

D Satishkumar (Nehru Institute of Technology, India) and M Sivaraja (Nehru Institute of Technology, India)

Description:

Acute events of natural origin, spanning atmospheric, biological, geophysical, hydrologic, and oceanographic realms, persistently menace societies globally. Approximately 160 million people annually bear the brunt of these disasters, with certain regions facing disproportionate impacts. The lack of predictability intensifies the challenge, creating intercommunal capacity gaps and amplifying the dire consequences.

In an era where natural disasters pose a persistent threat to human societies and the environment, the integration of artificial intelligence (AI) and machine learning (ML) emerges as a tool of hope. **Utilizing AI and Machine Learning for Natural Disaster Management** delves into the transformative potential of ML in predicting and mitigating the impact of natural calamities.

The book begins by demystifying the essence of machine learning, portraying it as an application of artificial intelligence designed to enable systems to learn and improve autonomously. With a focus on real-world applications, the narrative unfolds the profound impact of ML on diverse sectors such as customer service, healthcare, trading, and natural disaster management.

Utilizing AI and Machine Learning for Natural Disaster Management provides instances of ML in predicting earthquakes. By leveraging seismic data, AI systems can analyze magnitude and patterns, providing invaluable insights to forecast earthquake occurrences and aftershocks. Similarly, the book unveils the potential of ML in simulating floods by recording and analyzing rainfall patterns from previous years. The predictive power extends to hurricanes, where data on wind speed, rainfall, temperature, and moisture converge to anticipate future occurrences, potentially saving millions in property damage.

Topics range from disaster and pandemic management using ML to applying image-based deep learning for natural disaster prediction. Each topic improves the prediction and response mechanisms for natural disasters, exploring the symbiotic relationship between AI, ML, and disaster management. This book is ideal for academics, public and private organizations, managers, and the wider public.

ISBN: 9798369333624 **Pages:** 300 **Copyright:** 2024 **Release Date:** May, 2024

Hardcover: $315.00 **E-Book:** $380.00 **Hardcover + E-Book:** $380.00

Topics Covered:

- Acute Events Prediction
- Artificial Intelligence
- Deep Learning
- Disaster Risk Modeling
- Early Warning Systems
- Earthquake Prediction
- Emergency Communications
- Flood Simulation
- Geospatial Data
- Hurricane Forecasting
- Image-Based Deep Learning
- Machine Learning
- Natural Disaster Management
- Pandemic Management
- Predictive Analysis

Subject: Computer Science & Information Technology

Classification: Edited Reference

Readership Level: Advanced-Academic Level (Research Recommended)

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

Order Information
Phone: 717-533-8845 x100
Toll Free: 1-866-342-6657
Fax: 717-533-8661 or 717-533-7115
Online Bookstore: www.igi-global.com
Mailing Address: 701 East Chocolate Avenue, Hershey, PA 17033, USA