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Nota di contenuto	Cover -- Series Page -- Title Page -- Copyright Page -- Contents -- Preface -- Chapter 1 Transformative Trends in AI for Environmental Monitoring: Challenges, Applications -- 1.1 Introduction -- 1.2 Literature Verticals -- 1.3 Key Methodologies in Literature Review -- 1.4 Most Common Methods in Environmental Monitoring -- 1.5 AI Architectures for Environmental Monitoring -- 1.6 Applications of AI in Environmental Monitoring -- 1.7 Challenges and Limitations of Using AI in Environment Modeling -- 1.8 Future Directions -- 1.9 Conclusion -- Acknowledgements -- References -- Chapter 2 Fundamentals of AI and NLP in Environmental Analysis -- 2.1 Introduction -- 2.2 AI and NLP Techniques -- 2.2.1 Artificial Neural Network (ANN) -- 2.2.2 Support Vector Machine (SVM) -- 2.2.3 Linear Regression (LR) -- 2.2.4 Random Forests (RF) and Decision Trees (DT) -- 2.2.5 Adaptive Neuro-Fuzzy Inference System (ANFIS)

-- 2.2.6 Batch-Normalization (BN) -- 2.2.7 Convolutional Neural Networks (CNNs) -- 2.2.8 Deep Neural Networks (DNNs) -- 2.2.9 Genetic Algorithm (GA)

Sommario/riassunto

Environmental Monitoring Using Artificial Intelligence is a vital resource for anyone looking to leverage cutting-edge technologies in artificial intelligence and sensor systems to effectively address environmental challenges, offering innovative solutions and insights essential for creating a sustainable future. Environmental Monitoring Using Artificial Intelligence provides a comprehensive exploration of the cutting-edge technologies transforming environmental monitoring. This book bridges the gap between artificial intelligence (AI), natural language processing (NLP), and sensor-based systems, highlighting their potential to revolutionize the way we address pressing environmental challenges. Each chapter presents innovative case studies, real-world applications, and the latest research on how these technologies are being utilized to monitor and manage ecosystems, water resources, air quality, and urban sustainability. From advanced sensor networks to machine learning models, this book covers a broad spectrum of topics, including smart water solutions, biodiversity conservation, waste management, and agricultural sustainability. It offers an interdisciplinary approach, making it an essential resource for environmental engineers, data scientists, researchers, and policymakers. Whether you're exploring smart city innovations, renewable energy monitoring, or AI-driven solutions for environmental protection, Environmental Monitoring Using Artificial Intelligence equips readers with the knowledge and tools to leverage technology for a sustainable future.
