1. Record Nr. UNINA9910908374303321

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Titolo	Soft Computing in Industry 5.0 for Sustainability / / edited by C Kishor Kumar Reddy, Thandiwe Sithole, Mariya Ouaissa, Özen ÖZER, Marlia M. Hanafiah
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2024
ISBN	9783031693366 9783031693359
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (410 pages)
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Disciplina	338.06402863
Soggetti	Computational intelligence Sustainability Industrial engineering Production engineering Business logistics Computational Intelligence Industrial and Production Engineering Supply Chain Management
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1: Shaping Industry 4.0 And 5.0 Landscapes by Navigating Technological Shifts With Soft Computing Expertise -- Chapter 2: Role of soft computing in Industry 4.0 and 5.0 -- Chapter 3: The Evolution of Soft Computing: Industry 5.0 and It’s Challenges -- Chapter 4: Human-Centric AI Balancing Innovation with Ethical Considerations in the Age of Soft Computing -- Chapter 5: Navigating Data Privacy in Industry 5.0: Advanced Strategies for Sustainability -- Chapter 6: Design of AAA-Bot for Healthcare Assistance in COVID-19 Pandemic -- Chapter 7: A Comparative Exploration of Transfer Learning's Impact on ECG-Based Heart Disease Prediction -- Chapter 8: Convergence of AI

techniques in enabling sustainability practices for Industry 5.0 -- Chapter 9: Soft Computing Applications in Sustainable Manufacturing -- Chapter 10: Automated Spam Detection using ECSA based Feature Selection with BGRN Classifier in Soft Computing Applications -- Chapter 11: Secure and Trustworthy Energy Trading using Decentralized Blockchain based Resilient Solutions -- Chapter 12: Wildfire Decision Management Using Soft Computing in a System of Systems Approach -- Chapter 13: Tourism Companion: Enhancing Travel Experiences with AI Chatbot and Softcomputing -- Chapter 14: An approach towards Abstractive Text Summarization for Urdu Language using LLM (ATSUL) -- Chapter 15: Securing Healthcare 5.0: Zero Proof Knowledge (ZKP) and Post Quantum Cryptography (PQC) Solutions for Medical Data Security -- Chapter 16: Digital Twins for Healthcare in Industry 5.0: Fundamentals, Pharmaceutical Manufacturing Applications, Diagnostic Precision, Digital Patient Innovations, and Drug Discovery Impact -- Chapter 17: Blockchain Based Security Sustainable Framework for IoMT Applications and Industry 5.0.

Sommario/riassunto

Soft computing and Industry 5.0 are two distinct concepts that, when combined, can have a significant impact on sustainability initiatives within various industries. Soft computing is a subfield of artificial intelligence (AI) that aims to address problems characterized by uncertainty, imprecision, and partial truth. It encompasses various computational techniques, such as fuzzy logic, neural networks, genetic algorithms, and machine learning, which enable machines to deal with complex and uncertain data in a more human-like manner. Soft computing techniques are particularly valuable in sustainability efforts because they can handle non-linear relationships and uncertain data that often arise in environmental and social contexts. For example, they can be used to optimize energy consumption, waste management, and resource allocation in industries by considering various factors and trade-offs. The book highlights the latest innovations in intelligent systems in classical machine learning, deep learning, Internet of Things (IoT), Industrial Internet of Things (IIoT), blockchain, knowledge representation, knowledge management, big data, and natural language processing. (NLP). The book contains many contemporary articles from both scientists and practitioners working in many fields where soft computing, intelligent systems and the IIoT can break new ground. Intelligent systems and the Internet of Things are now essential technologies in almost every field. From agriculture to industry to healthcare, the scope of smart systems and IIoT is as wide as the horizon. Nowadays, these technologies are extensively used in developed countries, but they are still at an early stage in emerging countries. The primary market of this book is senior undergraduate students, post graduate students, practitioners, researchers, academicians, industrialists, and professionals working in areas of core computer science, electrical engineering, mechanical engineering, environmental engineering and agricultural engineering. The secondary audience of this book is individuals working in the areas of manufacturing, agriculture, remote sensing, environmental engineering, health care, smart cities, smart farming, remote sensing, supply chain management and hydrology.