1. Record Nr. UNINA9911020179303321

Autore	Dubey Parul
Titolo	The Impact of Algorithmic Technologies on Healthcare
Pubbl/distr/stampa	Newark : , : John Wiley & Sons, Incorporated, , 2025 ©2025
ISBN	9781394305476 1394305478 9781394305483 1394305486 9781394305490 1394305494
Edizione	[1st ed.]
Descrizione fisica	1 online resource (394 pages)
Collana	Machine Learning in Biomedical Science and Healthcare Informatics Series
Altri autori (Persone)	MadankarMangala DubeyPushkar HungBui Thanh
Disciplina	621.382
Soggetti	Artificial intelligence - Medical applications
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Preface -- 1 Introduction to Algorithmic Health: Exploring Healthcare Through Digital Twins 1 A.S. Vinay Raj, N. Gopinath, R. Anandh, M. Mohammed Jalaluddin and Lyndsay R. Buckingham -- 1.1 Introduction -- 1.2 Related Works -- 1.3 Hardware Description -- 1.4 Methodology -- 1.5 Performance Analysis -- 1.6 Conclusion -- 2 The Digital Revolution in Healthcare 27 Devanand Bhonsle, Rama Shukla, Deepshikha Sahu, Tanuja Kashyap, Monika Dewangan and Seema Mishra -- 2.1 Introduction -- 2.2 Digital Technologies in the Healthcare Sector -- 2.3 Evolution of Digitalization in Business -- 2.4 Role of IoMT in Healthcare -- 2.5 Internet of Medical Things Devices -- 2.6 Security and Privacy in the Healthcare Sector -- 2.7 Eliminating Security and Privacy Concerns of Digitalization of the Healthcare Sector -- 2.8 Discussion -- 2.9 Future Works -- 2.10 Conclusion -- 3 Data-Driven Diagnostics: Deep Learning for Brain Tumor Classification 45 Astha Pathak and Lalita Panika -- 3.1 Introduction -- 3.2 Literature

Review -- 3.3 Methodology -- 3.4 Result Analysis -- 3.5 Conclusion -- 4 Predictive Analysis in Patient Care 61 Bolukonda Prashanth, Bandi Krishna, Rakesh Nayak, Umashankar Ghugar and Arunakranthi Godishala -- 4.1 Introduction -- 4.2 Review of Predictive Analysis -- 4.3 Conclusion and Future -- 5 Leveraging Predictive Analytics: Enhancing Brain Tumor Classification with XGBoost 85 Katakam Hemanvitha and Vikram Dhiman -- 5.1 Introduction -- 5.2 Literature Review -- 5.3 Methodology -- 5.4 Results and Discussion -- 5.5 Conclusion -- 6 Machine Learning in Medical Imaging Revolutionizing Lung Cancer Diagnosis: A Comparative Analysis of Convolutional Neural Networks and Vision Transformers in Medical Imaging 103 Priya Parkhi, Bhagyashree Hambarde, Himesh Gangwani, Rupali Vairagade and Fred Kalombo -- 6.1 Introduction -- 6.2 Literature Review -- 6.3 Description of Model -- 6.4 Methodology -- 6.5 Results -- 6.6 Conclusion -- 7 Innovations in AI and ML for Medical Imaging: An Extensive Study with an Emphasis on Face Spoofing Detection and Snooping 127 Aparna Pandey, Arvind Kumar Tiwari, Harsha Nishad and Siji A. Thomas -- 7.1 Introduction -- 7.2 Artificial Intelligence as Well as Device Understandings -- 7.3 Assaults Through Entrance Spoofing -- 7.4 A Case Study with Real-Time Narrative: Identifying Face Spoofing in Medical Imaging -- 7.5 Moral Factors to Consider -- 7.6 Discussion -- 7.7 Summary -- 8 Progressive Growing of Generative Adversarial Networks (PGGAN) Approach to Synthesize Medical Images 157 Vishal V. Raner, Amit D. Joshi, Suraj T. Sawant and Tamizharasan P. S. -- 8.1 Introduction -- 8.2 Literature Review -- 8.3 Methodology -- 8.4 Results and Discussion -- 8.5 Conclusions -- 9 Revolutionizing Healthcare Through Optimized Video Retrieval 177 Pratibha Singh and Alok Kumar Singh Kushwaha -- 9.1 Introduction -- 9.2 Literature Review -- 9.3 Methodology -- 9.4 Results and Discussion -- 9.5 Conclusion -- 10 Multiclass Classification of Oral Diseases Using Deep Learning Models 189 Mohammed Zubair Hussain, Shrey Gupta, Bhagyashree Hambarde, Priya Parkhi and Zafar Karimov -- 10.1 Introduction -- 10.2 Literature Review -- 10.3 Methodology -- 10.4 Results -- 10.5 Conclusion -- 11 Smart Wearable Devices for Remote Patient Monitoring in Healthcare 209 Ravi Mishra, Swati Chaitandas Hadke, Devanand Bhonsle, Priti Nilesh Bhagat, Anupama Mahabansi and Sheetal Mungale -- 11.1 Introduction -- 11.2 Wearable Devices for Remote Monitoring -- 11.3 Communication Technologies for Remote Healthcare Monitoring -- 11.4 Proposed Methodology -- 11.5 Conclusion -- 12 Efficient IoT Solutions for Remote Health Monitoring 225 Vijayakumar S., N. Sheik Hameed, Kanchan S. Tiwari, A. Allwyn Sundarraj, N. Gopinath and Lyndsay R. Buckingham -- 12.1 Introduction -- 12.2 Related Works -- 12.3 Methodology -- 12.4 Discussion -- 12.5 Conclusion -- 13 Smart Medication Dispensing: IoT Innovations in Drug Development 255 Sapna Singh Kshatri, Mukesh Kumar Chandrakar, Devanand Bhonsle, Manjushree Nayak, Prashant Tamrakar and Pramisha Sharma -- 13.1 Introduction -- 13.2 Problem Identification -- 13.3 Proposed Method -- 13.4 Applications -- 13.5 Use of ATMEGA328P Using Arduino -- 13.6 Software Used -- 13.7 Result and Discussion -- 13.8 Conclusion -- 14 Telemedicine and Virtual Health: Pioneering Innovation and Future Frontiers in Personalized Patient Care 279 R. Rahul, R. Raghul Jayaprakash, M. Shibhi Varmaah and S. Velmurugan -- 14.1 Introduction to Telemedicine and Virtual Health -- 14.2 Challenges in Telemedicine -- 14.3 Artificial Intelligence in Telemedicine -- 14.4 Neurofeedback and Brain-Computer Interfaces (BCIs) in Telemedicine -- 14.5 Blockchain Technology in Virtual Healthcare -- 14.6 Telemedicine for Personalized Patient Care -- 14.7 Future Directions of Telemedicine in Healthcare --

15 Blockchain Algorithm: Revolutionizing Healthcare Systems 313 Ritika Awasthi and Arvind Tiwari -- 15.1 Introduction -- 15.2 How Blockchain can Relate to Healthcare -- 15.3 Literature Review -- 15.4 Features of Blockchain -- 15.5 Blockchain Algorithms -- 15.6 Network Model in Blockchain Algorithm -- 15.7 Data Collection and Storage -- 15.8 Diversity in Blockchain Technology -- 15.9 Limitations of Blockchain -- 15.10 Conclusion -- 15.11 Future Work -- 16 Enhancing Cyber-Physical System Security in Healthcare Through Ensemble Learning, Blockchain and Multi-Attribute Feature Selection 349 Jagdish Pimple and Avinash Sharma -- 16.1 Introduction -- 16.2 Literature Survey -- 16.3 Identification of the Problem -- 16.4 Objectives -- 16.5 Proposed Methodology -- 16.6 Result and Discussion -- 16.7 Conclusion and Future Work -- 17 Digitizing Wellness: A Deep Dive Into EHR/EMR Systems 375 Parul Dubey, Anansingh Thinakaran and Rajendra Motiramji Rewatkar -- 17.1 Introduction -- 17.2 Literature Review -- 17.3 AWS and Healthcare Solutions -- 17.4 AWS Services for Healthcare -- 17.5 Building EHR/EMR Solutions on AWS -- 17.6 Innovating with AI and Analytics -- 17.7 Case Studies -- 17.8 Proposed Architecture Overview -- 17.9 Conclusion -- 18 Harmony in Healthcare: Implementing an AI-Powered Biometric System 397 S. Sharmila, M. Nirmala, Somasundaram Devaraj and M. Menagadevi -- 18.1 Introduction to Biometric System -- 18.2 Types of Biometric Systems -- 18.3 Biometrics in Healthcare Application -- 18.4 Biometric System for Monitoring and Disease Diagnosis -- 18.5 Future Direction of Biometrics in Personalized Care -- 19 Investigating the Revolution of Healthcare Application with Intense Comparisons and Case Study 421 Amudhavalli P., S. Urmela, Vishnupriya G., N. Gopinath, R. Anandh and Lyndsay R. Buckingham -- 19.1 Introduction -- 19.2 Digital Twin -- 19.3 Case Study--Healthcare Applications -- 19.4 Future Research Ideas -- 19.5 Conclusion -- References -- Index.

Sommario/riassunto

The book explores the fundamental principles and transformative advancements in cutting-edge algorithmic technologies, detailing their application and impact on revolutionizing healthcare. This book provides an in-depth account of how technologies such as artificial intelligence (AI), machine learning (ML), and the Internet of Things (IoT) are reshaping healthcare, transitioning from traditional diagnostic and treatment approaches to data-driven solutions that improve predictive accuracy and patient outcomes. The text also addresses the challenges and considerations associated with adopting these technologies, including ethical implications, data security concerns, and the need for human-centered approaches in algorithmic medicine. After introducing digital twin technology and its potential to enhance healthcare delivery, the book examines the broader effects of digital technology on the healthcare system. Subsequent chapters explore topics such as innovations in medical imaging, predictive analytics for improved patient outcomes, and deep learning algorithms for brain tumor detection. Other topics include generative adversarial networks (GANs), convolutional neural networks (CNNs), smart wearables for remote patient monitoring, effective IoT solutions, telemedicine advancements, and blockchain security for healthcare systems. The integration of biometric systems driven by AI, securing cyber-physical systems in healthcare, and digitizing wellness through electronic health records (EHRs) and electronic medical records (EMRs) are also discussed. The book concludes with an extensive case study comparing the impacts of various healthcare applications, offering insights and encouraging further research and innovation in this dynamic field. Audience This book is suitable for academicians and professionals in health informatics, bioinformatics, biomedical science and engineering,

artificial intelligence, as well as clinicians, IT specialists, and policymakers in healthcare.