

1. Record Nr.	UNINA9910743223503321
Titolo	Intelligent healthcare : infrastructure, algorithms and management // edited by Chinmay Chakraborty, Mohammad R. Khosravi
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2022] ©2022
ISBN	981-16-8150-3 981-16-8149-X
Descrizione fisica	1 online resource (493 pages)
Disciplina	060
Soggetti	Artificial intelligence - Medical applications Intel·ligència artificial en medicina Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Intro -- Preface -- Contents -- About the Editors -- Part I: Data Science in Intelligent Healthcare -- Chapter 1: Distributed and Big Health Data Processing for Remote and Ubiquitous Healthcare Services Using Blind Statistical Co... -- 1.1 Introduction -- 1.2 Blind and Content-Aware Adaptive Computing: Statistical Optimization of Image Reconstruction Filters -- 1.3 Statistical Directions on Unsupervised Medical Diagnosis -- 1.4 Conclusions -- References -- Chapter 2: Computer Techniques for Medical Image Classification: A Review -- 2.1 Introduction -- 2.1.1 Chapter Contribution -- 2.1.2 Organization of the Chapter -- 2.2 Image Modality -- 2.3 Image Preprocessing -- 2.3.1 Feature Extraction -- 2.3.2 Feature Selection -- 2.4 Image Segmentation -- 2.5 Image Classification Techniques -- 2.6 Conclusion and Future Direction -- References -- Chapter 3: Optimal Feature Selection for Computer-Aided Characterization of Tissues: Case Study of Mammograms -- 3.1 Introduction -- 3.2 Literature Review -- 3.2.1 ROI Extraction Techniques -- 3.2.2 Optimization Algorithms -- 3.2.3 Feature Extraction -- 3.2.4 Evaluation of CAD System -- 3.3 Methodology -- 3.4 Results and Discussions -- 3.5 Conclusion -- References -- Chapter 4: Breast Cancer Detection Using Particle Swarm

Optimization and Decision Tree Machine Learning Technique -- 4.1
Introduction -- 4.2 Related Works -- 4.3 Methods and Materials --
4.3.1 Dataset Description -- 4.3.2 Training and Testing Phase -- 4.3.3
Feature Selection -- 4.3.4 PSO Feature Selection -- 4.3.5 Particle
Swarm Optimization -- 4.3.6 Decision Tree -- 4.3.6.1 How Does the
Decision Tree Work? -- 4.3.6.2 Proposed System -- 4.3.7 Performance
Evaluation -- 4.4 Results and Discussion -- 4.4.1 Results -- 4.5
Conclusion -- References -- Part II: AI in Healthcare.
Chapter 5: Accountable, Responsible, Transparent Artificial Intelligence
in Ambient Intelligence Systems for Healthcare -- 5.1 Introduction to
Ambient Intelligence -- 5.1.1 What Is Aml? -- 5.1.2 Why Is Aml
Important? -- 5.2 Applications of Aml in Healthcare -- 5.2.1 State-of-
the-Art: A Case Study -- 5.3 Challenges and Opportunities -- 5.4
Importance of Accountability, Reliability and Transparency (ART)of AI in
Aml -- 5.4.1 Ethics and Accountability -- 5.4.2 Transparency -- 5.4.3
Regulation and Control -- 5.4.4 Socioeconomic Impact -- 5.4.5 Design
-- 5.4.6 Responsibility -- 5.4.7 ART and Aml -- 5.5 Advancements in
ART Aml -- 5.6 Conclusion and Future Work -- References -- Chapter
6: Intelligent Elderly People Fall Detection Based on Modified Deep
Learning Deep Transfer Learning and IoT Using Ther... -- 6.1
Introduction -- 6.2 Related Work -- 6.3 Proposed Methodology --
6.3.1 Tracking -- 6.3.2 ShuffleNet -- 6.3.3 IoT Design -- 6.4
Experimental Results -- 6.5 Conclusion -- References -- Chapter 7: An
Analytic Approach to Diagnose Heart Stroke Using Supervised Machine
Learning Techniques -- 7.1 Introduction -- 7.2 Literature Survey -- 7.3
Machine Learning and It's Algorithms -- 7.3.1 Regression -- 7.3.2
Classification -- 7.4 Generation of Machine Learning Models for a Given
Dataset to Predict Heart Attack and a Comparative Analysis to Find
which... -- 7.5 Dataset Collection -- 7.6 Data Pre-Processing -- 7.6.1
Barplot (Figs. 7.9 and 7.10): -- 7.6.2 Heatmap -- 7.7 Comparative
Analysis of the Model Responses -- 7.7.1 Comparative Analysis of
Accuracy of all the Six Models -- 7.7.2 ROC Curve -- 7.8 Conclusion --
References -- Chapter 8: A Predictive Analysis for Diagnosis of COVID-
19, Pneumonia and Lung Cancer Using Deep Learning -- 8.1
Introduction -- 8.2 Literature Survey -- 8.3 AI in Health Care Systems
-- 8.4 Neural Networks.
8.4.1 Convolutional Neural Networks (CNN) -- 8.4.1.1 Advance
Architecture -- 8.4.2 VGG-16 -- 8.4.3 VGG-19 -- 8.4.4 VGG-16 vs
VGG-19 -- 8.5 Result Analysis -- 8.5.1 Dataset Characteristics and
Analysis -- 8.5.1.1 Dataset -- 8.5.1.2 Image Pre-processing -- 8.5.1.3
Train-Test Split -- 8.5.1.4 Image Augmentation -- 8.5.2 Model
Building and Analysis -- 8.5.2.1 Creating the Classifier Model Using
VGG-16 -- 8.5.2.2 Fine Tuning -- 8.5.2.3 Evaluating the Model --
8.5.3 Classification Report -- 8.5.3.1 F1 Score -- 8.5.3.2 Support --
8.5.3.3 Confusion Matrix -- 8.5.3.4 Classification Accuracy -- 8.5.3.5
Misclassification Rate -- 8.5.3.6 Precision -- 8.5.3.7 Recall -- 8.5.3.8
F-Measure -- 8.5.4 Creating the Classifier Model Using VGG-19 --
8.5.4.1 Fine Tuning -- 8.5.4.2 Evaluating the Model -- 8.5.4.3
Classification Matrix -- 8.5.4.4 Confusion Matrix -- 8.6 Conclusion --
References -- Part III: Privacy and Security in Healthcare -- Chapter 9:
Internet of Things in the Healthcare Applications: Overview of Security
and Privacy Issues -- 9.1 Introduction -- 9.1.1 The Security Attacks in
IoT-Based Healthcare Applications -- 9.2 Security Requirements in IoT-
Based Healthcare Applications -- 9.3 Security Solutions in IoT-Based
Healthcare Applications -- 9.3.1 Fog Computing-Based Solutions --
9.3.2 Software Defined Networking-Based Solutions -- 9.3.3
Blockchain-Based Solutions -- 9.3.4 Lightweight Cryptography-Based
Solutions -- 9.3.5 Artificial Intelligence-Based Solutions -- 9.3.6

Homomorphic and Searchable Encryption-Based Solutions -- 9.4
Conclusion -- References -- Chapter 10: Secure and Privacy-Aware
Intelligent Healthcare Systems: A Review -- 10.1 Introduction -- 10.1.1
Objectives -- 10.1.2 Related Works -- 10.1.3 Contributions -- 10.2
IoMT Communications -- 10.2.1 Body Area Network (BAN) -- 10.2.2
IoMT Devices and Protocols -- 10.3 Various Concerns in IoMT.
10.3.1 Security-Based Risks -- 10.3.2 Privacy-Based Risks -- 10.3.3
Trust-Based Risks -- 10.3.4 Accuracy-Based Risks -- 10.4 Challenges
in IoMT -- 10.4.1 Risks in IoMT -- 10.4.2 Various Attacks against IoMT
-- 10.4.3 Features of Attacks -- 10.4.4 Various Challenges in IoMT --
10.4.4.1 Privacy Attacks -- 10.4.4.2 Sociology Attacks -- 10.4.4.3
Malicious Attacks -- 10.4.4.4 Hardware Attacks -- 10.5 Counter
Measures of IoMT -- 10.5.1 Increasing Awareness -- 10.5.2
Conducting Security Awareness Program -- 10.5.3 Organizing
Technical Training -- 10.5.4 Increasing the Level of Education -- 10.6
Establishing Procedures -- 10.6.1 Software Update -- 10.6.2 Setting
Strong Enforcement Rules of Personal Device Regulations -- 10.6.3
Training Consideration -- 10.7 Techniques to Guarantee IoMT Data and
Systems Security -- 10.7.1 Facial Recognition -- 10.7.2 Retina Scan --
10.7.3 Iris Identification -- 10.7.4 Authentication with Many Factors --
10.7.5 To Reduce Vulnerability, Take the Following Counter Measures
-- 10.7.6 Recommended Counter Measures to Guard Against Attacks
-- 10.7.7 CSRF for Healthcare Domain Internet of Things (IoT) Devices
-- 10.7.8 Management of Authentication and Identity -- 10.7.9
Profiling and Access Control -- 10.7.10 Location of Storage -- 10.7.11
Encryption -- 10.7.12 Intelligent Healthcare System -- 10.8 Conclusion
and Future Scope -- References -- Chapter 11: Secure Data Transfer
and Provenance for Distributed Healthcare -- 11.1 IoT and Distributed
Healthcare Systems -- 11.2 Trustworthiness in Healthcare Systems --
11.3 Challenges and Opportunities -- 11.3.1 Security -- 11.3.2 Privacy
-- 11.3.3 Network Infrastructure -- 11.3.4 Edge Computing -- 11.3.5
Federated Learning -- 11.4 Advances in Secure Data Transfer and
Provenance for Distributed Healthcare -- 11.4.1 Exemplar State-of-
the-Art IoMT -- 11.4.2 Analysis on Security.
11.4.3 Analysis on Provenance -- 11.5 Discussion -- 11.6 Conclusion
and Future Work -- References -- Chapter 12: Blockchain Technology
in Healthcare: Use Cases Study -- 12.1 Introduction -- 12.2
Fundamentals of Blockchain Technology -- 12.2.1 Blockchain
Operations and Classifications -- 12.2.2 Smart Contracts and Ethereum
Platform -- 12.2.3 Blockchain Applications -- 12.3 Blockchain for
Smart Healthcare -- 12.4 Discussion and Solutions -- 12.5 Conclusion
-- References -- Chapter 13: Integrating Artificial Intelligence and
Blockchain for Enabling a Trusted Ecosystem for Healthcare Sector --
13.1 Introduction -- 13.2 Background and Related Literature -- 13.2.1
Artificial Intelligence in Healthcare -- 13.2.2 Blockchain in Healthcare
-- 13.3 Artificial Intelligence and Blockchain for Building a Trusted
Ecosystem for Healthcare -- 13.4 Experiments and Discussions -- 13.5
Conclusions and Future Work -- References -- Part IV: Intelligent
Healthcare Infrastructures -- Chapter 14: Internet of Medical Things
(IoMT): Applications, Challenges, and Prospects in a Data-Driven
Technology -- 14.1 Introduction -- 14.1.1 Chapter Contribution --
14.1.2 Chapter Organization -- 14.2 Data-Driven for Internet of
Medical Things Technology -- 14.3 The Internet of Medical Things
Applications -- 14.4 Challenges of Internet of Medical Things -- 14.4.1
Issues of Standardization -- 14.4.2 Challenges of Regulation -- 14.4.3
Cost of Infrastructures -- 14.4.4 Security Vulnerabilities Issue --
14.4.5 Existing Networks Strain -- 14.5 Prospects of Internet of
Medical Things -- 14.6 Conclusion and Future Direction -- 14.6.1

Future Direction -- References -- Chapter 15: Healthcare Infrastructure
in Future Smart Cities -- 15.1 Introduction -- 15.2 Major Challenges in
Healthcare Systems -- 15.2.1 Future Smart Cities and Role of
Healthcare -- 15.3 Technology and Healthcare System.
15.4 Case Studies.
