

1. Record Nr.	UNINA9911020138203321
Autore	Dutta Pijush
Titolo	Design and Forecasting Models for Disease Management
Pubbl/distr/stampa	Newark : , : John Wiley & Sons, Incorporated, , 2025 ©2025
ISBN	9781394234059 1394234058 9781394234073 1394234074 9781394234066 1394234066
Edizione	[1st ed.]
Descrizione fisica	1 online resource (325 pages)
Altri autori (Persone)	MandalSudip CengizKorhan SadhuArindam JanaGour Gopal
Disciplina	616.00285631
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Series Page -- Title Page -- Copyright Page -- Dedication -- Contents -- Preface -- Part 1: Safety and Regulatory Aspects for Disease Pre-Screening -- Chapter 1 A Study of Possible AI Aversion in Healthcare Consumers -- 1.1 Introduction to AI in Healthcare -- 1.1.1 The Role of AI in Transforming Healthcare -- 1.1.2 The Unfolding Paradigm: Potential Benefits and Challenges of AI Implementation in Healthcare -- 1.1.3 Overview of Consumer Receptivity Towards AI in Medicine: A Comparative Analysis -- 1.2 Consumer Reluctance to Utilize AI in Healthcare: Present Scenario -- 1.2.1 Top Factors Influencing Consumer Resistance to Medical AI -- 1.2.2 Uncovering the Psychological Barriers and Concerns Associated with AI Adoption in Healthcare -- 1.2.3 Case Studies and Research Findings on Consumer Aversion to AI-Based Healthcare Services -- 1.2.4 Impact on Consumer Decision-Making -- 1.2.5 Effects of AI Aversion on Consumer

Decision-Making Processes: An Analysis -- 1.2.6 Understanding How Consumer Perceptions Influence Their Choice Between Human and AI Healthcare Providers -- 1.2.7 Exploring Role of Trust, Perceived Competence and Empathy in Consumer Preferences -- 1.3 Economic Implications of AI Aversion -- 1.3.1 Investigating Influence of AI Aversion on Consumer Willingness to Pay for Healthcare Services -- 1.3.2 Influence of Patient Education on AI Aversion in Healthcare -- 1.3.3 Influence of Patient Awareness on AI Aversion in Healthcare -- 1.3.4 Influence of Age of Patient on AI Aversion in Healthcare -- 1.4 Overcoming Resistance to Medical AI -- 1.4.1 Strategies for Enhancing Consumer Trust and Acceptance of AI in Healthcare -- 1.4.2 Approaches to Alleviate Consumer Concerns and Misconceptions: Communication and Education -- 1.4.3 Cases of Successful Implementation of AI Technologies in Healthcare and Lessons Learned. 1.5 Ethical Considerations and Governance -- 1.5.1 Regulatory Frameworks for Ethical AI Operations to Fight Aversion in Healthcare Consumers -- 1.5.2 Addressing the Potential Cost-Effectiveness and Affordability Concerns Associated with AI-Based Healthcare Solutions -- 1.5.3 Balancing Privacy, Data Protection and Need for Transparency in AI Healthcare Applications -- 1.6 Future Outlook and Opportunities -- 1.6.1 The Future of AI in Healthcare and Its Impact on Consumer Aversion -- 1.6.2 Exploring Emerging Technologies and Trends That May Alleviate Consumer Concerns -- 1.6.3 Opportunities for Collaboration Between AI Developers, Healthcare Providers, and Consumers -- 1.6.4 Summary of Key Findings on Consumer Aversion to AI in Healthcare -- 1.6.5 Implications for Healthcare Practitioners, Policymakers and Researchers -- 1.7 Conclusion -- References -- Chapter 2 A Study of AI Application Through Integrated and Systematic Moral Cognitive Therapy in the Healthcare Sector -- 2.1 Introduction -- 2.1.1 Understanding the Role of AI in Healthcare -- 2.1.2 Advantages of AI in Healthcare -- 2.1.3 Moral Dilemmas and AI-Based Healthcare -- 2.2 What is Integrated and Systematic Moral Cognitive Therapy (ISMCT)? -- 2.2.1 Integrating Moral Cognitive Therapy with AI -- 2.2.2 Alignment of Moral Cognitive Therapy Principles with AI Applications -- 2.2.3 Benefits of Integrated and Systematic Moral Cognitive Therapy -- 2.2.4 Applications of AI-Integrated Moral Cognitive Therapy in Healthcare -- 2.3 The Role of AI in Healthcare: A Fine Balance Between Ethics and Innovation -- 2.3.1 Humanizing Healthcare: Towards an AI-ISMCT -- 2.3.2 Synergized AI and ISMCT -- 2.3.3 Case Study and Success Stories -- 2.4 Advancing Research in AI-Integrated Moral Cognitive Therapy -- 2.4.1 Collaborative Efforts Between Healthcare Professionals and AI Developers. 2.4.2 Implications for Policy and Regulatory Frameworks -- 2.5 Conclusion -- References -- Chapter 3 A Strategic Model to Control Non-Communicable Diseases -- 3.1 Introduction -- 3.1.1 India and NCDs -- 3.2 Survey of Literature -- 3.2.1 Factors Contributing to the Growth of NCDs -- 3.2.2 Lifestyle Modification - A Strategic Role in Mitigation of NCD -- 3.2.3 Policy to Control NCDs -- 3.3 Proposed Model -- 3.3.1 Registration and Information Centre (RIC) -- 3.3.2 Integration Centre (IIC) -- 3.3.3 Strategic Review Centre (SRC) -- 3.3.4 Expected Outcome of the Proposed Model -- 3.4 Conclusion -- References -- Chapter 4 Image Compression Technique Using Color Filter Array (CFA) for Disease Diagnosis and Treatment -- 4.1 Introduction -- 4.1.1 Color Filter Array -- 4.1.2 Electronic Health Record (EHR) -- 4.2 Related Works -- 4.3 Proposed Model -- 4.4 Implementation -- 4.5 Results -- 4.6 Conclusion -- References -- Chapter 5 Research in Image Processing for Medical Applications Using the Secure Smart Healthcare Technique -- 5.1 Introduction -- 5.1.1

Imaging Systems -- 5.1.2 The Digital Image Processing System -- 5.1.3 Image Enhancement -- 5.2 Classification of Digital Images -- 5.2.1 Utilizations of Digital Image Processing (DIP) -- 5.2.1.1 Medicine -- 5.2.1.2 Forensics -- 5.2.2 Medical Image Analysis -- 5.2.3 Max-Variance Automatic Cut-Off Method -- 5.2.4 Medical Imaging Segmentation -- 5.2.5 Image-Based on Edge Detection -- 5.2.5.1 Robert's Kernel Method -- 5.2.5.2 Prewitt Kernel -- 5.2.5.3 Sobel Kernel -- 5.2.5.4 k-Means Segmentation -- 5.2.6 Images from .-Rays -- 5.2.6.1 Non-Ionizing Radiation -- 5.2.6.2 Magnetic Resonance Imaging -- 5.2.6.3 Segmentation Using Multiple Images Acquired by Different Imaging Techniques -- 5.3 Methods -- 5.3.1 k-Means Approach -- 5.3.2 Bayesian Objective Function. 5.4 Segmentation and Database Extraction with Neural Networks -- 5.4.1 Artificial Neural Network -- 5.4.2 Bayesian Belief Networks -- 5.5 Applications in Medical Image Analysis -- 5.5.1 Using Artificial Neural Network for Better Optimization and Detection in Medical Imaging -- 5.5.1.1 Opportunities -- 5.6 Standardize Analytics Pipeline for the Health Sector -- 5.7 Feature Extraction/Selection -- 5.7.1 Significance of Machine Learning for Medical Image Processing -- 5.7.2 Significance of Deep Learning for Medical Image Processing -- 5.8 Image-Based Forecasting Using Internet of Things (IoT) in Smart Healthcare System -- 5.9 IoT Monitoring Applications Based on Image Processing -- 5.10 Significance of Computer-aided Big Healthcare Data (BHD) for Medical Image Processing -- 5.11 Applications of Big Data -- 5.11.1 Big Data Analytics in Health Sector -- 5.11.2 Computer-Aided Diagnosis in Mammography -- 5.11.3 Tumor Imaging and Treatment -- 5.11.4 Molecular Imaging -- 5.11.5 Surgical Interventions -- 5.12 Conclusion -- References -- Chapter 6 Comparative Study on Image Enhancement Techniques for Biomedical Images -- 6.1 Introduction -- 6.2 Literature Review -- 6.3 Theoretical Concepts -- 6.3.1 Logarithmic Transformation -- 6.3.1.1 Advantages of Log Transformation -- 6.3.1.2 Limitations of Log Transformation -- 6.3.2 Power Law Transformation or Gamma Correction -- 6.3.2.1 Advantages of Gamma Correction -- 6.3.2.2 Limitations of Gamma Correction -- 6.3.3 Piecewise Linear Transformation or Contrast Stretching -- 6.3.3.1 Advantages of Contrast Stretching -- 6.3.3.2 Limitations of Contrast Stretching -- 6.3.4 Histogram Equalization -- 6.3.4.1 Advantages of Histogram Equalization -- 6.3.4.2 Limitations of Histogram Equalization -- 6.3.5 Contrast-Limited Adaptive Histogram Equalization (CLAHE) -- 6.3.5.1 Advantages of CLAHE -- 6.3.5.2 Limitation of CLAHE. 6.3.6 Adjustment Function -- 6.4 Results and Discussion -- 6.4.1 Images and Histograms for Different Images Using Different Enhancement Methods -- 6.4.2 Comparison for Different Image Enhancement Techniques -- 6.5 Conclusion -- References -- Chapter 7 Exploring Parkinson's Disease Progression and Patient Variability: Insights from Clinical and Molecular Data Analysis -- 7.1 Introduction -- 7.2 Literature Review -- 7.3 Data Review -- 7.3.1 Clinical Data -- 7.3.2 Peptides Data -- 7.3.3 Protein Data -- 7.4 Parkinson's Dynamic for Patients in Train -- 7.5 Conclusion -- References -- Chapter 8 A Survey-Based Comparative Study on Machine Learning Techniques for Early Detection of Mental Illness -- 8.1 Introduction -- 8.2 Background -- 8.3 Review of Previous Works -- 8.3.1 Standard Questionnaire -- 8.3.2 Social Media Content -- 8.4 Comparative Result -- 8.5 Discussion -- 8.6 Conclusion -- References -- Part 2: Clinical Decision Support System for Early Disease Detection and Management -- Chapter 9 Diagnostics and Classification of Alzheimer's Diseases Using Improved Deep Learning Architectures -- 9.1 Introduction -- 9.2

Related Works -- 9.3 Method -- 9.3.1 Data Description -- 9.4 Result Analysis -- 9.4.1 Performance Metrics -- 9.4.2 Experimental Setup -- 9.5 Conclusion -- Data Availability -- References -- Chapter 10 Perform a Comparative Study Based on Conventional Machine Learning Approaches for Human Stress Level Detection -- 10.1 Introduction -- 10.2 Related Work -- 10.3 Architecture Design -- 10.3.1 Body Temperature -- 10.3.2 Humidity Analysis -- 10.3.3 Step Count Analysis -- 10.3.4 Dataset -- 10.4 Experiment -- 10.4.1 Performance Matrices -- 10.5 Result Analysis -- 10.6 Conclusion -- References -- Chapter 11 Diabetes Prediction Using a Hybrid PCA-Based Feature Selection and Computational Machine Learning Algorithm -- 11.1 Introduction. 11.2 Related Work.

Sommario/riassunto

The book provides an essential overview of AI techniques in disease management and how these computational methods can lead to further innovations in healthcare. Design and Forecasting Models for Disease Management is a resourceful volume of 13 chapters that elaborates on computational methods and how AI techniques can aid in smart disease management. It contains several statistical and AI techniques that can be used to acquire data on many different diseases. The main objective of this book is to demonstrate how AI techniques work for early disease detection and forecasting useful information for medical experts. As such, this volume intends to serve as a resource to elicit and elaborate on possible intelligent mechanisms for helping detect early signs of diseases. Additionally, the book examines numerous machine learning and data analysis techniques in the biomedical field that are used for detecting and forecasting disease management at the cellular level. It discusses various applications of image segmentation, data analysis techniques, and hybrid machine learning techniques for illnesses, and encompasses modeling, prediction, and diagnosis of disease data. Audience Researchers, engineers and graduate students in the fields of computational biology, information technology, bioinformatics, and epidemiology.
