

1. Record Nr.	UNINA9911019513503321
Autore	Kumar Sandeep
Titolo	Optimized Predictive Models in Health Care Using Machine Learning
Pubbl/distr/stampa	Newark : , : John Wiley & Sons, Incorporated, , 2024 ©2024
ISBN	9781394175376 139417537X 9781394175369 1394175361
Edizione	[1st ed.]
Descrizione fisica	1 online resource (385 pages)
Altri autori (Persone)	SharmaAnuj Nawanita Kaura PawarLokesh BajajRohit
Disciplina	610.2/1
Soggetti	Medical statistics Medical technology Machine learning Artificial intelligence - Medical applications
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Title Page -- Copyright Page -- Contents -- Preface -- Chapter 1 Impact of Technology on Daily Food Habits and Their Effects on Health -- 1.1 Introduction -- 1.1.1 Impacts of Food on Health -- 1.1.2 Impact of Technology on Our Eating Habits -- 1.2 Technologies, Foodies, and Consciousness -- 1.3 Government Programs to Encourage Healthy Choices -- 1.4 Technology's Impact on Our Food Consumption -- 1.5 Customized Food is the Future of Food -- 1.6 Impact of Food Technology and Innovation on Nutrition and Health -- 1.7 Top Prominent and Emerging Food Technology Trends -- 1.8 Discussion -- 1.9 Conclusions -- References -- Chapter 2 Issues in Healthcare and the Role of Machine Learning in Healthcare -- 2.1 Introduction -- 2.2 Issues in Healthcare -- 2.2.1 Increase in Volume of Data -- 2.2.1.1 Data Management -- 2.2.1.2 Economic Difficulties -- 2.2.2 Data

Privacy Issues -- 2.2.2.1 Cyber Attack and Hacking -- 2.2.2.2 Data Sharing Trust in the Third Party -- 2.2.2.3 Data Breaching -- 2.2.2.4 Lack of Policy and Constitutional Limitations -- 2.2.2.5 Doctor-Patient Relationship -- 2.2.2.6 Data Storage and Management -- 2.2.3 Disease-Centric Database -- 2.2.4 Data Utilization -- 2.2.5 Lack of Technology and Infrastructure -- 2.3 Factors Affecting the Health -- 2.4 Machine Learning in Healthcare -- 2.4.1 Clinical Decision Support Systems in Healthcare -- 2.4.2 Use of Machine Learning in Public Health -- 2.5 Conclusion -- References -- Chapter 3 Improving Accuracy in Predicting Stress Levels of Working Women Using Convolutional Neural Networks -- 3.1 Introduction -- 3.2 Literature Survey -- 3.3 Proposed Methodology -- 3.3.1 Pre-Processing of Data -- 3.3.2 Features Extraction -- 3.3.3 Selection of Features -- 3.3.4 Classification -- 3.4 Result and Discussion -- 3.5 Conclusion and Future Scope -- References.

Chapter 4 Analysis of Smart Technologies in Healthcare -- 4.1 Introduction -- 4.2 Emerging Technologies in Healthcare -- 4.2.1 Internet of Things -- 4.2.2 Blockchain -- 4.2.3 Machine Learning -- 4.2.4 Deep Learning -- 4.2.5 Federated Learning -- 4.3 Literature Review -- 4.4 Risks and Challenges -- 4.5 Conclusion -- References -- Chapter 5 Enhanced Neural Network Ensemble Classification for the Diagnosis of Lung Cancer Disease -- 5.1 Introduction -- 5.2 Algorithm for Classification of Proposed Weight-Optimized Neural Network Ensembles -- 5.2.1 Enhanced Raphson's Most Likelihood and Minimum Redundancy Preprocessing -- 5.2.2 Maximum Likelihood Boosting in a Weighted Optimized Neural Network -- 5.3 Experimental Work and Results -- 5.4 Conclusion -- References -- Chapter 6 Feature Selection for Breast Cancer Detection -- 6.1 Introduction -- 6.2 Literature Review -- 6.3 Design and Implementation -- 6.3.1 Feature Selection -- 6.4 Conclusion -- References -- Chapter 7 An Optimized Feature-Based Prediction Model for Grouping the Liver Patients -- 7.1 Introduction -- 7.2 Literature Review -- 7.3 Proposed Methodology -- 7.4 Results and Discussions -- 7.5 Conclusion -- References -- Chapter 8 A Robust Machine Learning Model for Breast Cancer Prediction -- 8.1 Introduction -- 8.2 Literature Review -- 8.2.1 Comparative Analysis -- 8.3 Proposed Mythology -- 8.4 Result and Discussion -- 8.4.1 Accuracy -- 8.4.2 Error -- 8.4.3 TP Rate -- 8.4.4 FP Rate -- 8.4.5 F-Measure -- 8.5 Concluding Remarks and Future Scope -- References -- Chapter 9 Revolutionizing Pneumonia Diagnosis and Prediction Through Deep Neural Networks -- 9.1 Introduction -- 9.2 Literature Work -- 9.3 Proposed Section -- 9.3.1 Input Image -- 9.3.2 Pre-Processing -- 9.3.3 Identification and Classification Using ResNet50 -- 9.4 Result Analysis -- 9.5 Conclusion and Future Scope -- References.

Chapter 10 Optimizing Prediction of Liver Disease Using Machine Learning Algorithms -- 10.1 Introduction -- 10.2 Related Works -- 10.3 Proposed Methodology -- 10.4 Result and Discussions -- 10.5 Conclusion -- References -- Chapter 11 Optimized Ensembled Model to Predict Diabetes Using Machine Learning -- 11.1 Introduction -- 11.2 Literature Review -- 11.3 Proposed Methodology -- 11.3.1 Missing Value Imputation (MVI) -- 11.3.2 Feature Selection -- 11.3.3 K-Fold Cross-Validation -- 11.3.4 ML Classifiers -- 11.3.5 Evaluation Metrics -- 11.4 Results and Discussion -- 11.5 Concluding Remarks and Future Scope -- References -- Chapter 12 Wearable Gait Authentication: A Framework for Secure User Identification in Healthcare -- 12.1 Introduction -- 12.2 Literature Survey -- 12.3 Proposed System -- 12.3.1 Walking Detection -- 12.3.2 Experimental Setup -- 12.4 Results and Discussion -- 12.4.1 Dataset Used -- 12.4.2 Results -- 12.4.3 Comparison Used Techniques -- 12.5 Conclusion

and Future Scope -- References -- Chapter 13 NLP-Based Speech Analysis Using K-Neighbor Classifier -- 13.1 Introduction -- 13.2 Supervised Machine Learning for NLP and Text Analytics -- 13.2.1 Categorization and Classification -- 13.3 Unsupervised Machine Learning for NLP and Text Analytics -- 13.4 Experiments and Results -- 13.5 Conclusion -- References -- Chapter 14 Fusion of Various Machine Learning Algorithms for Early Heart Attack Prediction -- 14.1 Introduction -- 14.2 Literature Review -- 14.3 Materials and Methods -- 14.3.1 Dataset -- 14.3.2 EDA -- 14.3.3 Machine Learning Model Implemented -- 14.4 Result Analysis -- 14.5 Conclusion -- References -- Chapter 15 Machine Learning-Based Approaches for Improving Healthcare Services and Quality of Life (QoL): Opportunities, Issues and Challenges -- 15.1 Introduction. 15.2 Core Areas of Deep Learning and ML-Modeling in Medical Healthcare -- 15.3 Use Cases of Machine Learning Modelling in Healthcare Informatics -- 15.3.1 Breast Cancer Detection Using Machine Learning -- 15.3.2 COVID-19 Disease Detection Modelling Using Chest X-Ray Images with Machine and Transfer Learning Framework -- 15.4 Improving the Quality of Services During the Diagnosing and Treatment Processes of Chronicle Diseases -- 15.4.1 Evolution of New Diagnosing Methods and Tools -- 15.4.2 Improving Medical Care -- 15.4.3 Visualization of Biomedical Data -- 15.4.4 Improved Diagnosis and Disease Identification -- 15.4.5 More Accurate Health Records -- 15.4.6 Ethics of Machine Learning in Healthcare -- 15.5 Limitations and Challenges of ML, DL Modelling in Healthcare Systems -- 15.5.1 Dealing With the Shortage of Knowledgeable-ML-Data Scientists and Engineers -- 15.5.2 Handling of the Bias in ML Modelling of Healthcare Information -- 15.5.3 Accuracy of Data Attenuation -- 15.5.4 Lack of Data Quality -- 15.5.5 Tuning of Hyper-Parameters for Improving the Modelling of Healthcare -- 15.6 Conclusion -- References -- Chapter 16 Developing a Cognitive Learning and Intelligent Data Analysis-Based Framework for Early Disease Detection and Prevention in Younger Adults with Fatigue -- 16.1 Introduction -- 16.2 Proposed Framework "Cognitive-Intelligent Fatigue Detection and Prevention Framework (CIFDPF)" -- 16.2.1 Framework Components -- 16.2.2 Learning Module -- 16.2.3 System Design -- 16.2.4 Tools and Usage -- 16.2.5 Architecture -- 16.2.6 Architecture of CNN-RNN -- 16.2.7 Fatigue Detection Methods and Techniques -- 16.3 Potential Impact -- 16.3.1 Claims for the Accurate Detection of Fatigue -- 16.3.2 Similar Study and Results Analysis -- 16.3.3 Application and Results -- 16.4 Discussion and Limitations -- 16.5 Future Work. 16.5.1 Incorporation of More Physiological Signals -- 16.5.2 Long-Term Monitoring of Fatigue in Real-World Scenarios -- 16.5.3 Integration with Wearable Devices for Continuous Monitoring -- 16.6 Conclusion -- References -- Chapter 17 Machine Learning Approach to Predicting Reliability in Healthcare Using Knowledge Engineering -- 17.1 Introduction -- 17.2 Literature Review -- 17.3 Proposed Methodology -- 17.3.1 Data Analysis (Findings) -- 17.3.2 General Procedures -- 17.3.3 Reviewed Algorithms -- 17.3.4 Benefits of Machine Learning -- 17.3.5 Drawbacks of Machine Learning -- 17.4 Implications -- 17.4.1 Prerequisites and Considerations -- 17.4.2 Implementation Strategy -- 17.4.3 Recommendations -- 17.5 Conclusion -- 17.6 Limitations and Scope of Future Work -- References -- Chapter 18 TPLSTM-Based Deep ANN with Feature Matching Prediction of Lung Cancer -- 18.1 Introduction -- 18.2 Proposed TP-LSTM-Based Neural Network with Feature Matching for Prediction of Lung Cancer -- 18.3 Experimental Work and Comparison Analysis --

18.4 Conclusion -- References -- Chapter 19 Analysis of Business Intelligence in Healthcare Using Machine Learning -- 19.1 Introduction -- 19.2 Data Gathering -- 19.2.1 Data Integration -- 19.2.2 Data Storage -- 19.2.3 Data Analysis -- 19.2.4 Data Distribution -- 19.2.5 Data-Driven Decisions on Generated Insights -- 19.3 Literature Review -- 19.4 Research Methodology -- 19.5 Implementation -- 19.6 Eligibility Criteria -- 19.7 Results -- 19.8 Conclusion and Future Scope -- References -- Chapter 20 StressDetect: ML for Mental Stress Prediction -- 20.1 Introduction -- 20.2 Related Work -- 20.3 Materials and Methods -- 20.4 Results -- 20.5 Discussion & -- Conclusions -- References -- Index.

---

## Sommario/riassunto

**OPTIMIZED PREDICTIVE MODELS IN HEALTH CARE USING MACHINE LEARNING** This book is a comprehensive guide to developing and implementing optimized predictive models in healthcare using machine learning and is a required resource for researchers, healthcare professionals, and students who wish to know more about real-time applications. The book focuses on how humans and computers interact to ever-increasing levels of complexity and simplicity and provides content on the theory of optimized predictive model design, evaluation, and user diversity. Predictive modeling, a field of machine learning, has emerged as a powerful tool in healthcare for identifying high-risk patients, predicting disease progression, and optimizing treatment plans. By leveraging data from various sources, predictive models can help healthcare providers make informed decisions, resulting in better patient outcomes and reduced costs. Other essential features of the book include: provides detailed guidance on data collection and preprocessing, emphasizing the importance of collecting accurate and reliable data; explains how to transform raw data into meaningful features that can be used to improve the accuracy of predictive models; gives a detailed overview of machine learning algorithms for predictive modeling in healthcare, discussing the pros and cons of different algorithms and how to choose the best one for a specific application; emphasizes validating and evaluating predictive models; provides a comprehensive overview of validation and evaluation techniques and how to evaluate the performance of predictive models using a range of metrics; discusses the challenges and limitations of predictive modeling in healthcare; highlights the ethical and legal considerations that must be considered when developing predictive models and the potential biases that can arise in those models. Audience The book will be read by a wide range of professionals who are involved in healthcare, data science, and machine learning.

---