

1. Record Nr.	UNINA9910877191203321
Autore	Kumar Sandeep
Titolo	Multimodal Biometric and Machine Learning Technologies : Applications for Computer Vision
Pubbl/distr/stampa	Newark : , : John Wiley & Sons, Incorporated, , 2023 ©2023
ISBN	1-119-78549-9 1-119-78548-0
Edizione	[1st ed.]
Descrizione fisica	1 online resource (324 pages)
Altri autori (Persone)	GhaiDeepika JainArpit TripathiSuman Lata RaniShilpa
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Title Page -- Copyright Page -- Contents -- Preface -- Chapter 1 Multimodal Biometric in Computer Vision -- 1.1 Introduction -- 1.2 Importance of Artificial Intelligence, Machine Learning and Deep Learning in Biometric System -- 1.3 Machine Learning -- 1.3.1 Supervised vs Unsupervised Model -- 1.3.2 Classification and Regression Problem -- 1.4 Deep Learning -- 1.4.1 Steps to Create the Machine and Deep Learning Model -- 1.5 Related Work -- 1.5.1 Discussions -- 1.6 Biometric System -- 1.6.1 Biometrics in Physical Form -- 1.6.2 Biometrics with Behavior -- 1.6.3 Evaluation Parameters (Metrics) Used by Biometric Systems -- 1.7 Need for Multimodal Biometric -- 1.7.1 Perks of Multimodal Biometric -- 1.7.2 The General Outline of a Multimodal Biometric System -- 1.8 Databases Used by Biometric System -- 1.8.1 Confusion Matrix -- 1.9 Impact of DL in the Current Scenario -- 1.9.1 Computer Vision -- 1.9.2 Natural Language Processing -- 1.9.3 Recommendation System -- 1.9.4 Cyber Security -- 1.10 Conclusion -- References -- Chapter 2 A Vaccine Slot Tracker Model Using Fuzzy Logic for Providing Quality of Service -- 2.1 Introduction -- 2.2 Related Research -- 2.3 Novelty of the Proposed

Work -- 2.3.1 Age -- 2.3.2 Availability of Vaccination Slots -- 2.3.3 Vaccination Status -- 2.4 Proposed Model -- 2.4.1 Role of the CoWIN App -- 2.4.2 Process for Signing Up for the CoWIN App -- 2.5 Proposed Fuzzy-Based Vaccine Slot Tracker Model -- 2.5.1 Fuzzy Rules -- 2.6 Simulation -- 2.7 Conclusion -- 2.8 Future Work -- References -- Chapter 3 Enhanced Text Mining Approach for Better Ranking System of Customer Reviews -- 3.1 Introduction -- 3.2 Techniques of Text Mining -- 3.2.1 Sentiment Analysis -- 3.2.2 Natural Language Processing -- 3.2.3 Information Extraction -- 3.2.4 Information Retrieval -- 3.2.5 Clustering -- 3.2.6 Categorization -- 3.2.7 Visualization. 3.2.8 Text Summarization -- 3.3 Related Research -- 3.4 Research Methodology -- 3.5 Conclusion -- References -- Chapter 4 Spatial Analysis of Carbon Sequestration Mapping Using Remote Sensing and Satellite Image Processing -- 4.1 Introduction -- 4.2 Materials and Methods -- 4.2.1 Materials -- 4.2.2 Methodology -- 4.2.2.1 Formula for the Mathematical Extraction of the Vegetation Area -- 4.3 Results -- 4.4 Conclusion -- Acknowledgment -- References -- Chapter 5 Applications of Multimodal Biometric Technology -- 5.1 Introduction -- 5.1.1 Benchmark for Effective Multimodal Biometric System -- 5.2 Components of MBS -- 5.2.1 Data Store(s) -- 5.2.2 Input Interface -- 5.2.3 Processing Unit -- 5.2.4 Output Interface -- 5.3 Biometrics Modalities -- 5.4 Applications of Multimodal Biometric Systems -- 5.4.1 MBS in Forensic Science -- 5.4.2 MBS in Government Applications -- 5.4.3 MBS in Enterprise Solutions and Network Infrastructure -- 5.4.4 MBS in Commercial Applications -- 5.5 Conclusion -- References -- Chapter 6 A Study of Multimodal Colearning, Application in Biometrics and Authentication -- 6.1 Introduction -- 6.1.1 Need for Multimodal Colearning -- 6.1.2 Why Multimodal Biometric Systems? -- 6.1.3 Multimodal Deep Learning -- 6.1.4 Motivation -- 6.2 Multimodal Deep Learning Methods and Applications -- 6.2.1 Multimodal Image Description (MMID) -- 6.2.2 Multimodal Video Description (MMVD) -- 6.2.3 Multimodal Visual Question Answering (MMVQA) -- 6.2.4 Multimodal Speech Synthesis (MMSS) -- 6.2.5 Multimodal Event Detection (MMED) -- 6.2.6 Multimodal Emotion Recognition -- 6.3 MMDL Application in Biometric Monitoring -- 6.3.1 Biometric Authentication System and Issues -- 6.3.2 Multimodal Biometric Authentication System and Benefits -- 6.4 Fusion Levels in Multimodal Biometrics -- 6.4.1 Fusion at Feature Level -- 6.4.2 Fusion at Matching Score Level. 6.4.3 Decision-Level Fusion -- 6.5 Authentication in Mobile Devices Using Multimodal Biometrics -- 6.5.1 Categories of Multimodal Biometrics -- 6.5.2 Benefits of Multimodal Biometrics in Mobile Devices -- 6.6 Challenges and Open Research Problems -- 6.7 Conclusion -- References -- Chapter 7 A Structured Review on Virtual Reality Technology Application in the Field of Sports -- 7.1 Introduction -- 7.2 Related Work -- 7.3 Conclusion -- References -- Chapter 8 A Systematic and Structured Review of Fuzzy Logic-Based Evaluation in Sports -- 8.1 Introduction -- 8.2 Related Works -- 8.3 Conclusion -- References -- Chapter 9 Machine Learning and Deep Learning for Multimodal Biometrics -- 9.1 Introduction -- 9.2 Machine Learning Using Multimodal Biometrics -- 9.2.1 Main Machine Learning Algorithms -- 9.2.2 A Hybrid Model -- 9.2.3 Semisupervised Learning Method -- 9.2.4 EEG-Based Machine Learning -- 9.3 Deep Learning Using Multimodal Biometrics -- 9.3.1 Based on Score Fusion -- 9.3.2 Deep Learning for Surveillance Videos -- 9.3.3 Finger Vein and Knuckle Print-Based Deep Learning Approach -- 9.3.4 Facial Video-Based Deep Learning Technique -- 9.3.5 Finger Vein and Electrocardiogram-Based

Deep Learning Approach -- 9.4 Conclusion -- References -- Chapter 10 Machine Learning and Deep Learning: Classification and Regression Problems, Recurrent Neural Networks, Convolutional Neural Networks -- 10.1 Introduction -- 10.2 Classification of Machine Learning -- 10.3 Supervised Learning -- 10.3.1 Regression -- 10.3.2 Fuzzy Classification -- 10.3.3 Bayesian Networks -- 10.3.4 Decision Trees -- 10.3.5 Artificial Neural Network -- 10.3.6 Classification -- 10.4 Unsupervised Learning -- 10.5 Reinforcement Learning -- 10.6 Hybrid Approach -- 10.6.1 Semisupervised Learning -- 10.6.2 Self-Supervised Learning -- 10.6.3 Self-Taught Learning -- 10.7 Other Common Approaches. 10.7.1 Multitask Learning -- 10.7.2 Active Learning -- 10.7.3 Outline Learning -- 10.7.4 Transfer Learning -- 10.7.5 Federated Learning -- 10.7.6 Ensemble Learning -- 10.7.7 Adversarial Learning -- 10.7.8 Meta-Learning -- 10.7.9 Targeted Learning -- 10.7.10 Concept Learning -- 10.7.11 Bayesian Learning -- 10.7.12 Inductive Learning -- 10.7.13 Multimodal Learning -- 10.7.14 Curriculum Learning -- 10.8 DL Techniques -- 10.8.1 Recurrent Neural Network (RNN) -- 10.8.2 Convolutional Neural Network -- 10.8.3 Real-Time Applications of DL -- 10.9 Conclusion -- Acknowledgment -- References -- Chapter 11 Handwriting and Speech-Based Secured Multimodal Biometrics Identification Technique -- 11.1 Introduction -- 11.2 Literature Survey -- 11.3 Proposed Method -- 11.3.1 SVM-Based Implementation -- 11.3.2 DTW-Based Implementation -- 11.3.3 CNN-Based Method -- 11.3.4 Proposed Model Implementation -- 11.4 Results and Discussion -- 11.4.1 Data Exploitation -- 11.4.2 Data Sets Used -- 11.4.3 Validation and Training -- 11.4.4 Results on CNN-Based Methods -- 11.4.5 Results of Deep Learning-Based Method -- 11.4.6 Results of the Proposed Method -- 11.4.7 Measure of Accuracy -- 11.5 Conclusion -- References -- Chapter 12 Convolutional Neural Network Approach for Multimodal Biometric Recognition System for Banking Sector on Fusion of Face and Finger -- 12.1 Introduction -- 12.2 Literature Work -- 12.3 Proposed Work -- 12.3.1 Pre-Processing -- 12.3.2 Feature Extraction -- 12.3.3 Classification -- 12.3.4 Ensemble -- 12.4 Results and Discussion -- 12.4.1 Data Set Used -- 12.4.2 Evaluation Parameter Used -- 12.4.3 Comparison Result -- 12.5 Conclusion -- References -- Chapter 13 Secured Automated Certificate Creation Based on Multimodal Biometric Verification -- 13.1 Introduction -- 13.1.1 Background -- 13.2 Literature Work -- 13.3 Proposed Work -- 13.4 Experiment Result. 13.5 Conclusion and Future Scope -- References -- Chapter 14 Face and Iris-Based Secured Authorization Model Using CNN -- 14.1 Introduction -- 14.2 Related Work -- 14.3 Proposed Methodology -- 14.3.1 Pre-Processing -- 14.3.2 Convolutional Neural Network (CNN) -- 14.3.3 Image Fusion -- 14.4 Results and Discussion -- 14.5 Conclusion and Future Scope -- References -- Index -- EULA.

---