

1. Record Nr.	UNINA9911019502303321
Titolo	Advances in aerial sensing and imaging // edited by Sandeep Kumar [and five others]
Pubbl/distr/stampa	Hoboken, NJ : , : John Wiley & Sons, Inc. Beverly, MA : , : Scrivener Publishing LLC, , 2024 ©2024
ISBN	9781394175512 1394175515 9781394175505 1394175507
Edizione	[1st ed.]
Descrizione fisica	1 online resource (xiv, 415 pages) : illustrations, charts
Disciplina	621.3678
Soggetti	Imaging systems Drone aircraft in remote sensing Drone aircraft
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover -- Title Page -- Copyright Page -- Contents -- Preface -- Chapter 1 A Systematic Study on Aerial Images of Various Domains: Competences, Applications, and Futuristic Scope -- 1.1 Introduction -- 1.2 Literature Work -- 1.2.1 Based on Camera Axis -- 1.2.2 Based on Scale -- 1.2.3 Based on Sensor -- 1.3 Challenges of Object Detection and Classification in Aerial Images -- 1.4 Applications of Aerial Imaging in Various Domains -- 1.5 Conclusions and Future Scope -- 1.5.1 Conclusions -- 1.5.2 Future Scope -- References -- Chapter 2 Oriental Method to Predict Land Cover and Land Usage Using Keras with VGG16 for Image Recognition -- 2.1 Introduction -- 2.2 Literature Review -- 2.3 Materials and Methods -- 2.3.1 Dataset -- 2.3.2 Model Implemented -- 2.4 Discussion -- 2.5 Result Analysis -- 2.6 Conclusion -- References -- Chapter 3 Aerial Imaging Rescue and Integrated System for Road Monitoring Based on AI/ML -- 3.1 Introduction -- 3.2 Related Work -- 3.3 Number of Accidents, Fatalities, and Injuries: 2016-2022 -- 3.3.1 Accidents Statistics in India

-- 3.3.2 Accidents Statistics in Haryana -- 3.4 Proposed Methodology -- 3.4.1 ROI and Line Selection -- 3.4.2 Motion Detection -- 3.4.3 Single-Stage Clustering -- 3.4.4 Feature Fusion Process -- 3.4.5 Second-Stage Clustering -- 3.4.6 Tracking Objects -- 3.4.7 Classification -- 3.5 Result Analysis -- 3.6 Conclusion -- References -- Chapter 4 A Machine Learning Approach for Poverty Estimation Using Aerial Images -- 4.1 Introduction -- 4.2 Background and Literature Review -- 4.3 Proposed Methodology -- 4.3.1 Data Acquisition -- 4.3.2 Pre-Processing -- 4.3.3 Feature Extraction -- 4.3.4 Data Integration -- 4.3.5 Model Development -- 4.3.6 Validation -- 4.3.7 Visualization and Analysis -- 4.3.8 Policy and Program Development -- 4.4 Result and Discussion -- 4.5 Conclusion and Future Scope -- References.

Chapter 5 Agriculture and the Use of Unmanned Aerial Vehicles (UAVs): Current Practices and Prospects -- 5.1 Introduction -- 5.2 UAVs Classification -- 5.2.1 Comparison of Various UAVs -- 5.3 Agricultural Use of UAVs -- 5.4 UAVs in Livestock Farming -- 5.5 Challenges -- 5.6 Conclusion -- References -- Chapter 6 An Introduction to Deep Learning-Based Object Recognition and Tracking for Enabling Defense Applications -- 6.1 Introduction -- 6.2 Related Work -- 6.2.1 Importance of Object Monitoring and Surveillance in Defense -- 6.2.2 Need for Object Monitoring and Surveillance in Defense -- 6.2.3 Object Detection Techniques -- 6.2.4 Object Tracking Techniques -- 6.3 Experimental Methods -- 6.3.1 Experimental Setup and Dataset -- 6.3.2 DataSetVISdrone 2019 -- 6.3.3 Experimental Setup -- 6.4 Results and Outcomes -- 6.4.1 Comparison Results -- 6.4.2 Training Results -- 6.5 Conclusion -- 6.6 Future Scope -- References -- Chapter 7 A Robust Machine Learning Model for Forest Fire Detection Using Drone Images -- 7.1 Introduction -- 7.2 Literature Review -- 7.3 Proposed Methodology -- 7.4 Result and Discussion -- 7.5 Conclusion and Future Scope -- References -- Chapter 8 Semantic Segmentation of Aerial Images Using Pixel Wise Segmentation -- 8.1 Introduction -- 8.2 Related Work -- 8.3 Proposed Method -- 8.3.1 Pixelwise Classification Method -- 8.3.2 Morphological Processing -- 8.4 Datasets -- 8.5 Results and Discussion -- 8.5.1 Analysis of the Proposed Method -- 8.6 Conclusion -- References -- Chapter 9 Implementation Analysis of Ransomware and Unmanned Aerial Vehicle Attacks: Mitigation Methods and UAV Security Recommendations -- 9.1 Introduction -- 9.2 Types of Ransomwares -- 9.3 History of Ransomware -- 9.4 Notable Ransomware Strains and Their Impact -- 9.4.1 CryptoLocker (2013) -- 9.4.2 CryptoWall (2014) -- 9.4.3 TeslaCrypt (2015) -- 9.4.4 Locky (2016). -- 9.4.5 WannaCry (2017) -- 9.4.6 NotPetya (2017) -- 9.4.7 Ryuk (2018) -- 9.4.8 REvil (2019) -- 9.4.9 Present-Day Ransomware Families -- 9.5 Mitigation Methods for Ransomware Attacks -- 9.6 Cybersecurity in UAVs (Unmanned Aerial Vehicles) -- 9.6.1 Introduction on FANETS -- 9.6.2 Network Security Concerning FANETs -- 9.6.3 UAV Security Enhancement -- 9.6.4 Limitations in UAVs -- 9.6.5 Future Scope -- 9.7 Experimental analysis of Wi-Fi Attack on Ryze Tello UAVs -- 9.7.1 Introduction -- 9.7.2 Methodology -- 9.8 Results and Discussion -- 9.9 Conclusion and Future Scope -- References -- Chapter 10 A Framework for Detection of Overall Emotional Score of an Event from the Images Captured by a Drone -- 10.1 Introduction -- 10.1.1 Need for Emotion Recognition -- 10.1.2 Applications of Drones in Deep Learning -- 10.2 Literature Review -- 10.3 Proposed Work -- 10.3.1 Extraction of Images from a Drone -- 10.3.2 Proposed CNN Model -- 10.4 Experimentation and Results -- 10.4.1 Dataset Description -- 10.5 Future Work and Conclusion -- References -- Chapter 11 Drone-

Assisted Image Forgery Detection Using Generative Adversarial Net-Based Module -- 11.1 Introduction -- 11.2 Literature Survey -- 11.3 Proposed System -- 11.3.1 Common Forged Feature Network -- 11.3.2 Features Extraction -- 11.3.3 Features Classification and Classification Network -- 11.3.4 Label Prediction -- 11.3.5 Contrastive Learning -- 11.3.6 Binary Cross-Entropy Loss -- 11.4 Results -- 11.4.1 Experimental Settings -- 11.4.2 Performance Comparison -- 11.4.3 LBP Visualized Results -- 11.4.4 Training Convergence -- 11.5 Conclusion -- References -- Chapter 12 Optimizing the Identification and Utilization of Open Parking Spaces Through Advanced Machine Learning -- 12.1 Introduction -- 12.2 Proposed Framework Optimized Parking Space Identifier (OPSI) -- 12.2.1 Framework Components. 12.2.2 Learning Module: Adaptive Prediction of Parking Space Availability -- 12.2.3 System Design -- 12.2.4 Tools and Usage -- 12.2.5 Architecture -- 12.2.6 Implementation Techniques and Algorithms -- 12.2.7 Existing Methods and Workflow Model -- 12.2.8 Hyperparameter for OPSI -- 12.3 Potential Impact -- 12.3.1 Claims for the Accurate Detection of Fatigue -- 12.3.2 Similar Study and Results Analysis -- 12.4 Application and Results -- 12.4.1 Algorithm and Results -- 12.4.2 Implementation Using Python Modules -- 12.5 Discussion and Limitations -- 12.5.1 Discussion -- 12.5.2 Limitations -- 12.6 Future Work -- 12.6.1 Integration with Autonomous Vehicles -- 12.6.2 Real-Time Data Analysis -- 12.6.3 Integration with Smart Cities -- 12.7 Conclusion -- References -- Chapter 13 Graphical Password Authentication Using Python for Aerial Devices/Drones -- 13.1 Introduction -- 13.2 Literature Review -- 13.3 Methodology -- 13.4 A Brief Overview of a Drone and Authentication -- 13.4.1 Password Authentication -- 13.4.2 Types of Password Authentication Systems -- 13.4.3 Graphical Password Authentication -- 13.4.4 Advantages and Disadvantages of Graphical Passwords -- 13.5 Password Cracking -- 13.6 Data Analysis -- 13.7 Discussion -- 13.8 Conclusion and Future Scope -- References -- Chapter 14 A Study Centering on the Data and Processing for Remote Sensing Utilizing from Annoyed Aerial Vehicles -- 14.1 Introduction -- 14.2 An Acquisition Method for 3D Data Utilising Annoyed Aerial Vehicles -- 14.3 Background and Literature of Review -- 14.4 Research Gap -- 14.5 Methodology -- 14.6 Discussion -- 14.7 Conclusion -- References -- Chapter 15 Satellite Image Classification Using Convolutional Neural Network -- 15.1 Introduction -- 15.2 Literature Review -- 15.3 Objectives of this Research Work -- 15.3.1 Novelty of the Research Work -- 15.4 Description of the Dataset. 15.5 Theoretical Framework -- 15.6 Implementation and Results -- 15.6.1 Data Visualization -- 15.6.1.1 Class-Wise Data Count -- 15.6.1.2 Class-Wise Augmented Data Count -- 15.6.2 Implementation of MobileNetV3 -- 15.6.2.1 Visualization of a Sample of Training Images -- 15.6.2.2 Visualization of Executed Codes of MobileNetV3 -- 15.6.2.3 Training Results of MobileNetV3 -- 15.6.2.4 Classifications of Errors on Test Sets of MobileNetV3 -- 15.6.2.5 Confusion Matrix of MobileNetV3 -- 15.6.2.6 Classification Report of MobileNetV3 -- 15.6.3 Implementation of EfficientNetB0 -- 15.6.3.1 Visualization of a Sample of Training Images -- 15.6.3.2 Visualization of Executed Codes of EfficientNetB0 -- 15.6.3.3 Training Results of EfficientNetB0 -- 15.6.3.4 Classifications of Errors on Test Sets of EfficientNetB0 -- 15.6.3.5 Confusion Matrix of EfficientNetB0 -- 15.6.3.6 Classification Report of EfficientNetB0 -- 15.7 Conclusion and Future Scope -- References -- Chapter 16 Edge Computing in Aerial Imaging - A Research Perspective -- 16.1 Introduction -- 16.1.1 Edge Computing and Aerial Imaging -- 16.2 Research Applications of Aerial Imaging --

16.2.1 Vehicle Imaging -- 16.2.2 Precision Agriculture -- 16.2.3 Environment Monitoring -- 16.2.4 Urban Planning and Development -- 16.2.5 Emergency Response -- 16.3 Edge Computing and Aerial Imaging -- 16.3.1 Research Perspective in Aerial Imaging -- 16.3.2 Edge Architectures -- 16.4 Comparative Analysis of the Aerial Imaging Algorithms and Architectures -- 16.5 Discussion -- 16.6 Conclusion -- References -- Chapter 17 Aerial Sensing and Imaging Analysis for Agriculture -- 17.1 Introduction -- 17.2 Experimental Methods and Techniques -- 17.3 Aerial Imaging and Sensing Applications in Agriculture -- 17.3.1 Assessing Yield and Fertilizer Response -- 17.3.2 Plant and Crop Farming -- 17.3.3 Soil and Field Analysis. 17.3.4 Weed Mapping and Management.

Sommario/riassunto

"Aerial sensing and imaging have rapidly evolved over the past few decades and have revolutionized several fields, including land cover and usage prediction, crop and livestock management, road accident monitoring, poverty estimation, defense, agriculture, forest fire detection, UAV security issues, and open parking management. This book provides a comprehensive understanding and knowledge of the underlying technology and its practical applications in different domains."--
