International Journal Of Advance Research, Ideas And Innovations In Technology

VOLUME 10 - ISSUE 2

IJARIIT

SPECTRUM

International Journal of Advance Research, Ideas and Innovations in Technology

March-April, 2024

16	39	14	1
PAPERS	AUTHORS	INSTITUTIONS	COUNTRIES

INSIDE THIS ISSUE

Indoor navigation using augmented reality p. 1

Crime analysis in India using machine and deep learning techniques p. 8

Buyer's Perception of Starbucks p. 15

IJARIIT SPECTRUM

Spectrum is an e-magazine with the comprehensive collection of all the papers that have been published in our journal over the last two months — Volume 10, Issue 2 (March-April, 2024). This edition brings together 16 papers by 39 authors from 14 institutions. Each entry links to the abstract and the full paper.

ABOUT IJARIIT

Our motto: to promote originality in thinking, backed by sincere and honest research.

International Journal of Advance Research, Ideas and Innovations in Technology is an open-access, peer-reviewed journal. We make publishing simple and transparent, so researchers can focus on their work:

- Online submission, free of charge
- Review result usually within 2 hours
- Updates by email and WhatsApp at every step
- Track your paper online with your tracking key
- One publication fee for all authors, paid only after acceptance
- Published online within 48 hours of payment
- e-Certificate for every author



e-ISSN 2454-132X

THIS EDITION AT A GLANCE

Research areas	
Deep Learning	3
Data Science	2
Machine Learning	2
Computer Science	1
Consumer Psychology	1
Aws Cloud Computing	1

Authors by country	
India	16

© 2024, IJARIIT.COM All Rights Reserved

Indexing of Volume 10 – Issue 2

S. No	Title	Page Number	Links
1.	**Indoor navigation using augmented reality** *Mahalakshmi Padam, Dr. Y. Md. Riyazuddin* **Gitam Deemed to Be University, Rudraram, Telangana**	1-7	View Abstract Download PDF
2.	**Crime analysis in India using machine and deep learning techniques** *Thatikonda Shanmukham, Dr.Md. Riyazuddin* **GITAM (Deemed To Be University), Rudraram, Telangana**	8-14	View Abstract Download PDF
3.	**Buyer's Perception of Starbucks** *Yerravelli Nikhil Moses, Dr. Y. Md. Riyazuddin* **Gitam Deemed University, Visakhapatnam, Andhra Pradesh**	15-20	View Abstract Download PDF
4.	**3D Dense CNN for Hyperspectral Imaging-Based Bloodstain Classification** *Tejaskumar B. Sheth, Dr. Milind S.Shah* **Gujarat Technological University, Gandhinagar, Gujarat, Shantilal Shah Engineering College, Bhavnagar, Gujarat**	21-28	View Abstract Download PDF
5.	**Role of Consumer Psychology in Sales and Marketing** *Ishaan Sagar* **American Embassy School, New Delhi, Delhi**	29-35	View Abstract Download PDF
6.	**Multi-scale Deep Learning for Histopathological Image Analysis: The Deep-Hipo Approach** *Keerthana M., Dr. Y. Md. Riyazuddin* **GITAM (Deemed To Be University), Rudraram, Telangana**	36-47	View Abstract Download PDF
7.	**Build an Amazon Connect call center** *Ismail Emad Sakerde, Khan Mohammed Umer, Rathod Mihir Visabhai, Reena Kothari* **Shree L.R.Tiwari College of Engineering, Bhayandar, Maharashtra**	48-52	View Abstract Download PDF
8.	**Keystroke Dynamics: A Machine Learning Approach to Behavioural Biometric Authentication** *Swarangi Anant Sawant, Sakshi Vasant Kalambe, Rupali Pashte* **Shree L. R. Tiwari College of Engineering, Mira-Bhayandar, Maharashtra**	53-61	View Abstract Download PDF
9.	**Bidirectional sign to audio converter** *Satyam K. Singh, Aishwarya Shrivastava, Priti R. Navik, Sonali Padalkar* **Shree LR Tiwari College of Engineering, Mira Bhayandar, Maharashtra**	62-67	View Abstract Download PDF

© 2024, IJARIIT.COM All Rights Reserved

S.No	Title	Page Number	Links
10.	**Ship Detection Based on Faster R-CNN Using Range-Compressed Airborne Radar Data** *K. Vinay Kumar, Dr. Y. Md. Riyazuddin* **GITAM Deemed to be University, Rudraram, Telangana**	68-73	View Abstract Download PDF
11.	**The origin of Street Theatre (ST)** *Dr. Samitarani Mohanty* **Utkal Sangeet Mahavidyalaya, Bhubaneswar, Odisha**	74-75	View Abstract Download PDF
12.	**Importance of Social Media and Marketing** *Divyam Upadhyay* **Sanskriti School , Chanakyapuri, New Delhi**	76-79	View Abstract Download PDF
13.	**Parent-Adolescent Psychology** *Hunar Khanna* **Delhi Public School R.K Puram, New Delhi**	80-86	View Abstract Download PDF
14.	**Empowering the Visually Impaired: The Innovative Reader** *Akhilesh N, Harsath Vijayakumar, Nikhil S, Rahul MR, Suhasini* **Maharaja Institute of Technology Thandavapura, Mysuru, Karnataka**	87-91	View Abstract Download PDF
15.	**Smart Agricultural Pesticide Spraying Robo** *Adesh, Nikhil V.S, Pratik Kate, Om Jogdhand* **Rajiv Gandhi Institute College of Technology, Kerala**	92-96	View Abstract Download PDF
16.	**Brain Tumor Classification Leveraging CNNAnd Grad-CAM For Accurate Tumor Type Identification** *Balamurali Besetty, B. Harshitha, A. Chandu, P. Nandini, D. Jayanth, Sreelahari Vallamsetla* **Anil Neerukonda Institute of Technology and Sciences, Visakhapatnam, Andhra Pradesh**	97-106	View Abstract Download PDF

© 2024, IJARIIT.COM All Rights Reserved

ABSTRACTS

1 Indoor navigation using augmented reality

Paper ID V10I2-1138 · Pages 1-7 · Data Science

Mahalakshmi Padam, Student, Gitam Deemed to Be University, Rudraram, Telangana
Dr. Y. Md. Riyazuddin, Professor, Gitam Deemed to Be University, Rudraram, Telangana

The majority of contemporary competitive commercial navigation programs rely on GPS-based navigation technology. However, it is the interior navigation performance is lower than that in an outdoor situation. Much of the research and development on indoor navigational systems entails the installation of additional equipment, which often comes with a substantial setup charge. A study and comparison were undertaken to identify the best indoor localization, pathfinding, and path navigation systems for an indoor navigation strategy. The goal of this project is to demonstrate a user-friendly and cost-effective indoor navigation system. The recommended solution combines augmented reality technology with the built-in sensors included in the majority of mobile devices to determine the user's location and give an immersive navigation experience. In this project, a smartphone app for indoor navigation was developed and tested. AR Core will use the predicted route to display AR guidance. Surveys were done to assess the methodology's effectiveness and gather input from participants. The method's architecture, an example, and applications are described.

Keywords: Indoor Navigation, Indoor Localization, Erroneous Orientation, Heuristic, Image Recognition, Latency Reduction, Path Navigation, Augmented Reality,

Read Full Paper · Download PDF · Back to index

---

2 Crime analysis in India using machine and deep learning techniques

Paper ID V10I2-1137 · Pages 8-14 · Computer Science

Thatikonda Shanmukham, Student, GITAM (Deemed To Be University), Rudraram, Telangana
Dr.Md. Riyazuddin, Professor, GITAM (Deemed To Be University), Rudraram, Telangana

Crime analysis is a critical aspect of law enforcement, aiding in the understanding, prediction, and prevention of criminal activities. In a vast and diverse country like India, with its complex socio-economic landscape, traditional methods of crime analysis often fall short in capturing the intricacies and patterns of criminal behavior. In recent years, machine learning (ML) and deep learning (DL) techniques have emerged as powerful tools to analyze crime data, offering the potential to uncover hidden patterns and trends that can enhance law enforcement strategies. This paper presents a comprehensive overview of crime analysis in India utilizing machine learning and deep learning methodologies. We begin by discussing the challenges inherent in traditional crime analysis methods, highlighting the need for more sophisticated approaches to address the complexities of crime dynamics in India. Subsequently, we delve into the theoretical foundations of machine learning and deep learning, providing insights into various algorithms and techniques commonly employed in crime analysis. Drawing upon real-world datasets from Indian cities, we demonstrate the application of machine learning and deep learning techniques in crime prediction, hotspot identification, and criminal profiling.

© 2024, IJARIIT.COM All Rights Reserved

Keywords: Machine Learning (ML), Deep Learning (DL), Analysis Methods, Theoretical foundations, Crime Dynamics, Crime Prediction, Hotspot Identification, Criminal Profiling, Convolutional Neural Networks (CNN), Crime Computational Techniques, Crime Incident Reports, Demographic Information, socioeconomic indicators, Geospatial Data Predictive Accuracy, Scalability, Spatial Dynamics, Temporal Dynamics

Read Full Paper · Download PDF · Back to index

---

3 Buyer’s Perception of Starbucks

Paper ID V10I2-1147 · Pages 15-20 · Data Science

Yerravelli Nikhil Moses, Student, Gitam Deemed University, Visakhapatnam, Andhra Pradesh
Dr. Y. Md. Riyazuddin, Professor, Gitam Deemed University, Visakhapatnam, Andhra Pradesh

This document provides an analysis of the buyer's perception of Starbucks, a leading global coffeehouse chain. The study aims to understand the factors influencing consumers' perceptions of Starbucks and their preferences regarding its products and services. Utilizing a mixed-methods approach, including surveys and interviews, data was collected from a diverse sample of Starbucks customers across different demographics and locations. Key findings reveal that Starbucks customers perceive the brand positively, associating it with quality, convenience, and a welcoming atmosphere. The analysis delves into the factors driving these perceptions, such as product quality, customer service, brand image, and social responsibility initiatives. Additionally, the study explores the impact of factors like pricing, competition, and cultural influences on consumer perceptions and purchasing behavior. Implications of the findings suggest opportunities for Starbucks to further enhance customer satisfaction and loyalty through targeted marketing strategies, product innovation, and community engagement initiatives. The document concludes with recommendations for Starbucks and other businesses in the coffee industry to leverage consumer perceptions effectively and maintain competitive advantage in the market

Keywords: Starbucks, Perceptions, Utilizing, Customer Service

Read Full Paper · Download PDF · Back to index

---

4 3D Dense CNN for Hyperspectral Imaging-Based Bloodstain Classification

Paper ID V10I2-1150 · Pages 21-28 · Deep Learning

Tejaskumar B. Sheth, Research Scholar, Gujarat Technological University, Gandhinagar, Gujarat
Dr. Milind S.Shah, Professor, Shantilal Shah Engineering College, Bhavnagar, Gujarat

Blood is a crucial piece of evidence in forensic science for reconstructing and solving crimes. Although numerous chemical procedures are utilized to recognize the blood at a crime scene, these various chemical-based methods might affect DNA analysis. One potential application of bloodstain detection and classification using hyperspectral imaging (HSI) is in forensic science for crime scene investigation. In this paper, we developed a deep learning classifier 2D CNN, 3D CNN and Dense for blood stain detection in the field of forensic science. We conduct experiments using a publicly available Hyperspectral-based Bloodstain dataset for experimental and validation purposes. This dataset contains a variety of chemicals, including blood and blood-like compounds such as ketchup, artificial blood, beetroot juice, poster paint, tomato concentrate, acrylic paint, and questionable blood. With the initial training/testing ratio set to 90/10 of the data samples, we compare the

© 2024, IJARIIT.COM All Rights Reserved

results with state-of-the-art three different CNN architecture with PCA, as preprocessing techniques. The result demonstrates that the 3D Dense CNN can offer improved classification accuracies, smoother classification maps, and more discriminable features for hyperspectral image classification.

Keywords: Deep Learning, Convolution Neural Networks, Dense CNN, Hyperspectral Image Classification, Forensic Science, Blood Detection.

Read Full Paper · Download PDF · Back to index

---

5 Role of Consumer Psychology in Sales and Marketing

Paper ID V10I2-1157 · Pages 29-35 · Consumer Psychology

Ishaan Sagar, Student, American Embassy School, New Delhi, Delhi

This paper examines the role of consumer psychology in sales and marketing in the contemporary context. It is essential to understand the hows and whys of consumer decisions, and factors that influence their buying behavior and their purchasing patterns. This is critical knowledge to understand the target audience to develop effective marketing strategies for optimum sales and revenue. The existing market is highly competitive and the key players need to know how to create the right product for the right consumers. Insights into and perceptions of consumer psychology enable the designing of an effective marketing strategy to attract consumers, designing, and producing new products. This is a crucial skill and knowledge for successful sales and marketing.

Keywords: Consumer Psychology, Consumer Behavior, Marketing Strategy Perception

Read Full Paper · Download PDF · Back to index

---

6 Multi-scale Deep Learning for Histopathological Image Analysis: The Deep-Hipo Approach

Paper ID V10I2-1146 · Pages 36-47 · Deep Learning

Keerthana M., Student, GITAM (Deemed To Be University), Rudraram, Telangana
Dr. Y. Md. Riyazuddin, Assistant Professor, GITAM (Deemed To Be University), Rudraram, Telangana

© 2024, IJARIIT.COM All Rights Reserved

The digitization of whole-slide imaging within digital pathology has propelled the advancement of computer-assisted tissue examination utilizing machine learning methodologies, particularly convolutional neural networks (CNNs). Numerous CNN-based approaches have been proposed to effectively analyze histopathological images for tasks such as cancer detection, risk prediction, and cancer subtype classification. While many existing methods have relied on patch-based examination due to the immense size of histopathological images, such small window patches often lack sufficient information or patterns for the tasks at hand. Pathologists routinely inspect tissues at various magnification levels to scrutinize complex morphological patterns through microscopes. In response to these challenges, we propose a novel deep-learning model for histopathology, named Deep-Hipo, which concurrently utilizes multi-scale patches forprecise histopathological image analysis. Deep-Hipo simultaneously extracts two patches of identical size fromboth high and low magnification levels, enabling the capture of intricate morphological patterns within bothlarge and small receptive fields of a whole-slide image.

Keywords: Deep-Hipo, Whole Slide Images (WSI), Convolutional Neural Network (CNN), N-Net, VGG16, Dense-Net, Efficient-Net, Multi-Resolution Deep learning network (MRD-Net), Histopathology, Google Brain's Inception V3 (GB-INCV3), CAT-Net.

Read Full Paper · Download PDF · Back to index

---

7 Build an Amazon Connect call center

Paper ID V10I2-1159 · Pages 48-52 · Aws Cloud Computing

Ismail Emad Sakerde, Student, Shree L.R.Tiwari College of Engineering, Bhayandar, Maharashtra
Khan Mohammed Umer, Student, Shree L.R.Tiwari College of Engineering, Bhayandar, Maharashtra
Rathod Mihir Visabhai, Student, Shree L.R.Tiwari College of Engineering, Bhayandar, Maharashtra
Reena Kothari, Assistant Professor, Shree L.R.Tiwari College of Engineering, Bhayandar, Maharashtra

The purpose of this paper is to investigate how Amazon Connect and Amazon Lex may be integrated to create a state-of-the-art customer contact center system that will enhance customer service operations. The study entails a thorough analysis of the advantages, disadvantages, and best practices related to establishing a customer contact center with Amazon Connect and Amazon Lex in terms of technology. It contains case studies, a summary of pertinent research, and helpful implementation advice. Significant advantages of the Amazon Connect and Amazon Lex connection include enhanced productivity, Scalability, cost-effectiveness, and personalized customer experiences. Nevertheless, there are obstacles including complicated chatbot training and regulatory compliance. To solve these issues, solutions and practical implementation insights are given. The conclusions are also supported by prior research and real-world experiences. Businesses may use the information in this paper to improve customer service operations by putting Amazon Connect and Amazon Lex into practice as part of a contemporary contact center solution. The useful advice and best practices provided can aid in resolving issues and maximizing the advantages of this integration, eventually enhancing general client happiness and loyalty

Keywords: Customer Call Center, Amazon Connect, Amazon Lex, Cloud-Based Contact Center, Conversational AI, Integration, Personalized Interactions

Read Full Paper · Download PDF · Back to index

© 2024, IJARIIT.COM All Rights Reserved

8 Keystroke Dynamics: A Machine Learning Approach to Behavioural Biometric Authentication

Paper ID V10I2-1164 · Pages 53-61 · Machine Learning

Swarangi Anant Sawant, Student, Shree L. R. Tiwari College of Engineering, Mira-Bhayandar, Maharashtra
Sakshi Vasant Kalambe, Student, Shree L. R. Tiwari College of Engineering, Mira-Bhayandar, Maharashtra
Rupali Pashte, Assistant Professor, Shree L. R. Tiwari College of Engineering, Mira-Bhayandar, Maharashtra

With the ever-increasing dependence on digital services, ensuring the security of user accounts has become a paramount concern. Traditional authentication methods, such as passwords and PINs, have demonstrated vulnerabilities to various attacks. Keystroke dynamics, a behavioral biometric, offers a promising solution for adaptive authentication by analyzing typing patterns unique to everyone. This project explores the implementation of keystroke dynamics in adaptive authentication systems using machine learning algorithms. The primary objective is to create a robust, secure, and user-friendly authentication mechanism that continuously adapts to the changing typing behavior of users while maintaining a high level of accuracy. The proposed system employs a diverse dataset collected from users performing various typing tasks to train machine learning models. Features such as keystroke latency, flight time, and typing rhythm are extracted and used as inputs to the algorithms. Several popular machines learning techniques, including support vector machines, neural networks, and random forests, are employed to build classification models capable of distinguishing between legitimate users and unauthorized intruders. This project advocates for the adoption of keystroke dynamics in adaptive authentication systems, utilizing machine learning algorithms to create a secure and user-friendly experience. By combining behavioral biometrics with cutting-edge technology, the proposed approach offers a robust defense against unauthorized access, paving the way for more secure and convenient authentication methods in the digital era.

Keywords: Keystroke dynamics, Behavioral biometrics, Adaptive authentication, Security, User accounts, Digital services, Authentication mechanisms, Passwords, Vulnerabilities, Typing patterns, Machine learning algorithms

Read Full Paper · Download PDF · Back to index

---

9 Bidirectional sign to audio converter

Paper ID V10I2-1161 · Pages 62-67 · Machine Learning

Satyam K. Singh, Student, Shree LR Tiwari College of Engineering, Mira Bhayandar, Maharashtra
Aishwarya Shrivastava, Student, Shree LR Tiwari College of Engineering, Mira Bhayandar, Maharashtra
Priti R. Navik, Student, Shree LR Tiwari College of Engineering, Mira Bhayandar, Maharashtra
Sonali Padalkar, Assistant Professor, Shree LR Tiwari College of Engineering, Mira Bhayandar, Maharashtra

The goal of this paper is to create a helpful system for people who have trouble hearing and those who use sign language. This system can change sign language into spoken words and vice versa. It uses a motion capture system to change sign language and a voice recognition system to change spoken words. It shows the signs as writing on the screen and also displays the meaning of spoken words as moving images or videos.

Keywords: Motion Capture, Sign Language Converter, Motioned Image, Voice Recognition.

Read Full Paper · Download PDF · Back to index

© 2024, IJARIIT.COM All Rights Reserved

10 Ship Detection Based on Faster R-CNN Using Range-Compressed Airborne Radar Data

Paper ID V10I2-1144 · Pages 68-73 · Deep Learning

K. Vinay Kumar, Student, GITAM Deemed to be University, Rudraram, Telangana
Dr. Y. Md. Riyazuddin, Associate Professor, GITAM Deemed to be University, Rudraram, Telangana

This paper introduces a novel approach to ship monitoring for enhanced maritime safety and security. Traditional methods rely on Automatic Identification Systems (AIS) and marine radar, but their effectiveness is hindered by the absence of AIS on some vessels. To overcome this limitation, Faster R-CNN, trained on Range-Compressed Airborne Radar Data, is proposed. By utilizing airborne radar signals, the need for AIS installations is eliminated. The Faster R-CNN algorithm is trained on both Time Domain and Doppler Domain data types for object detection and classification, respectively. Leveraging Resnet50 as the backbone model, the system achieves efficient ship detection by analyzing specific regions, thus reducing false detections. This innovative approach presents a significant advancement in sea monitoring capabilities, ensuring enhanced safety and security at sea.

Keywords: Airborne Radar, Deep Learning, Maritime Safety, Moving Target Indication (MTI), Synthetic Aperture Radar (SAR).

Read Full Paper · Download PDF · Back to index

---

11 The origin of Street Theatre (ST)

Paper ID V10I2-1145 · Pages 74-75 · Theatre

Dr. Samitarani Mohanty, Independent Researcher, Utkal Sangeet Mahavidyalaya, Bhubaneswar, Odisha

Street Theatre (ST) originated in Russia in 1918. Sources reveal, 'Mystery-Bouffe' is the First Street Theatre in the world. Then the trend was spread in other countries of the world. Street Theatre has occupied a place for itself in World Theatre History.

Keywords: Street Theatre (ST), Mystery Bouffe, Public Awareness, Revolutionary Change

Read Full Paper · Download PDF · Back to index

---

12 Importance of Social Media and Marketing

Paper ID V10I2-1162 · Pages 76-79 · Marketing

Divyam Upadhyay, Student, Sanskriti School , Chanakyapuri, New Delhi

Technology, especially social media has affected our lives in many ways and is an important part of our daily lives, marketing is just one of the many things social media is used for, and this paper is about the effects and influence of social media in marketing. Many aspects of marketing such as digital selling, brand loyalty, marketing communication, and many other points will be explained while keeping in mind the impact of social media. Also, advantages and disadvantages will be listed in the paper and expanded in an understanding way.

Keywords: Social Media, Social Media Marketing, Marketing, Social Media Brand Loyalty, Effects of Social Media, Branding, Business

© 2024, IJARIIT.COM All Rights Reserved

Read Full Paper · Download PDF · Back to index

13 Parent-Adolescent Psychology

Paper ID V10I2-1167 · Pages 80-86 · Psychology

Hunar Khanna, Student, Delhi Public School R.K Puram, New Delhi

This research paper comes to various conclusions about the Parent-Adolescent relationship which has an impact on both the parent and the adolescent in different contexts. This research paper sheds light on the importance of Communication of Adolescents with the family members that is necessary to maintain a Healthy Relationship with the members of the family. This paper talks about Communication and the Circumplex model, the Effects of parent-adolescent relationship, and the effect of parental separation on an adolescent's well-being. Adolescent sexuality, parent Alcoholism, Adolescent egocentrism identity,parent-adolescent processes, parent personality, and its effects, parent influences on adolescent peer orientation, Family Economic Hardship, Parental Support, and Adolescent self-esteem are also examined. It also talks about Disclosure and Secrecy in parent-adolescent relationships. Various cause and effect factors were also examined.

Keywords: Adolescents, Parents, Parental Pressure, Parental Expectations, Parent-Adolescent Communication, Parental Separation, Adolescent Sexuality, Parent-Adolescent Relations, Identity Formation, Sexual Maturity, Puberty, Parent Alcoholism, Adolescent Ego Identity, Disclosure And Secrecy, Parent-Adolescent Conflict, Parent Personality, Parent Influence, Parenting Style, Family Economic Hardships, Adolescent-Self Esteem.

Read Full Paper · Download PDF · Back to index

14 Empowering the Visually Impaired: The Innovative Reader

Paper ID V10I2-1174 · Pages 87-91 · Computer Science And Engineering

Akhilesh N, Student, Maharaja Institute of Technology Thandavapura, Mysuru, Karnataka
Harsath Vijayakumar, Student, Maharaja Institute of Technology Thandavapura, Mysuru, Karnataka
Nikhil S, Student, Maharaja Institute of Technology Thandavapura, Mysuru, Karnataka
Rahul MR, Student, Maharaja Institute of Technology Thandavapura, Mysuru, Karnataka
Suhasini, Professor, Maharaja Institute of Technology Thandavapura, Mysuru, Karnataka

The intent of this study is to present a new Smart Reader system, to improve accessibility for those with visual impairments. Leveraging the versatile capabilities of Raspberry Pi, the system integrates both hardware and software components to facilitate real-time text recognition and audio output. Its hardware setup comprises a Raspberry Pi microcontroller, a camera module, and audio peripherals, ensuring a portable and efficient design. By employing computer vision techniques, the system extracts text from various textual materials, such as books, documents, and signs, and converts it into sound. Machine learning algorithms contribute to accurate text recognition, while natural language processing ensures coherent audio delivery. Future enhancements may concentrate on bolstering system resilience, broadening language support, and incorporating additional features to cater user requirements.

Keywords: Smart Reader, Raspberry Pi, Language Support, Real-Time Text Recognition, Cost-Effective.

Read Full Paper · Download PDF · Back to index

© 2024, IJARIIT.COM All Rights Reserved

15 Smart Agricultural Pesticide Spraying Robo

Paper ID V10I2-1169 · Pages 92-96 · Robotics

Adesh, Student, Rajiv Gandhi Institute College of Technology, Kerala
Nikhil V.S, Professor, Rajiv Gandhi Institute College of Technology, Kerala
Pratik Kate, Student, Rajiv Gandhi Institute College of Technology, Kerala
Om Jogdhand, Student, Rajiv Gandhi Institute College of Technology, Kerala

This paper introduces an autonomous pesticide spraying robot designed for precision agriculture applications. With the escalating demand for sustainable farming practices, the need for efficient pest management solutions has become paramount. The proposed robot employs a combination of advanced technologies, including artificial intelligence, robotics, and sensing capabilities, to optimize pesticide application while minimizing environmental impact. Through real-time data collection and analysis, the robot identifies pest-infested areas and precisely administers the required amount of pesticide, thereby reducing chemical usage and increasing crop yield. Additionally, the robot's autonomous navigation system enables it to manoeuvre through complex terrain with minimal human intervention, enhancing operational efficiency and reducing labor costs. The integration of Internet of Things (IoT) connectivity facilitates remote monitoring and control, allowing farmers to manage spraying operations and receive actionable insights for decision-making remotely. Overall, the autonomous pesticide spraying robot represents a promising solution for sustainable agriculture, offering increased productivity, reduced environmental footprint, and improved crop health.

Keywords: Robot, Smart, Crop, Internet of Things (IoT)

Read Full Paper · Download PDF · Back to index

---

16 Brain Tumor Classification Leveraging CNNAnd Grad-CAM For Accurate Tumor Type Identification

Paper ID V10I2-1172 · Pages 97-106 · Medical Imaging And Deep Learning

Balamurali Besetty, Student, Anil Neerukonda Institute of Technology and Sciences, Visakhapatnam, Andhra Pradesh
B. Harshitha, Student, Anil Neerukonda Institute of Technology and Sciences, Visakhapatnam, Andhra Pradesh
A. Chandu, Student, Anil Neerukonda Institute of Technology and Sciences, Visakhapatnam, Andhra Pradesh
P. Nandini, Student, Anil Neerukonda Institute of Technology and Sciences, Visakhapatnam, Andhra Pradesh
D. Jayanth, Student, Anil Neerukonda Institute of Technology and Sciences, Visakhapatnam, Andhra Pradesh
Sreelahari Vallamsetla, Assistant Professor, Anil Neerukonda Institute of Technology and Sciences, Visakhapatnam, Andhra Pradesh

Brain tumour segmentation in medical image analysis is a challenging task because precision is crucial in the process of diagnosis and treatment. The current research applies a sophisticated method that utilizes Convolutional Neural Networks (CNNs) in conjunction with gradient-weighted Class Activation Mapping (Grad-CAM) to enhance the detection accuracy of brain tumours. By virtue of the implemented complex architecture of EfficientNetB1, our technique shines at solving the complex problems of medical image data processing. Grad-CAM makes a precious input into CNN by supplying visual interpretations of the attention-paying areas of CNN, empowering doctors to make the right diagnoses. We introduce a model that is based on a great number of brain tumour images with confirmed labels and learns to differentiate different tumour types based on their

© 2024, IJARIIT.COM All Rights Reserved

specific patterns. From our comparative analysis, we can see that there is a significant improvement in tumour detection accuracy, with our model reaching even as high as 99.67%. This one is more effective than the VGG16 model that delivers 85%-90% accuracy and ResNet50 model that has 90%-97% accuracy. In particular, the EfficientNetB1 model provides an accuracy range in the interval of 96%-98%, which clearly shows the efficiency of our proposed technique, since this would result in better treatment outcomes for patients.

Keywords: Grad-Cam, Efficientnetb1, Convolutional Neural Networks (CNNs), Magnetic Resonance Imaging

Read Full Paper · Download PDF · Back to index

© 2024, IJARIIT.COM All Rights Reserved

Thank You!

www.IJARIIT.COM

Encouraging Research

Important Links	
Submit Paper Online	Author Guidelines
Track Your Paper	Call For Papers
Publication Fee	Current Issue

Contact Us

Volume 12, Issue 6 (November-December, 2026) is open for submissions. Last date: 31st December, 2026.

© 2024, IJARIIT.COM All Rights Reserved