List of Projects: 2023-24

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SNo	Dept	Guide	USNs	Title	Status	Abstract
1	AI	Prof. Monica K P	4VP20AI008 4VP20AI011 4VP20AI015 4VP20AI021	Video/Image Enhancement Technique for Haze Removal using Dark Channel Prior.	Functional	This project focuses on the implementation and optimization of the Dark Channel Prior (DCP) algorithm for haze removal in images and videos. Haze significantly diminishes visual clarity and contrast, impacting various imaging applications such as surveillance, photography, medical imaging, and satellite imagery. DCP exploits the statistical properties of natural scenes, particularly the "dark channel" phenomenon, to estimate and remove haze effectively. Through extensive experimentation with different parameters and variations of the algorithm, we fine-tune its performance while minimizing artifacts. Our implementation achieves a remarkable 94% accuracy in haze removal, showcasing its efficacy across diverse image types and videos. Additionally, we explore the wide-ranging applications of haze removal, including its benefits in photography, remote sensing, and computer vision tasks such as object detection and segmentation. This project underscores the importance of visual clarity in imaging applications and highlights the versatility and significance of haze removal techniques based on the Dark Channel Prior algorithm. **Keywords:** Dark Channel Prior (DCP), Haze removal, Dark Channel.
2	AI	Prof. Abhishek Kumar K	4VP20AI003 4VP20AI013 4VP20AI019 4VP20AI026	Multi-Class Face Recognition with Music Playback.	Functional	The objective of this project is to develop a Neural Network model that performs Multi-class Recognition on live input images of faces, and depending on the faces present, music selection and playback is carried out. The system integrates

List of Projects: 2023-24

						TensorFlow to train a neural network on a custom dataset of faces. The project begins with the training process, involving data preparation, loading, and class mapping on the training dataset. The user interface provides a seamless user experience. Once a live image is selected, the loaded model recognises the face, and the User Interface displays the result with music playback. Neural Network model implementations such as traditional CNNs, transform learning using VGG16, EfficientNets, etc. have been trained, and the models giving the highest accuracy have been selected. The project aims to provide an intuitive tool for multi class face image recognition, leveraging the power of neural networks for accurate predictions. The project offers efficiency, accuracy, and automation, making it valuable for applications like Media Systems, Biometric Authentication, Educational Purposes, and Security Systems. **Keywords:** Neural Network, Multi-class Recognition, Face Recognition, Music Selection, TensorFlow, CNNs, VGG16, EfficientNet, Media Systems.
3	AI	Prof. Akhila M L / Prof. Chaithanya	4VP20AI004 4VP20AI018	Rain Prediction System	Functional	Accurate rainfall prediction plays a crucial role in various fields such as agriculture, hydrology, and disaster management. In recent years, machine learning techniques has

		D.	4VP20AI020 4VP20AI040			emerged as effective tool for improving rainfall prediction models. This report explores the application of machine learning algorithms in rainfall prediction, focusing on their ability to analyze historical weather data and extract patterns to forecast future precipitation. This report employed a machine learning method, specifically the Random Forest Regressor, for rainfall prediction model. Through extensive experimentation and analysis, the model achieved an accuracy rate of 85%. This demonstrates the effectiveness of machine learning algorithms in accurately predicting rainfall patterns. This report reviews the methodologies and challenges associated with building machine learning-based rainfall prediction models, including feature selection, model selection, and evaluation metrics. Additionally, this report discusses the significance of data preprocessing techniques in enhancing the performance of these models. Through a comprehensive analysis of existing research, this report highlights the potential of machine learning approaches to enhance the accuracy and reliability of rainfall prediction, contributing to better resource management and disaster preparedness in various sectors. **Keywords:** Rainfall, Machine Learning
4	AI	Prof. Vaishnavi K V	4VP20AI006 4VP20AI007 4VP20AI016 4VP20AI038	Diabetic Retinopathy Stages Detection using CNN.	Functional	Diabetic Retinopathy (DR), a complication of diabetes affecting the retina, can cause blindness if undetected. To address the challenges of traditional diagnosis, researchers are exploring Convolutional Neural Networks (CNN). Convolutional Neural Networks, a type of deep learning excelling at image analysis, are trained on large datasets of retinal images. These images contain examples with and without DR, across various severities. The CNN learns to

						identify features like shapes and textures that signal DR. By analyzing the images, the CNN can classify them as healthy or predict DR stages like No DR, Mild, Moderate, Severe, Proliferative DR. This approach holds promise for faster, more objective diagnosis, potentially reducing the burden on specialists and increasing accessibility to early detection. **Keywords:** Diabetic Retinopathy, Convolutional Neural Network, Diabetic Macular Edema, Residual Network, Proliferative Diabetic Retinopathy, Non proliferative Diabetic Retinopathy, Optical Coherence Tomography Angiography, Gaussian Blur, Circular Crop, Residual Block.
5	AI	Prof Shruthi P R	4VP20AI023 4VP20AI022 4VP20AI028 4VP20AI010	Plant Disease detection using Deep Learning	Functional	Plant leaf disease detection is critical for making sure the health and productivity of plants, which without delay impacts food safety and agricultural sustainability. Traditional techniques of ailment detection often rely upon manual inspection, this is time-eating and situation to human errors. In recent years, deep learning techniques, particularly Convolutional Neural Networks (CNNs), have verified top notch performance in several photo recognition responsibilities, which includes plant leaf disease detection. A deep learning primarily based general approach for automated detection and sophistication of plant leaf ailment. A deep gaining knowledge of models educated on a big dataset of annotated images containing healthy and diseased plant leaves. The CNN architecture is designed to correctly seize tough styles and features indicative of various diseases. The techniques which include record augmentation to beautify the version's generalization potential and reduce overfitting. The knowledgeable CNN version demonstrates immoderate accuracy, sensitivity, and specificity in identifying several

List of Projects: 2023-24

						styles of plant leaf diseases throughout different plant species. The performance of the proposed method on a separate take a look at the dataset and take a look at it with gift techniques, showcasing its superiority in terms of accuracy and performance. This project highlights the capability of CNNs in revolutionizing plant ailment detection structures, paving the way for sustainable agriculture practices through early and correct analysis of plant health problems. **Key words:** CNN, leaf disease, detection
6	AI	Prof. Naveen C/ Prof. Sapna K N	4VP20AI030 4VP20AI032 4VP20AI033 4VP20AI034	Pneumonia detection using Deep Learning	Functional	Pneumonia is an acute respiratory tract infection that affects the lungs which is caused by bacteria or viruses. To find out if the patient has those illnesses, professionals perform bodily examination and diagnose their patients through Chest X-ray, ultrasound or biopsy of lungs. Misdiagnosis, erroneous treatment and if the disease is overlooked will result in the patient's lack of lifestyle. The progression of Deep learning contributes to aid in the decision making procedure of specialists to diagnose suffers with these illnesses. Therefore, accurate diagnosis of such diseases is very important. This project intends to develop a method for automating the detection of pneumonia using Chest X-rays. We have conducted a comparative analysis of various models, including GoogleNet, VGGNet-16, VGGNet-19, ResNet-50, LeNet, ResNet-18, AlexNet, DenseNet-201, DenseNet-121, and StrideNet. The chest X-ray dataset was obtained from Dr. Paul Mooney reference site, while real datasets were collected from Deepa Nursing Home in Kanhangad for the purpose of project. Following execution, the model accuracy determined to be 97.01% for VGGNet-16. After training the model, a user interface developed to accept chest X- ray images as input and predict whether the patient suffers from pneumonia or not.

List of Projects: 2023-24

						Keywords—Deep Learning, Convolutional Neural **Network, Chest X-Ray, VGGNet-16.**
7	AI	Prof. Akshaya D. Shetty	4VP20AI001 4VP20AI005 4VP20AI012 4VP20AI029	Detection and analysis of schizoprenia using machine learning	Functional	Schizophrenia is a chronic and severe mental disorder characterized by a range of symptoms that can significantly impact a person's thoughts, emotions, perceptions, and behavior. It is one of the most complex and disabling psychiatric disorders known. While the exact cause of schizophrenia is not fully understood, it is believed to result from a combination of genetic, environmental, and neurobiological factors. Schizophrenia usually emerges in late adolescence or early adulthood, though it can occur at any age. It tends to be chronic, with periods of relapse and remission. Treatment typically involves a combination of antipsychotic medications, psychotherapy, and psychosocial interventions aimed at managing symptoms, improving functioning, and preventing relapses. In recent years, the potential of using physiological signals for diagnosing mental health disorders has garnered significant attention. This study proposes a novel approach for schizophrenia detection leveraging multimodal sensor data fusion techniques, integrating signals from pulse, Electromyography (EMG), and Galvanic Skin Response (GSR) sensors. By combining information from these diverse modalities, our framework aims to capture subtle physiological variations associated with schizophrenia pathology. Machine learning algorithms are employed to extract relevant features and train a classification model capable of distinguishing between individuals with schizophrenia and healthy controls. Experimental validation on a dataset comprising recordings from individuals with schizophrenia and matched controls demonstrates the efficacy of the proposed approach, achieving promising accuracy. Our

List of Projects: 2023-24

						project suggests that the integration of pulse, EMG, and GSR sensors holds great potential for developing non-invasive and cost-effective tools for early schizophrenia detection, offering new insights into the physiological underpinnings of the disorder. In this study, we collected physiological signals from individuals diagnosed with schizophrenia and healthy controls, utilizing pulse, Electromyography (EMG), and Galvanic Skin Response (GSR) sensors. These signals underwent signal processing and feature extraction to capture subtle variations associated with schizophrenia pathology. Employing multimodal sensor data fusion techniques, we integrated information from the different sensors to improve the accuracy of schizophrenia detection. Machine learning algorithms, including Logistic Regression, K-Nearest Neighbors (KNN), Decision Tree, Random Forest, and Support Vector Machine (SVM), were then trained on the extracted features to classify individuals. Evaluation of the algorithms performance demonstrated promising results, suggesting the potential of our approach for developing non-invasive tools for early schizophrenia detection. **Keywords:** Electro-Dermal Activity, Skin Conductance, Schizophrenia, Galvanic Skin Response.
8	AI	Prof. Ajay Shasthry C G/Prof. Harshitha K	4VP20AI035 4VP20AI014 4VP20AI039 4VP20AI024	Skin Disease Detection and Classification Using Deep Learning	working	Skin Diseases have been the primary focus of this study, as they are one of the most lethal diseases if not diagnosed and treated early. The research will enable the fields of Medical Science and Computer Science to collaborate in order to save lives. Although Machine Learning, Deep Learning, and Image Processing have been utilized previously to treat skin diseases, we are attempting to improve the accuracy of this work by implementing new models of Image Processing and Deep Learning. The purpose of this research is to demonstrate how

						to accurately diagnose Skin diseases at an early stage using the optimum model. Here we have used three distinct neural models to classify a custom dataset. We further analyzed the accuracy of the VGG19 to come up with an optimized model that can be configured further to a mobile application for vast use. We built the architecture on more than 1450 images representing six distinct skin disorders in comparison with fresh skin. We carefully compared our data and classified it based on the images of our customized dataset. Finally, we determined the nine diseases with a 96.77% accuracy with the help of VGG19 which is our ideal model for the goal we want to achieve. **Keywords:** VGG19, Convolutional Layer, Max- Pooling Layer, Fully Connected Layer
9	AI	Prof. Venkatesh Y C	4VP20AI025 4VP20AI009 4VP20AI036 4VP20AI002	Terrain Recognition using CNN	Functional	Terrain recognition plays a pivotal role in various applications such as environmental monitoring, urban planning, and disaster response. Manual classification of satellite images is tedious and inefficient. In this project, we propose a Convolutional Neural Network (CNN)- based solution for automated terrain recognition using satellite images. Our approach utilizes CNNs to learn and classify different terrain types from satellite imagery, overcoming challenges such as variations in lighting conditions and textures. By automating the classification process, our solution offers efficiency and scalability for real-world deployment. We evaluate the model's performance using appropriate metrics and satellite image datasets, demonstrating its effectiveness in accurately classifying various terrains. This project presents a robust and automated solution to the challenges of satellite image terrain recognition, facilitating its application in diverse fields.

List of Projects: 2023-24

						Keywords: Convolutional Neural Networks, Fully Connected Neural Networks, Rectified Linear Unit.
10	AI	Prof. Rohit H P	4VP20AI027 4VP20AI041 4VP20AI031	Enhanced Input for Human-Computer Interaction	Functional	This work, titled "Enhanced Input for Human-Computer Interaction" is a novel system developed to interact with computers. The method integrates hand gestures and voice commands and eliminates the need for direct physical contact by using state-of-the-art Machine Learning and Computer Vision algorithms without additional hardware requirements. Here, the users are greeted by a friendly chatbot, then the system offers three methods such as QR code scanning, face recognition, and voice for authentication. After successful authentication, the user gets access to required applications. Furthermore, this project encompasses a diverse range of applications aimed at enhancing user productivity and engagement. From controlling the mouse cursor using eye tracking or hand gestures to simulating a full-fledged keyboard experience with dynamic customization options, users are empowered to interact with their computers in intuitive and efficient way. The applications like virtual painting, powerpoint slide navigation via hand gestures, personalized music playlists based on recognized emotions and AI-driven fitness trainers contribute to a comprehensive and immersive user experience. Through the seamless integration of advanced technologies and intuitive user interfaces, that sets a new standard for human-computer interaction, paving the way for more natural and efficient computing experiences. **Keywords:** Enhanced Input, Human-Computer Interaction, Hand Gestures, Voice Commands, Machine Learning, Computer Vision, Authentication, Chatbot, Realtime Feedback, Mouse Control, Keyboard Simulation, Virtual

List of Projects: 2023-24

						Painting, PowerPoint Navigation, Personalized Music Playlists, AI-driven Fitness Trainers, Seamless Integration.