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Abstract: This research paper aims to examine the integration of Information and Communication Technologies (ICTs) in higher education. The study will explore the benefits and challenges of using ICTs in higher education and the future prospects for the use of ICTs in higher education. The paper will be based on a review of literature from various sources such as academic journals, books, and online resources. The study will also include a discussion of the impact of ICTs on teaching and learning methods, student engagement and learning outcomes, and the role of ICTs in increasing access to education. The research paper will conclude with recommendations for future research and practice in the field of ICTs in higher education.

Keywords: Technology integration, E-learning, Teaching and learning methods, Digital literacy, Technology-enhanced learning, Educational Technology and Digital

Transformation.

Introduction: Information and Communication Technologies (ICTs) have revolutionized the way we live and work, and have had a profound impact on many industries. One area where ICTs have seen significant growth is in higher education. ICTs have the potential to enhance the quality of education, increase access to education, and support the development of new teaching and learning methodologies. This paper will explore the use of ICTs in higher education, including the benefits and challenges of using ICTs in higher education, and the future prospects for the use of ICTs in higher education. ICTs have been used in higher education for several decades, but the pace of technological innovation has accelerated in recent years, leading to the development of new and more sophisticated ICTs. These technologies include learning management systems, e-books, virtual and augmented reality, and mobile learning. These technologies have the potential to enhance the quality of education, increase access to education, and support the development of new teaching and learning methodologies.

Benefits of ICTs in Higher Education: ICTs have the potential to enhance the quality of education by providing students with more interactive and engaging learning experiences. ICTs also have the potential to increase access to education by providing students with the ability to learn remotely and on their own. Information and Communication Technology (ICT) has been increasingly adopted by higher educational institutes as a means to enhance the teaching and learning process. A literature review of ICT in higher education would likely find that it has been used to improve access to information and resources for students, facilitate collaborative and interactive learning, and support the development of digital literacies. Research has also shown that the use of ICT in higher education can lead to improved student engagement and motivation, as well as increased student satisfaction with their educational experience. However, it is also acknowledged that there are challenges to the integration of ICT in higher education, such as a lack of teacher training and support, and the need for adequate infrastructure and resources. Overall, ICT is an emerging technology in higher education that has the potential to greatly benefit students and teachers but its integration must be done in a thoughtful and strategic way. Figure 1 shows the policy development for the digital age:

PADDY LEAF DISEASE DETECTION USING IMAGE PROCESSING*

BY

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Farmers need automatic disease monitoring of plants rather than human monitoring to increase crop field growth and yield. Manual disease monitoring is poor because it requires an expert to recognise disease, which takes longer and demands more time, making it ineffective. As a result, this research introduced a new technique for detecting illness in both leaves and fruits. A computer image processing technique was utilised to identify plant disease rapidly and effectively, overcoming the limits of traditional visual observation. Using a k-means clustering method and a multi SVM technique, we developed software for disease diagnosis and classification in our suggested study. This suggested method gives an overview of how machine learning might be used to classify and identify plant leaf diseases. Three- or more-layer neural networks are one subclass of machine learning approaches based on an artificial neuron model.

KEYWORDS

Plant Diseases detection using MATLAB, Multi SVM Algorithm, Image Pre-processing.

1. INTRODUCTION

As a result of infrequent plant inspections, the plant develops many diseases that must be treated with additional chemicals. Insects, birds, and other helpful species can also be poisoned by these toxins. The early detection of disease symptoms on a plant's growing leaf or fruit requires automatic detection of plant ailments. This paper describes a MATLAB-based system that employs image processing techniques to reliably identify and diagnose plant illnesses. An information system based on sensors in the yield field will be developed and implemented to offer executives with PDA and web application-based reports on the system's status. Equipment, web, and a versatile application are the three components. Furthermore, this

* Reviewed 20 March 2022, Accepted 25 March 2022, Published 30 March 2022

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MACHINE LEARNING TECHNIQUE TO IDENTIFY DISEASE ON TOMATO PLANT LEAVES*

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Abstract:

Identifying diseases in tomato plants in fields or greenhouses is the purpose of this investigation. For this reason, deep learning was used to recognize distinct ailments on tomato plant leaves. The study's goal was to have the deep learning algorithm run on the robot in real-time. As a result, the robot will be able to identify plant illnesses while roaming the field or greenhouse manually or autonomously. Close-up images of plants acquired by sensors incorporated within prefabricated greenhouses may also be used to identify diseases. There are physical alterations in the leaves of tomato plants caused by the illnesses studied in this research. With the help of RGB cameras, these leaf changes can be recognized. Conventional feature extraction approaches on plant leaf images were used to identify illnesses in the past studies. In this study, deep learning techniques were used to diagnose ailments. A deep learning architecture's selection was by far the most difficult part of the implementation process. As a result, two alternative deep learning network topologies, Alex Net and Squeeze Net, were tested. They have been both trained and validated. Tomato leaves from Plant Village were employed in the training process. We're using ten separate classes that include pictures of healthy people. To test trained networks, images from the internet are also utilized.

Keywords- Smart agriculture, automatic plant disease detection, deep learning, CNN, classification

Received 11 Apr 2022, Accepted 22 Apr 2022, Published 05 May 2022

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1. INTRODUCTION

Major food crops and animals were tamed when agriculture evolved thousands of years ago. Plant diseases are a significant source of food insecurity, which is one of the world's main issues today. Plant diseases are estimated to cause a worldwide agricultural production loss of about 16%, according to one estimate. Across the globe, pests are estimated to cause a 50% loss in wheat and a 26–29% loss in soybeans. Most plant pathogens fall into the following categories: fungi, fungus-like creatures (fungi), bacteria (bacteria-like organisms), viruses (virus-like species), protozoa, nematodes. Artificial intelligence (AI), machine learning (ML), and computer vision have all been shown to be useful in a

Cotton Leaf Disease Detection Using Image Processing

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Abstract

As a cash crop, cotton is the most important in India. Other than "White Gold," it's referred to among cash crops in the United States as "The King of Fibers". Cotton leaf diseases include Alternaria leaf spot, Cercospora leaf spot, Bacterial Blight, and Red spot. Cotton leaf disease detection and categorization are discussed in this article. Human eyes have difficulty identifying the specific kind of leaf disease that affects a plant's leaf. For a more accurate diagnosis of cotton leaf diseases, image processing and machine learning technologies may be helpful. Using a digital camera, I took images of a cotton field for this assignment. In the preprocessing stage, the backdrop is removed from the image using a background removal technique. Image segmentation is performed using the otsu thresholding method on images that have been cleaned of their backgrounds. Different segmented photos will be used to extract attributes such as color, form, and texture from the photographs. Classifiers will use them in the future to classify data.

Keywords: Leaf diseases; Image pre-processing; Image segmentation; Otsu's thresholding; Support Vector Machine (SVM).

1. Introduction

Agriculture production is crucial to India's economy. More than 70% of rural households are dependent on agriculture. The agricultural sector employs more than 60% of the country's workforce and contributes to 17% of the country's GDP[1]. Early diagnosis of plant diseases is therefore vital in agriculture. From rice and wheat to cotton, India's agriculture produces a vast range of crops. Indian farmers also cultivate sugarcane, oilseeds, potatoes, and non-food commodities like coffee, tea, cotton, and rubber. Foliage and roots are essential to all these crops' survival. There are a variety of factors that cause various diseases in plant leaves, resulting in ruined harvests and, as a result, a negative impact on the country's economy. These large losses may be prevented by detecting plant illnesses early on. Detection of plant diseases accurately is necessary to strengthen our country's agriculture and economy. A plant's leaves may be killed by a variety of diseases. Farmers are having greater difficulty recognising these illnesses, and owing

Certain Investigations of Guava Leaf Disease Measurement in Necrotic Areas with Image Processing Techniques

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Abstract:

Guava leaves are healthy indicators for growth in a tree. The visual inspection of diseased area might mislead to inaccuracy for pruning. The leaves of guava are majorly elliptical or oval within the upper surface, and dull green in color. If the leaf diseased, it appears to be red or purple. There are number of pathogen might impact on any parts of its surface. In this paper, a total of four types of

diseases namely: canker, dot, mummification and rust considered from the already available data set. The necrotic areas, perimeter, major axis and minor axis measured within the diseased area in its gray scale image. Additionally, shape descriptors used for analyzing the region of interest in diseased areas of dot, mummification and rust images.

Keywords: Necrotic areas, Shape descriptor.

1. Introduction

Subtropical countries one among the widely available plant is guava, it is affected by total of 177 pathogens [15.] The ability of guava leaves to cure illness with its anti-geno toxic potential had been discussed in [17]. Guava possessing strong anti oxidant is highly phenolic compounds. The ripening stage during cultivation of guava involving bioactive component is pivotal [1]. Categorizing the particular disease by expert could lead to socioeconomic growth. Feature extraction at image level and disease level had been carried out. The algorithm uses image segmentation at the colour level to separate infected areas as per the disease. Classification has been done using bagged tree provides better classification accuracy in RGB color space [2]. Data normalization to obtain prediction accuracy and overcome the deviations of factors in Illusion and image acquisition angles is sorted. The ResNet 101 showed better classification due its increased orders of residual blocks [3].

Suggestion in a curative manner with smaller dataset is provided in [4], using Convolutional Neural Network. A review on image acquisition environment is stated in [5], with three major categories from 121 datasets falls are namely, controlled, real environment and real and controlled environment. In this study the guava fruit and leaves data set is taken from [13] and is used for analysis. PhenImage, software exclusively used for plant species and its analysis has been carried out with and without MATLAB using phenotype data [18]. In [19], an extensive usage of various imaging software associated with plant species and its dataset has been discussed. ImageJ analysis has been used in this work to estimate the measurement [20] enabled with LeafJ plugin [21]. The advantage of LeafJ plugin is its ability to capture the petiole length. Section snippets: related works on imaging modules for disease identification has been done in section 2. Section 3 deals with imaging methods in development of algorithm. Section 4 deals with justification of results. Section 5 deals with conclusion and further areas of research exploration.

INNOVATIVE LEARNING THROUGH INFORMATION COMMUNICATION TECHNOLOGY*

BY

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ABSTRACT: Information communication technology (ICT) provides innovative learning opportunities through the integration of digital tools and resources into education. This can include virtual classrooms, online resources, and interactive simulations and games. ICT can also support personalized learning, allowing students to learn at their own pace and receive tailored instruction. Additionally, it can facilitate collaboration and communication among students and teachers, breaking down geographical barriers and creating new opportunities for learning and growth.

KEYWORDS: *e-Learning, Distance Education, Technology-Enhanced Learning, Edtech, Digital Pedagogy and Virtual Classroom*

Received 03 Feb 2023, Accepted 19 Feb 2023, Published 25 Feb 2023

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INTRODUCTION: The use of Information Communication Technology (ICT) in education has greatly impacted the way we learn and has opened up new avenues for innovative learning experiences. The integration of digital tools and resources into the classroom has created a dynamic learning environment that can engage students and enhance their education. With the increasing availability of online resources and virtual classrooms, students can now learn anywhere, at any time, and at their own pace. The use of technology also enables personalized instruction and can foster collaboration and communication among students and teachers. In this rapidly evolving digital age, the use of ICT in education has become increasingly important in preparing future generations for success. However, it is important to approach the integration of technology in education with a strategic and well-informed approach, taking into account the potential challenges and the need for ongoing evaluation and adaptation.

LITERATURE REVIEW: A literature review of innovative learning through Information Communication Technology (ICT) reveals a wealth of research exploring the impact of technology on education. Studies have shown that the integration of ICT into the classroom can lead to improved

DATA MINING IN THE ERA OF ELECTRONIC DATA MANAGEMENT IN DIGITAL EXAMINATION SYSTEM

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ABSTRACT

Due to the availability of a vast amount of educational information that can be obtained from a variety of sources, EDM has attracted a significant amount of attention from scholars over the course of the past few decades. The primary purpose of EDM is to make DM models more effectively in order to protect the vast quantities of educational information and to develop an environment that is conducive to the safety of the student's educational pursuits. Within the framework of this strategy, a variety of models have been implemented for DM and its analytics. In addition, prediction models such as classification, regression, and latent factor evaluation technologies were utilised in the analysis process.

INTRODUCTION

Machine learning (ML) is a cutting-edge research area in artificial intelligence. Machine learning has a vast area of applications, from managing search engines to safeguarding passwords. Machine learning is the study of machines learning from human behavior to solve simple to complex problems. Machine learning algorithms are revolutionizing real-world applications and research paths. Machine learning makes systems more intelligent and automated when dealing with high-dimensional and complex data. ML excels at several problems, including knowledge acquisition, learning, prediction, and problem solving. In real time, ML saves every human's time and effort. From many perspectives, it has become unavoidable for everyone to make their everyday lives run more smoothly. Offline lessons were not feasible due to widespread virus worries. The health and safety of pupils was a top focus. Educational institutions are forced to cancel actual classroom learning sessions, and delivering tests is problematic. E-learning, remote learning, and online education have all emerged as viable methods for learning education.

It was thought that the examinations or assessments needed to be done online. The online education mode came to help students finish their classes without taking a break from academia. During a lockdown scenario in academia, the exam management system is the most affected. Examinations were a big part of ML's role in getting students to the end of their schooling. Any analysis from an academic point of view needs to start with the student data. The research and data mining on each student's classes help the educational infrastructure build a support system for students and teachers to get ready for final assessments.

The student learning management data aid in the development of a decision-making model for educational prediction or analysis. The construction and process of these learning and assessment models rely heavily on machine learning technologies. The sample student data, on the other hand, should be adequate and informative. The use of machine learning models in prediction analysis to assess student performance based on data is advantageous. This feature of ML's futuristic prediction helps students improve their performance by allowing for early intervention in learning and student achievement.

DESIGNING AND IMPLEMENTING AN ADAPTIVE ONLINE EXAMINATION SYSTEM USING ARTIFICIAL INTELLIGENCE

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Abstract - A design and application of adaptive online exam system are carried out in this paper. Adaptive exam systems determine different question sets automatically and interactively for each student and measure their competence on a certain area of discipline instead of comparing their gains with each other. Through an adaptive exam technique, a student's distraction and motivation loss that is led by the questions with quite lower hardness level than his/her competency is prevented. In addition, negative effects of questions requiring higher knowledge than his/her competency over a student's self confidence and morale are dismissed. Since questions are specialized so that they can allow making clear deductions about student gains, they are able to detect student competencies more effectively. Requiring less total time for measuring and being more flexible in the exam management are among the advantages provided by the system. Online Examination System, is an application built to modernize the examination process that has been a major challenge, especially during the covid pandemic. Remote proctoring is the trending technology in the era of social distancing. For a couple of years, e-learning has become famous as a result of its adaptability and simple client intelligence. All things considered, the significant danger looked at by the examination local area is the delegating procedures utilized. We have utilized equipment, for example, a web camera to catch sound and video alongside dynamic window catch. This blend shapes the contributions to a clever decide-based surmising framework that can conclude whether any misbehaviors have occurred. The software will be able to successfully conduct the exam virtually without the physical presence of an instructor. The exams with time-based and secure so that a fair examination is provided to all the candidates. In this application, we present a strategy to stay away from the actual presence of a delegate all through the test by making an exhaustive performance of multiple tasks frameworks.

1. INTRODUCTION

Artificial Intelligence also known as machine intelligence, is a branch of computer science that focuses on managing and building technology that can learn to instantly make decisions and carry out actions instead of a human being. AI-based Online Examination Proctoring uses AI-driven algorithms for user identification and cheating identification. It will create a comprehensive report to help you to confirm if an online exam has been completed with machine-driven invigilation proctoring. AI-powered remote proctoring can ensure the end to end security for Online Exams and prevents the process from malpractices and cheating. Because of the COVID-19 pandemic, the whole world is following a major downfall in terms of economy, day-to-day activities are being restricted due to lockdown! Remote proctoring is the technology that allows us to monitor online exams for candidates scattered over a bunch of locations, anywhere on the back of the earth. There are different factors of remote proctoring such as video proctoring, image proctoring, audio proctoring, monitoring the screen of the user taking the online exam. With the help of all these functionalities, we can securely conduct Online Exam, that too under a secure, monitored, and cheat-free environment. Face recognition is the key component of the

Predicting The Academic Success Of Students Using Machine Learning Techniques: A Research

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ABSTRACT

The mining of data offers effective methods that can be applied in a range of educational fields. The amount of information collected from students that may be used to develop significant patterns that are directly related to the behaviors of students when they are learning is growing at a rapid rate in the education sector. It is possible for educational institutions to evaluate student performance through the use of educational data mining, which can assist the institution in recognizing the student's success. Classification is a well-known method that has been utilized on a consistent basis in the field of data mining to evaluate the performance of students. In the present investigation, a novel prediction algorithm for evaluating student performance in academic settings was developed and put to the test in real time with student datasets from a variety of academic fields at higher educational institutions in Kerala, India. This algorithm was designed with the assistance of machine learning techniques such as MLP, ANN, AdaBoost, and XgBoost classifier. The findings indicate that the application of machine learning approaches yields significantly higher results in terms of accuracy when predicting the academic achievement of pupils. The primary objective of this study is to develop a model for predicting the academic success of students through the use of data mining classification, and a secondary objective is to figure out which classifier performs particularly well with the education data set that was gathered.

INTRODUCTION

The process of analysing educational data through the use of data mining tools is referred to as "educational data mining." In order to keep track of its students, teachers, and classes, educational establishments typically store a substantial quantity of data on file. This data includes personal and academic information on students, as well as the personal and academic information of faculty members, as well as syllabi, test papers, circulars, and other documents. The use of educational data mining as a tool to improve the educational experience of both students and teachers has

COVID-19: An Emerging Disease of 21st Century

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Abstract

A remarkable coronavirus termed as serious acute respiratory syndrome coronavirus-2 (SARS-CoV-2) was disengaged from the lower respiratory tract sample as a causative agent and present a significant danger to public health. It belongs to the genus Coronavirus and placed in family Coronaviridae. Phylogenetic analysis of the complete viral genome (29,903 nucleotides) revealed that the virus was most closely related (89.1% nucleotide similarity) to a group of SARS-like coronaviruses (genus Betacoronavirus, subgenus Sarbecovirus) that had previously been found in bats in China. This disease or infection is transmitted by the inhalation or contact with infected drops and the incubation time frame goes from 2 to 14 days. The symptoms of it are normally fever, cough, breathlessness, sore throat, fatigue, malaise among others. The infection is mild in most people (mostly the older one and those with comorbidities). It might advance to pneumonia, Acute Respiratory Distress Syndrome (ARDS) and multi organ dysfunction too. Many individuals are also asymptomatic. This outbreak features the on-going capacity of viral spill-over from animals to cause serious infection in humans. This review article includes the characteristics, morphology, symptoms, clinical progression and diagnosis of corona virus.

Keywords: Coronavirus; Infection; Humans; Symptoms; Capacity; Disease

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Citation: Bhodiwal S, Yogi P, Pathan S and Barupal T (2021) COVID-19: An Emerging Disease of 21st Century. Arch Med Vol. 13 No 12:60

Received: November 29, 2021; Accepted: December 08, 2021; Published: December 15, 2021

Introduction

The epic SARS-CoV-2 COVID that arose in the city of Wuhan, Hubei Area, China, dated December 8, 2019 and has since caused a large scale Coronavirus pandemic and thus spread in excess of 215 different nations or domains or areas. COVID is a kind of tainted infection which was discovered as novel agent on 9th January, 2020 [1]. Coronaviruses are encompassed non-fragmented positive sense RNA viruses that belong to the family Coronaviridae, the order Nidovirales and broadly present in the humans and other mammals [2]. Coronaviruses are RNA viruses which are phenotypically as well as genotypically diverse [3]. Chinese scientists or researchers recognized that the causative agent of this arising severe disease is a beta coronavirus that had never been seen previously and this is resultant by the meta genomic RNA sequencing and virus isolation from bronchoalveolar lavage fluid samples from patients with the severe pneumonia [4]. Serious sickness beginning may resultant to death because of massive alveolar damage and progressive respiratory failure [5].

In India, the first case of the COVID-19 was identified on 30

January 2020 and till 1 May 2021 total 19.9 M cases, 16.3 recovered and 219 K deaths are observed (From Our World Data and JHU CSSE COVID-19 Data). The causal source of the new coronavirus infection has been determined as bats. With full-length genome sequences, Zhou and colleagues track down that 2019-nCoV is 96% similar at the entire-genome level to a bat coronavirus. Serious intense respiratory syndrome-linked virus (SARS-CoV), up to this point unidentified COVID traced horseshoe bats in southern China, caused 8,096 affirmed cases and 774 demises in 29 nations from November 2002 to July 2003. The distinguishing features of SARS-CoV-2 as compare to SARS-CoV is briefly described in Table 1 [1].

The most ideal approach to prevent and slow down transmission is to be very much educated about the Coronavirus infection, the disease it causes and how it spreads. Protect yourself as well other people from disease by washing your hands or utilizing alcohol based rub much of the time and not contacting your face. The Coronavirus infection spreads basically through droplets, saliva or discharge from the nose when a contaminated individual coughs or sneezes, so it's significant that one should additionally