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International Conference on
**RECENT TRENDS AND ADVANCES IN
COMMUNICATION TECHNOLOGY
AND DATA SCIENCE 2024**

ICRTACTDS^{2K24}

24th & 25th January 2024



ICTACADEMY

Organized by

**DEPARTMENT OF COMPUTER SCIENCE &
BCA**

**Mangayarkarasi College of Arts and Science for Women,
Affiliated to Madurai Kamaraj University,
Madurai, Tamil Nadu, India**

Chief Editor

Dr.M.PUNITHA

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Paravai, Madurai – 625402.



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Department of Computer Science & BCA

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ABOUT THE COLLEGE

Mangayarkarasi College of Arts and Science for Women was established in 1997 by our benevolent founder, Amalar Pitchiah Pillai, a great philanthropist and a visionary of the 20th century. Ours is a fantabulous campus located in a pollution free, pleasant environment conducive for learning. Our college has been Re-Accredited by NAAC with “B” Grade during the academic year 2018-2019. The management is thoroughly dedicated to education. We hone the skills of young women and prepare them for life. For the past two decades, we have been offering quality education to under-privileged students at affordable fees. Our Campus is well connected to all prominent places in Madurai. MCW Campus provides a great ambiance. The infrastructure is one of the best in the region. It provides individual office spaces equipped with high-speed internet connectivity, high end laboratories with Wi-Fi facilities, ample meeting and discussion rooms, library, etc. to provide world class quality education to our aspiring students from rural background.

ABOUT THE DEPARTMENT

B.Sc. (CS) was established in the year of 1997. M.Sc. (CS & IT) was started in the year 2002 and converted to M.Sc. (CS) in the year 2016. BCA was introduced in the year 2021. DTP, DCA courses were introduced in 2010. The Department is also offering various Value Added courses. The Department aims to educate, engage and empower rural girls towards Global Knowledge Hub, striving continuously in pursuit of excellence in education and train them to apply their knowledge and skills for the betterment of society and provide a current, comprehensive, and collaborative student-centered learning environment for computer science and professional values associated with the discipline. Department is committed to encourage students/researchers to carry out innovative research in the field of computer science, keeping excellence in focus and deliver quality services to match the needs of the technical education system, industry and society. The department of Computer Science as a whole aims at the development of Computer Science Professionals with ethical values and society concern.

ABOUT ICT ACADEMY

ICT Academy is an initiative of the Government of India in collaboration with the state Governments and Industries. ICT Academy is a not-for-profit society, the first of its kind pioneer venture under the Public-Private-Partnership (PPP) model that endeavors to train the higher education teachers and students thereby exercises on developing the next generation teachers and industry ready students.

ICT Academy was started to meet the skill requirements of the industry and generate more employment especially in tier 2 and 3 towns, the rural parts of the country. The organization was formed with representations from the State Government of Tamil Nadu, leading companies in the ICT industry and National Association of Software Services Companies (NASSCOM) in India.

With training of teachers and students as the primary objective, ICT Academy has been working through a seven pillar program in the areas of Faculty Development, Student Skill Development, Entrepreneurship Development, Youth Empowerment, Industry-Institute Interaction, Digital Empowerment and Research & Publications.

In the last 10 years, ICT Academy has strived on every aspect to provide a holistic service to every stakeholder of the education ecosystem in developing the next generation of talent pool in India to make them industry ready employees, innovators, entrepreneurs and leaders.

Through its various initiatives, ICT Academy has been part of strengthening the India's four important visions on Skill India, Digital India, Startup India and Make in India.

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Department of Computer Science & BCA offers a wide variety of domains to learn. It Comprises Departments such as Computer Science and Computer Applications which offer Collaboration of technology, advance field of Computer Science and Computer Applications offers advance program of Masters of Science.

I am very glad that the Department of Computer Science & BCA organized an International Conference on Recent Trends and Advances in Communication Technology and Data Science 2K24 (ICRTACTDS – 2K24) on 24th and 25th January 2024

The Conference aims to bring different ideologies under one roof and to provide opportunities to exchange ideas face to face, to establish research relations and to find global partners for future collaboration. The themes and sub-themes for this conference are indicative of relevant research areas to give the prospective authors innovative prepositions about the ambit of discussion.

I wish the International Conference a grand success and convey my appreciation to the Director, Heads and Faculty of Department of Computer Science & BCA for their involvement in organizing International Conference on Recent Trends and Advances in Communication Technology and Data Science 2024

Dr.P.Ashok Kumar

Secretary



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Computer Science and design scope would definitely come in computer scientist's way if they hone the relevant skills. As they work in an environment where their knowledge is expected to solve the bigger problems. They need to be someone having a keen eye for details and should be good with experimentation and coding along with technical writing skills. Having the knowledge of programming languages is a must along with that they should also be a good communicator.

I am happy to note that the Department of Computer Science & BCA has organized an International Conference on Recent Trends and Advances in Communication Technology and Data Science 2K24 (ICRTACTDS – 2K24) on 24th and 25th January 2024.

It is very heartening to know that people from academic and industries are being brought together from all parts of the country to share their rich experience and knowledge between them in one platform. The theme of the conference would encourage development of innovative and novel ways of addressing the issues concerning the society and industry. Events of such nature would be of great help to the students' community in their career advancement and also in professional development.

Er. Shakti Pranesh

Director



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With immense pleasure and warm greetings I congratulate the Department of Computer Science & BCA for their efforts in organizing the International Conference on Recent Trends and Advances in Communication Technology and Data Science 2K24 (ICRTACTDS – 2K24). Department of Computer Science & BCA focuses on the fundamentals of networking, Computer science to close the gap between humans and machines as a result of this seismic shift. Since technology is a field that is constantly developing, it can be difficult to stay current on the newest ideas. However, through advanced courses and online learning both students and working professionals can improve themselves.

It is my great privilege and honour to support this International Conference organized by Department of Computer Science & BCA, as this lays a platform to promote collaborative research initiatives in the area of Science and Technology. Data transformation is the process of converting data from one format to another, typically from the format of a source system into required format of a destination system. Data transformation is a component of most data management tasks, such as data wrangling and data warehousing. International Conference can raise few issues related to science and technology and also provide possible solutions, which would be of relevance to India in particular and for the whole world in general.

I wish the International Conference a grand success and I am sure this conference will definitely be a milestone in the history of our college. May the department come up with many more workshops and conferences of this kind in the forthcoming days. I wish success in all the endeavours of the faculty and students of this department. All the best.

Dr. Uma Baskar

Principal



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Warm Greetings to all!!

I am immensely happy that our Department of Computer Science & BCA is organizing a two-day International Conference on Recent Trends and Advances in Communication Technology and Data Science 2K24 and is about to publish the conference Proceedings. On this occasion I would like to congratulate all our dedicated faculty fraternity and researchers for their meticulous effort in organizing and participating in this conference and Wish the conference all the success.

It is my pleasure to announce the release of the proceedings of the International Conference on Recent Trends and Advances in Communication Technology and Data Science 2K24 and also I am grateful to Dr.P.Ashok Kumar Secretary Sir, Er.A.Shakti Pranesh Director Sir, Principal Dr.Uma Baskar, Dean of Academics Mrs.Chendur Priyadharshini and Dean of Arts Dr.Suganthi Manyarkarsi College of Arts and Science for Women, Madurai for being the Patrons of ICRTACTDS – 2K24. The conference was a great success, with a galaxy of speakers and delegates from around the world, who shared their knowledge and expertise in various aspects of Data Transformation. I express my sincere thanks to them. The proceedings feature a collection of research papers, almost hundred, which were peer - reviewed and selected based on quality and relevance to the field of Data Transformation. The papers cover a wide range of topics, including data integration, data quality, data governance, data security, and many others. I place on record my appreciation to all the authors who shared their research ideas to the proceedings. Their contributions have helped to enhance our understanding of data transformation providing valuable insights into the challenges faced by several organizations in this field. I would also like to thank all the members of the organizing team for their tireless efforts in organizing and making this conference a success.

I hope that the proceedings will serve as a valuable resource for scholars, researchers, and practitioners in the field of data transformation. It will be a good idea to share the papers with the colleagues and peers and continue to innovate in this exciting field. Thank you all for your participation and contributions to the conference, and I look forward to future collaborations and advancements in the field of data transformation

Dr.M.Punitha

Head of the Department

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STUDENTS PERFORMANCE ANALYSIS USING DEEP LEARNING TECHNIQUE IN VIRTUAL ENVIRONMENT

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ABSTRACT:

Unique in nature, educational institutions are vital to the advancement of any nation. As education changes people's lives on a personal, family, community, national, and eventually global level! We lead luxurious lives now because of this. These days, education encompasses more than just traditional classroom instruction. Examples include MOOC courses, online education systems, web-based education systems, seminars, and workshops. Turns into Because of the massive amounts of data kept in learning management and educational databases; it is more difficult to predict students' success. A variety of methods are available to evaluate the performance of students. Data Mining is the most prevalent techniques to evaluate students' performance and is widely used in the educational sector known as Educational data. This is a developing field of research that focuses on several data mining approaches, such as feature selection, prediction, and classification. It is applied on learning records or data connected to education to anticipate the students' performance and learning behavior by extracting the hidden information. EDM is a process, more like a methodology, that is used to extract useful data, patterns, and forms from a sizable educational collection. From the valuable data and trends gathered, the student's performance is then projected. Our study's main goal is to evaluate students' performance using several classification algorithms and identify the best one that produces the greatest outcomes. The Madurai C.E.O. office provides the educational dataset for the year's graduating H.Sc. students. We have collected five years students data from 2016-2020. Pre-processing of the collection removes duplicate records, identifies missing fields, and fills them with the intended data. Python is used in a standalone and virtual environment to apply Deep Learning techniques like Deep Neural Net and Data Mining techniques like Random Forest, SVM, Decision Tree, and Naïve Bayes on the data set. A few measures are used to evaluate the acquired results. When predicting students' performance, Deep Neural Network and Decision Tree perform better than other methods.

INTERNET BASED MULTIPARTY COMPUTATION FOR CRYPTOGRAPHY WITH HIGH LEVEL SECURITY

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ABSTRACT:

Secure multiparty computation is concerned with the possibility of deliberately malicious behaviour by some adversarial entity. That is, it is assumed that the protocol execution may come under “attack” by an external entity, or even by a subset of the participating parties. The aim of this attack may be to learn private information or cause the result of the computation to be incorrect. Thus, two important requirements on any secure computation protocol are privacy and correctness. The privacy requirement states that nothing should be learned beyond what is absolutely necessary. The correctness of the requirements states that each party should receive its correct output. Therefore the adversary must not be able to cause the result of the computation to deviate from the function that the parties had set out to compute. The setting of secure multi-party computation encompasses tasks as simple as coin-tossing and broadcast, and as complex as electronic voting, electronic cash schemes, contract signing, asynchronous transactions, and private information retrieval schemes. Consider for a moment the task of voting auctions. The privacy requirement for an election protocol ensures that no parties learn anything about the individual votes of other parties, and the correctness requirement ensures that the highest bidder is indeed the party to win.

ENHANCING SECURITY AND NETWORK TRAFFIC ANALYSIS WITH THE USE OF SWARM INTELLIGENCE AND MACHINE LEARNING

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ABSTRACT:

Effective network monitoring systems have been challenged by the growth of massive network traffic, which has made complex computational procedures necessary for mining, extracting, and analysing patterns within big datasets. Specifically, assessing statistical properties of throughput sequences linked to various internet traffic types, like File Transfer Protocol (FTP), video streaming, and video conferencing, offers a chance for accurate QoS classification even when the traffic is encrypted. The goal of this research is to strengthen network security through a thorough investigation of network traffic flow.

The study attempts to perform multi-class classification of various network activities by using advanced machine learning algorithms, especially Random Forest as the primary classifier, and supplemented by Swarm Intelligence-based techniques (Particle Swarm Optimisation, Ant Colony Optimisation, Firefly Algorithm, Cuckoo Search, and Glowworm Swarm Optimisation). The main emphasis is on careful flow analysis, with a particular emphasis on the selection of key elements that are essential for precise classification. The goal of the project is to enable proactive threat detection, real-time anomaly identification, and efficient resource allocation by utilising extensive feature optimisation approaches. Through the process of extracting meaningful patterns from network traffic flows, this research aims to make a beneficial contribution to network management techniques, strengthening defences against cybersecurity attacks.

FUTURE TRENDS AND CHALLENGES IN HUMAN COMPUTER INTERACTION

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ABSTRACT:

Human-computer interaction aims to develop functional and workable systems that satisfy the needs of users by investigating new methods for people to engage with emerging technology. Human Computer Interaction techniques, which are now mostly based on graphical user interfaces, are still limited by their inability to accurately capture emotions, their poor accuracy, and their slow processing speeds. It is vital to achieve advances in voice, vision, context perception, intent understanding, and other areas in order to handle the difficulties in these encounters. The relationship between humans and computers has significantly improved as a result of recent technological advancements. Today, we use various hardware and software HCIs to move from one place to another, manage our daily activities, and keep an eye on our health. These days, voice commands, touchscreens, eye movements, hand gestures, and other methods can be used to communicate with computers. Some of the creative HCI advancements in diverse fields and challenges are compiled in this paper.

A REVIEW OF FINGERPRINT RECOGNITION AND IDENTIFICATION SYSTEM USING IMAGE PROCESSING

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ABSTRACT:

Mortal fingerprints are rich in details called ramifications, which can be used as identification marks for point verification. For both particular and marketable protection, security has always been a major concern, and multitudinous results are available to address the problem. The thing of this design is to develop a complete system for point identification and recognition through rooting and matching ramifications. To achieve good ramifications birth in fingerprints with varying quality, pre-processing in form of image improvement and binarization is first applied on fingerprints before they're estimated. Numerous styles have been combined to make a minutia extractor and a minutia matcher. Minutia marking with special consideration of the triadic branch counting and false ramifications junking styles is used in the work. An alignment-grounded elastic matching algorithm has been developed for minutia matching. This algorithm is able of chancing the correspondences between input minutia pattern and the stored template minutia pattern without resorting to total hunt. Performance of the advanced system is also estimated on a database with fingerprints from different people. The ideal of this study to apply point recognition algorithm. The Region of Interest (ROI) for each point image is uprooted after enhancing its quality. The conception of Crossing Number is used to prize the minutia, followed by false ramifications elimination. An alignment grounded matching algorithm is also used for minutia matching.

LUNG CANCER PREDICTION: A COMPARATIVE ANALYSIS OF SVM KERNELS AND MACHINE LEARNING ALGORITHMS ON MICROARRAY GENE EXPRESSION DATA

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ABSTRACT:

As a persistent worldwide health issue, lung cancer requires accurate prediction models for early detection and prognosis. In this work, we use microarray gene expression data specifically obtained from public genomics data repository and provide Machine Learning algorithms to predict lung cancer. To investigate the predictive performance of Random Forest, K-Nearest Neighbor, and Decision Tree algorithms is systematically compared with Support Vector Machine (SVM) methods that include Linear, Polynomial, Radial Basis Function, and Sigmoid kernels. Interestingly, we discover that accuracy metrics are very consistent across all SVM kernels except Sigmoid with an outstanding accuracy of 97.8%. This consistency highlights SVMs strong predicting ability compared to other algorithms. This uniformity underscores the robust predictive power of SVM in contrast to alternative algorithms. Our research advances personalized therapy by making it easier for those who are at risk of lung cancer to get targeted interventions and early detection. This study places particular emphasis on the superior performance of all SVM kernels except Sigmoid, showcasing their potential to maximize model performance and interpretability. It underscores the transformative impact of machine learning in the domain of cancer prediction.

ADVANCEMENTS IN DIGITAL IMAGE PROCESSING WITH DEEP LEARNING: A COMPREHENSIVE REVIEW ON DATASET PRE-PROCESSING TECHNIQUES

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ABSTRACT:

This comprehensive examination delves into the integration of deep learning in the field of digital image processing, specifically concentrating on the pivotal significance of dataset pre-processing. By hiring a methodical research methodology, the study encompasses a thorough literature review, data compilation, and a complete analysis of both fundamental and forward-looking pre-processing approaches. Foundational techniques such as resizing, normalization, and grayscale conversion go under meticulous scrutiny to establish a solid understanding. The exploration extends to advanced strategies, encompassing attention mechanisms, domain adaptation, and adversarial training, providing insights into their principles, applications, and impacts on augmenting model performance. The research methodology techniques hypotheses, pinpoints critical problem statements, and suggests pragmatic guidelines for researchers and practitioners operating in the digital image processing domain. Ethical considerations are emphasized to underscore the significance of responsible practices in dataset pre-processing, ensuring impartial and ethically sound model development.

Real-world case studies and applications are rigorously examined to showcase the practical implementation of pre-processing techniques across diverse domains. The study's conclusion synthesizes the amassed knowledge, awarding a roadmap for future research endeavors. With an explicit focus on dataset pre-processing, this review aspires to make a substantial involvement to the ongoing advancements in digital image processing by integrating deep learning techniques.

OVERVIEW OF AI NEUROMORPHIC COMPUTING BASED ON HARDWARE-BASED HOPFIELD NEURAL NETWORKS

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ABSTRACT:

Neuromorphic systems offer more original and innovative solutions to the intelligence discipline compared to von Neumann's computer architecture. Inspired by biology, this new system uses human brain modelling theory by connecting artificial neurons and synapses to teach new neuroscience concepts. Many researchers have invested heavily and used many applications in neuro-inspired models, algorithms, learning methods, and operations to discover neuromorphic diseases. Recently, some researchers have demonstrated the potential of the Hopfield algorithm in some large and complex hardware projects and achieved significant results. This article provides a comprehensive review of the Hopfield algorithm, with general attention to its structure and its advanced capabilities in new research applications. Finally, we conducted extensive discussions and feasibility plans on existing applications to help developers better understand the above model and create their own plans intelligently.

OPTIMIZING CHRONIC KIDNEY DISEASE PREDICTION USING MACHINE LEARNING TECHNIQUES

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ABSTRACT:

Chronic Kidney Disease (CKD) is a prevalent health issue that demands effective predictive models for early detection and intervention. According to the Global Burden of Disease Survey, 850 million people worldwide suffered from chronic kidney disease (CKD) in 2023. The main objective of this research \ work is to utilize Machine Learning methodologies to integrating Ant Colony Optimization (ACO) with the Support Vector Machine (SVM) algorithm to optimize CKD prediction. The research explores the impact of varying pheromone update rules and solution construction mechanisms within the ACO framework on the selection of informative features. Subsequently, the selected features are fed into an SVM classifier for CKD prediction. The novel approach not only contributes to the advancement of machine learning applications in healthcare but also offers a robust framework for feature selection in similar predictive modelling scenarios. Ultimately, the optimized model aims to facilitate early identification of individuals at risk of CKD, leading to more proactive and personalized healthcare interventions for improved patient outcomes.

UNEMPLOYMENT ANALYSIS AND PREDICTION USING MACHINE LEARNING

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ABSTRACT:

In my research paper presents a comprehensive analysis of unemployment trends both before and after the onset of the pandemic, leveraging advanced machine learning techniques for prediction and forecasting. Unemployment analysis is to analyze and compare the patterns of unemployment before and after the pandemic using machine learning techniques. By employing a dataset spanning the pre- pandemic and post-pandemic periods, this research is to identify key factors contributing to changes in unemployment rates and develop predictive models for future employment trends. The study begins by collecting historical employment data, encompassing various regions and demographic variables. By comparing the performance between the two periods, we can gauge the differential impact of covid-19 on unemployment rates. This research contributes to the field of labor economics and policy by showcasing the power of machine learning in understanding and addressing complex socio-economic issues. Our results provide valuable guidance to governments, businesses, and organizations striving to mitigate unemployment challenges and foster economic growth. In machine learning algorithms, such as gradient boosting classifier, SVM, random forest classifier to predict unemployment rates. By evaluating model performance we identify the most effective algorithms for accurate predictions.

ARTIFICIAL INTELLIGENCE AND CYBER SECURITY - DETECTING, PROFILING AND NEUTRALIZING THREATS USING INTELLIGENT AGENTS

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ABSTRACT:

The desire to remain connected has led many users to connect at-home and at-work devices to the Internet. Unfortunately, many of these devices use default configurations or lack the latest security patches. Additionally, some networks do not have basic security protections in place such as perimeter firewalls or other security systems to prevent infiltration. Enterprise environments might have extensive and elaborate security infrastructure that might include next- generation firewalls, endpoint security solutions, honeypots and Security Incident Monitoring Systems (SIEMs) to name a few. Despite this, the existing tools and methodologies lack an overall view of the state and health of the corporate network. Therefore, responses to attacks are reactive instead of proactive since there exists an inability to assess information stored in SIEMs, logs and honeypot reports to detect and prevent successful infiltration. This paper analyses existing applications of Artificial Intelligence agents in mining and translating honeypot reports into actionable insights that can be used to foil hacking efforts and prevent data theft or loss. It examines defensive deception and adaptive honeypots as some tools that have been utilized in sample security installations. The paper then discusses weaknesses found in the current systems. Finally, the review concludes by outlining future research opportunities that can be applied to personal, small, medium and large working environments.

GENETIC ALGORITHM ALLEVIATE CONTOUR-BASE TECHNIQUE FOR WSI PATHOLOGICAL MEDICAL IMAGE SEGMENTATION

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ABSTRACT:

Genetic algorithms (GAs) have been found to be effective in the domain of medical image segmentation, since the problem can often be mapped to one of search in a complex and multimodal landscape. The challenges in medical image segmentation arise due to poor image contrast and artefacts that result in missing or diffuse organ/tissue boundaries. The resulting search space is therefore often noisy with a multitude of local optima. Not only does the genetic algorithmic framework prove to be effective in coming out of local optima, it also brings considerable flexibility into the segmentation procedure. In this paper, an attempt has been made to review the major applications of GAs to the domain of medical image segmentation over the performance of contour based segmentation.

MULTI-LAYER CONVOLUTION NEURAL NETWORKS FOR MALWARE IMAGE EXTRACTION AND CLASSIFICATION

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ABSTRACT:

Due to the shortage of cyber security experts and corporate networks' growing data processing needs, experts are exploring the use of machine learning to automate common, time-consuming security operations. Artificial Intelligence may improve malware analysis and categorization. Malicious software writers constantly improve their programs to bypass security. Advanced attack tactics and code obfuscation improve this. Manually assessing malware may grow harder. Malicious files and signatures increase annually. In March 2022, 677.66 million new harmful software creators were detected. Malware types had risen 35.4 % in 2021. This research evaluates Gray Level Run Length Matrix (GLRLMs) and Multi-Layer Convolution Neural Networks (MLCNN) for Malware binary representation categorization in fixed-size grayscale images. Classification problem are evaluated using many criteria. A unique deep learning model identifies raw binary files into nine types of malware with 98.2% accuracy. Raw files may be represented as two-dimensional images or one-dimensional binary files.

SWARM INTELLIGENCE WITHIN THE INTERNET OF MEDICAL THINGS: AN OVERVIEW OF THE OBJECTIVES, DIFFICULTIES INCLUDING EMERGING TECHNOLOGIES

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ABSTRACT:

The internet of things (IoT), a network that allows information sharing and smart choices applying commonplace technology, is the result of continuing advances regarding fields like between machines\ exchanges with enormous data analyses. Improving health care for patients is the primary objective of IoMT. A vital\ requirement for IoMT is that it is accessible and affordable from anywhere at any time. Encrypting information, allocation of resources, networking routing, failure of hardware management, values that are missing prediction, plus predicting illnesses are a few examples of possible problems. Utilizing smart watches alongside the other portable electronics that IoMT users presently possess can help meet such goals. Furthermore, evaluated are the gadgets' possibilities in IoMT. IoT is built on technologies which enable exchange of information, data processing/storage, and making decisions, which include the use of cloud computing, wireless sensors network (WSNs), radio-frequency-identification (RFID) gadgets. We review the SI applications in the four major WSN subcategories: Sensor Installation, Networking Protocol, node the localization of operations as well as CH selection. A final assessment regarding prospective future paths regarding IoMT development if any disease prediction the developer donot confuse which algorithm is suitable and comfort for particular disease in our study analysis go through and apply the above algorithms and particular disease concludes the article.

A RONI BASED WATERMARKING SCHEME USING CONTOURLET TRANSFORM FOR X-RAY MEDICAL IMAGES

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ABSTRACT:

In E-healthcare systems, the patients' medical records are transmitted over the internet for diagnosis purpose. The security of the medical images is an important concern, when they are transmitted through internet. A reliable watermarking technique is needed by embedding a secret data without any modification in the significant region of the medical image. In this work, a RONI based watermarking scheme is developed using contourlet transform for X-ray medical images. In this work, we implemented the embedding and extraction processes using contourlet transform. The performance of the proposed technique is analyzed using the metrics PSNR, NC and BER. The robustness of the proposed technique is also tested with various attacks.

A REVIEW OF DATA MINING TECHNIQUES FOR BIOLOGICAL DATA ANALYSIS

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ABSTRACT:

Bioinformatics is the interdisciplinary field that uses computer techniques to manage and analyze the biological data. It involves storing, retrieving, arranging, analyzing, interpreting & utilizing vast amounts of biological data. In Bioinformatics, the various types of data such as DNA, RNA, Protein, Gene & Genome sequences are available for mining. The wide range of biological databases create both challenges and opportunities for the development of new data mining techniques. The objective of this article is to analyze and present the various types of biological data, data mining techniques that are utilized in the field of bioinformatics, biological databases, applications and challenges. The scope for research contributions in the field of data mining for bioinformatics is also presented.

SYSTEM TO SAFE THE FACE COUNTERFEIT DETECTION USING IMAGE STEGANOGRAPHY

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ABSTRACT:

IDs and MRTDs (Identification and Machine-Readable Travel Documents) are used for identifying and verifying individuals in various scenarios, such as crossing borders, everyday applications, transactions, and access to processing systems. These documents incorporate security features to prevent document forgery, with current criminal attacks focusing on obtaining genuine documents and manipulating facial images. To mitigate fraud risks, it is crucial for government agencies and document manufacturers to consistently enhance security measures. To address this, we introduce StegoFace, an efficient steganography technique designed for facial images on standard IDs and MRTDs. StegoFace, utilizing a Deep Convolutional Auto Encoder, conceals a secret message in a facial representation, producing a stego facial image. A Deep Convolutional Auto Decoder is then used to extract the message from the stego facial image, even if it has been recently printed and captured by a digital camera. Our StegoFace approach produces facial images with better perceptual quality compared to StegaStamp-generated images, as measured by Top Signal-to-Noise Ratio, hiding capacity, and imperceptibility results on the test set.

STREAMLINING GATE PASS PROCESSES WITH AN ONLINE WEB SCHEME APPLICATION

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ABSTRACT:

First utilizing this framework, administrator can add the understudies and instructors with their number or a one of a kind id and afterward gatekeeper can everyday enter the section and exit of a group. Many benefit of utilizing this framework is all the passage and exit record of an individual is saved and we can without much of a stretch access it. This framework is easy to use. The Undertaking 'Door pass the board Framework' is to record the subtleties and different exercises of the client. It improves on the assignment and lessens the desk work. In this task, we are decreasing the desk work which is finished by giving the paper entryway pass. We are giving the electronic form of the paper entryway pass. We give proper preparation to the safety officer to handle entryway pass application. Administrator is checking all the client and framework. Preparing has been given convenient premise furthermore; they got prepared as the Entryway pass Framework is new and carried out to their area of obligation. The framework is very easy to understand and it is guessed that elements of the framework are effortlessly gotten to by administrators, faculties, Students.

ID2S PASSWORD AUTHENTICATED KEY EXCHANGE PROTOCOLS

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ABSTRACT:

Password authenticated key exchange (PAKE) is where two or more parties, based only on their knowledge of a password, establish a cryptographic key using an exchange of messages, such that an unauthorized party (one who controls the communication channel but does not possess the password) cannot participate in the method and is constrained as much as possible from brute force guessing the password. (The optimal case yields exactly one guess per run exchange.) Two forms of PAKE are Balanced and Augmented methods. In two-server password- authenticated key exchange (PAKE) protocol, a client splits its password and stores two shares of its password in the two servers, respectively, and the two servers then cooperate to authenticate the client without knowing the password of the client.

A SURVEY ON APPLICATIONS OF CRYPTOGRAPHY IN DATA SECURITY IN DEFENSE SECTORS

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ABSTRACT:

Cryptography, the science of secure communication, plays a pivotal role in safeguarding sensitive information in the digital age. As technology evolves, cryptography remains at the forefront of ensuring privacy and trust in an interconnected world, impacting diverse domains from finance and healthcare to communication and cyber security. Understanding the principles and applications of cryptography is essential for navigating the complex landscape of information security. Encryption and decryption are performed using algorithms, and the security of the system relies on the secrecy of the key. This work is currently engaged in ongoing research to enhance the efficiency of the algorithm implemented and also to explore the applications of encryption in various defense sectors.

A SURVEY ON ROLE OF DATA ANALYTICS IN IDENTIFYING WOMEN BREAST CANCER

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ABSTRACT:

Breast cancer is a significant global health concern affecting women, necessitating a multidisciplinary approach for effective management. Data analytics emerges as a pivotal tool in the comprehensive understanding and addressing of women's breast cancer. This abstract explore the multifaceted applications of data analytics in the context of breast cancer, spanning early detection, diagnostic support, treatment personalization, research, patient management, public health initiatives, and survivorship. In the realm of early detection, data analytics leverages mammography analysis and risk assessment models to enhance screening accuracy. Diagnostic support benefits from pathology data analysis and genomic insights, refining the precision of breast cancer diagnosis and guiding personalized treatment strategies. Treatment personalization further unfolds through precision medicine, utilizing predictive modeling to optimize therapeutic decisions. The integration of data analytics in research and drug discovery involves genomic data mining, facilitating the identification of genetic mutations and accelerating drug development. Survivorship and quality of life considerations encompass long-term outcome analysis and supportive care, utilizing analytics to study survivor outcomes and enhance the post-treatment experience. This abstract also underscores the integral role of data analytics in the entire breast cancer care continuum, emphasizing its contribution to improved outcomes, personalized interventions, and informed public health strategies for women facing this formidable health challenge.

REVOLUTIONIZING HEALTHCARE SURVEILLANCE: UNVEILING THE POTENTIAL OF SMART IOT DEVICES

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ABSTRACT:

The Internet of Things is changing the world in a lot of ways. The use of wearable technology is growing due to the accessibility of sensors, Wi-Fi networks, and Internet connections. Together, these elements have paved the way for the Internet of Things to become a part of everyday life and many economic sectors, including healthcare. Healthcare workers' jobs can become more automated and efficient with the use of these technologies. The number of installed healthcare IoT devices is expected to increase from roughly 95 million in 2015 to 646 million in 2020. The market was estimated to be worth USD 58.4 billion in 2014, but is expected to reach over USD 410 billion in 2020. In the upcoming years, IoT devices will still have an impact on the healthcare sector. Without a doubt, they are reinventing how people connect while providing healthcare solutions. IoT has several uses in healthcare that are advantageous to doctors, hospitals, insurance companies, families, and patients. For patients and healthcare professionals, the range of wearable medical monitoring equipment offers both advantages and disadvantages. In this work, we examine the healthcare monitoring devices that are crucial to the integration of IoT in healthcare systems.

GENETIC ALGORITHM AN IMPROVED APPROACH OVERCOME CONSTRAINT OF CONTOUR-BASE TECHNIQUE FOR WSI PATHOLOGICAL MEDICAL IMAGE SEGMENTATION

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ABSTRACT:

Medical image segmentation can often be mapped to a search in a complex and multimodal landscape, which is why genetic algorithms (GAs) are effective. The difficulties in Pathological image segmentation emerge because of unfortunate picture differentiation and antiques that outcome in absent or diffuse tissue (WSI) limits. As a result, the search space that results are frequently noisy and contains numerous local optima. In addition to the fact that the hereditary algorithmic system ends up being successful in emerging from nearby optima, it likewise carries significant adaptability into the segmentation technique. In this paper, an endeavor has been made to check the significant uses of GAs to the area of Pathological image segmentation over the performance of contour-based segmentation.

CORNER DETECTION FROM CHARACTER SEGMENT USING IMAGE PROCESSING ALGORITHMS

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ABSTRACT:

Corner detection is an image processing, providing valuable information about the geometric structure\ of images. This explores the Research of corner detection in images containing characters, contributing to tasks such as text localization and recognition. We established corner detection algorithms, focusing on their ability to identify corner points where intensity or color changes abruptly. The Harris Corner Detector and Shi-Tomasi Corner Detector are adapted to analyze images with textual content. Through pre-processing steps and thresholding, we enhance the detection of corners associated with characters. The proposed approach offers a robust method for identifying key features in character-rich images, laying the foundation for subsequent tasks such as optical character recognition (CCA) and document analysis. Experimental results demonstrate the effectiveness of the method in various scenarios, showcasing its potential for applications in text-based image understanding and processing.

SEGMENTATION OF REMOTE SENSING IMAGES USING SIMILARLY MEASURE BASED FUSION MRF MODEL

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ABSTRACT:

Classifying segments and detecting changes in terrestrial areas are important and time- consuming efforts for remote sensing image analysis tasks, including comparison and retrieval in repositories containing multi temporal remote image samples for the same area in very different quality and details. We propose a multilayer fusion model for adaptive segmentation and change detection of optical remote sensing image series, where trajectory analysis or direct comparison is not applicable. Our method applies unsupervised or partly supervised clustering on a fused- image series by using cross layer similarity measure, followed by multilayer Markov random field segmentation. The resulted label map is applied for the automatic training of single layers. After the segmentation of each single layer separately, changes are detected between single label maps. The significant benefit of the proposed method has been numerically validated on remotely sensed image series with ground-truth data.

OPTICAL CHARACTER EXTRACTION UNDER DIFFERENT ILLUMINATION CONDITIONS

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ABSTRACT:

Image can be captured in different illumination condition. So if text images are captured in different illumination effect. It is not possible to read the text in image format. Here we proposed a system where text image captured in any illumination condition can be extracted in MATLAB using optical character extraction. Here we use image processing tools to extract text from image. The main aim is to extract the characters in various illumination conditions. Text will be in printed paper. We will capture the image of printed paper. We use effective algorithm to extract characters from printed paper. This system scans the text by evaluating each and every line. Here we will implement this system using MATLAB computation software with image processing toolbox. System will extract word from image using image processing toolbox. As image is captured by webcam or camera. So image is more prone to noise and other environmental interference. In order to extract text from image we will be using thresholding method. Image pre-processing steps are applied on images. Unwanted objects are removed. Bounding boxes is applied to text extracted. These text are in image format. These images are converted to characters. System uses optical character recognition to extract characters from image. Character and number images are stored in directory. The extracted text image are separated by bounding box. Each bounding box will contain each character or number. Each character or number is resized to image stored in directory. Extracted image and existing character image feature is compared. After comparison characters are detected. Finally detected characters are shown in text format. Optical character extraction is used to extract text from image. Here we will extract text from image at any lightening condition.

PERFORM IMAGE ENCRYPTION AND VERIFICATION WITH CHAOTIC MAPS

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ABSTRACT:

Chaos has been one of the most effective cryptographic sources since it was first used in image-encryption algorithms. This paper closely examines the development process of chaos-based image-encryption algorithms from various angles, including symmetric and asymmetric algorithms, block ciphers and stream ciphers, and integration with other technologies. The unique attributes of chaos, such as sensitivity to initial conditions, topological transitivity, and pseudo-randomness, are conducive to cross-referencing with other disciplines and improving image-encryption methods. Additionally, this paper covers practical application scenarios and current challenges of chaotic image encryption, thereby encouraging researchers to continue developing and complementing existing situations, and may also serve as a basis of future development prospects for chaos-based image encryption.

DIABETIC RETINOPATHY DETECTION FROM RETINAL IMAGES

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ABSTRACT:

Diabetic retinopathy (DR) is a disease with an increasing prevalence and the main cause of blindness among working-age population. The risk of severe vision loss can be significantly reduced by timely diagnosis and treatment. Systematic screening for DR has been identified as a cost-effective way to save health services resources. Automatic retinal image analysis is emerging as an important screening tool for early DR detection, which can reduce the workload associated to manual grading as well as save diagnosis costs and time. Many research efforts in the last years have been devoted to developing automatic tools to help in the detection and evaluation of DR lesions. However, there is a large variability in the databases and evaluation criteria used in the literature, which hampers a direct comparison of the different studies. This work is aimed at summarizing the results of the available algorithms for the detection and classification of DR pathology. A detailed literature search was conducted using PubMed. Selected relevant studies in the last 10 years were scrutinized and included in the review. Furthermore, we will try to give an overview of the available commercial software for automatic retinal image analysis.

COMPARATIVE STUDY ON ONE STAGE OBJECT DETECTOR AND TWO STAGE OBJECT DETECTORS FOR UNDERWATER OBJECT DETECTION

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ABSTRACT:

Underwater Object Detection (UOD) poses a formidable challenge in the realm of computer vision technology. The intricate pattern of objects in the underwater environment leads to excessive noise, poor visibility, blurred object boundaries, diminished contrast and color distortion. These factors collectively create substantial hurdles for the accurate detection of object in underwater. Current research endeavors are focused on developing an optimal object detection model using advanced deep learning techniques. Deep learning's proficiency in employing deep neural networks enhances research precision. The research work presented in their paper is specifically grounded in deep learning principles, utilizing the Convolutional Neural Network (CNN) architecture for its framework. A comprehensive review of two categories of object detection algorithms are presented which include: single stage and two stage method. The single stage method used to this work is YOLO (YOU ONLY LOOK ONCE) algorithm. YOLO stands out by directly implementing Convolutional layers to predict object presence based on feature scores. On the other hand, two stage detection algorithms, such as Faster R-CNN (Region based Convolutional Neural Network) in particular, is noteworthy for its integration of the Region Proposal Network (RPN) into the detection process. Explore the practicality of implementing Faster R-CNN with the ResNet18 network architecture. Experimental approach involved the utilization of a dataset comprising seven distinct classes of underwater animals, sourced from Kaggle datasets. The performance of these algorithms is assessed by comparing the results through the mean average precision (mAP) metric. The ultimate goal is to determine the model the yields the best results for underwater object detection in challenging environments. Here, YOLOv5 achieved an impressive mean average precision (mAP) of 80%. Notably, this represents a performance improvement over the traditional two-stage object detector.

SECURE DATA SHARING IN CLOUD COMPUTING: A NOVEL APPROACH BY INTEGRATING ADVANCED ENCRYPTION STANDARD AND PROXY RE- ENCRYPTION

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ABSTRACT:

Cloud computing has revolutionized the way data is stored and accessed, but concerns over data security persist. This paper introduces a novel approach for secure data sharing in cloud computing, combining the robustness of the Advanced Encryption Standard (AES) with the flexibility of Proxy Re-Encryption (PRE). This approach leverages AES for symmetric encryption to ensure the confidentiality and integrity of shared data at rest. It provides a foundation for a secure storage environment within the cloud. To address the challenge of secure data sharing among authorized users, the Proxy Re-Encryption also integrated into the framework. Proxy Re-Encryption allows a trusted intermediary, or proxy, to efficiently transform cipher text encrypted under one user's key into cipher text that can be decrypted by another user, without compromising the underlying data security. This enables secure and controlled sharing of encrypted data among multiple parties in the cloud. The integration of AES and Proxy Re-Encryption offers a balance between strong encryption standards and efficient, controlled data sharing, making it suitable for various cloud computing scenarios where both data privacy and collaboration are paramount. The experimental results demonstrate the effectiveness and feasibility of the proposed solution, paving the way for enhanced data security in cloud-based environments.

EFFICIENT DETECTION AND CLASSIFICATION OF EMERGENCY VEHICLES IN TRAFFIC USING YOLOV8

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ABSTRACT:

Vehicle detection and vehicle categorization are two of the most important and difficult jobs in an automated traffic monitoring system. This Proposed study presents a novel approach to the identification and setting priorities of emergency vehicles in high-traffic areas, including police cars, fire engines, and ambulances. The research proposes the primary objective is to increase emergency vehicles's detection efficiency by utilizing the real-time, enhanced precision and rapid processing capabilities of the YOLOv8 (You Only Look Once version 8) object detection system and the Traffic images has been classified using Conventional Neural Network (CNN). First stage of process the lower disturbance and increase magnitude, every image is pre-processed. The images have been extracted and that extracted images have been classified then using YOLOv8 algorithm to detect the emergency vehicles. the system is designed to locate emergency vehicles throughout complicated traffic situations with a high degree of precision, helping intelligent traffic control systems clear roads more quickly. Has a maximum 1% difference in optimal mAP0.5 (mean average precision), precision rate, and recall rate when compared to YOLOv5s. In addition, there is a 35.5% decrease in parameters, a 36.3% reduction in computation, a 24% decrease in weight size, and an average processing speed increase of 19.7% for each image. We also performed a comparative analysis with the most recent research approaches to compare our model with the other established methods.

EXPLORATION ABOUT ALZHEIMER'S DISEASE STAGE IDENTIFICATION ON MAGNETIC RESONANCE IMAGING WITH MACHINE AND DEEP LEARNING MODELS

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ABSTRACT:

Alzheimer's Association Report (AAR) stated that the molecular and neurological causes the Alzheimer's disease (AD) and it takes place in the neurons. AD is the extremely popular cause of dementia that causes memory loss. People who have Alzheimer's disease suffer from a disorder in neurodegenerative which leads to loss in many brain functions. Nowadays researchers prove that early diagnosis of the disease is the most crucial aspect to enhance the care of patients's lives and enhance treatment. Traditional approaches for diagnosis of AD suffers from long time with lack both efficiency and the time it takes for learning and training. The aim of this research is to identify the stage of AD patients through the machine learning and deep learning models. This process facilitates the monitoring of the disease and allows actions to be taken in order to provide the optimal treatment and the prevention of complications. The evaluation of the classification models is performed using the Kaggle datasets. The Deep Learning algorithm of Convolutional Neural Network (CNN) and Machine learning algorithm Random Forest (RF) applied on these dataset. The result produced accuracy was drastically high in CNN than RF. So, we got conclusion that CNN algorithm is best way to detect Alzheimer disease. The experimental results shown that the best accuracy values provided by the deep learning models is 97%. The stage of the disease also identified by deep learning algorithm as Mild Demented, Moderate Demented, Non Demented and Very Mild Demented.

GENERATIVE AI WITH REAL ISR

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ABSTRACT:

Realistic Image Super-resolution aims to reproduce perceptually realistic image details from a low quality input. The commonly used adversarial training based Real-ISR methods often introduce unnatural visual artefacts and fail to generate realistic textures for natural scene images. The recently developed generative stable diffusion models provide a potential solution to Real-ISR with pre-learned strong image priors. However, the existing methods along this line either fail to keep faithful pixel wise image structures or resort to extra skipped connections to reproduce details, which requires additional training in image space and limits their extension to other related tasks in latent space such as image stylization. In this work, we propose a pixel-aware stable diffusion (PASD) network to achieve robust Real-ISR as well as personalized stylization. In specific, a pixel-aware cross attention module is introduced to enable diffusion models perceiving image local structures in pixel-wise level, while a degradation removal module is used to extract degradation insensitive features to guide the diffusion process together with image high level information. By simply replacing the base diffusion model with a personalized one, our method can generate diverse stylized images without the need to collect pairwise training data. PASD can be easily integrated into existing diffusion models such as Stable Diffusion.

PREDICTION OF LIVER CANCER USING CT IMAGES IN KNN ALGORITHM

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ABSTRACT:

As a simple and effective classification algorithm, k-Nearest Neighbour (K-NN) algorithm is widely used in many fields. In order to improve the efficiency of classification in Liver Cancer Detection, the hybrid method is applied to the K-NN algorithm, which selects the effective features efficiently. Building new attribute sets and applying new effective features to K-NN classification separately, to obtain the correct classification rates of new effective features. Then the correct classification rates are applied to the K-NN Algorithm for classification as the distance weight. The improved K-NN Algorithm has been applied to Liver Cancer Detection, and the experiment indicated has obtained the good effect. This classifier will classify the feature and predict the decision about the liver images. For liver tumor features, here we will use GLCM and LBP. Finally the result will be displayed. The proposed system helps to improve the better classification performance, reason in which we can see significant reduction of features are used. The diagnosis of liver cancer from the computer tomography images is very difficult in nature. Early detection of liver tumour is very helpful to save the human life.

CLASSIFICATION OF DISEASES IN TOMATO LEAF USING ENHANCED CONVOLUTION NEURAL NETWORK

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ABSTRACT:

Globally, agriculture automation is the most pressing issue and a rapidly developing topic. The demand for food and employment is rising in tandem with the population's rapid growth. The conventional techniques employed by farmers are insufficient to meet these demands at present. A revolution in agriculture has been initiated by artificial intelligence. The growth of sustainable agriculture requires pertinent research, especially with the implementation of Artificial Intelligence in agricultural technology to diagnose plant leaf disease. The quality and productivity of tomatoes are significantly impacted by numerous diseases, such as early blight and late blight, and customary methods are an onerous task that consumes time. Efficacious and automated diagnosis of leaf diseases in the tomato plant in the budding phase can end the decrease in the productiveness of the tomato crop. Deep learning is one most efficient techniques to identify plant leaf disease. The proposed work was implemented with nine target data classes, including healthy tomato leaves. The classification of tomato leaf disease is detected with an Enhanced Convolutional Neural Network (ECNN) Model, and the enhanced model reached the highest accuracy of 94% compared with other pre-trained architectures. The ECNN model performed well in multiclass classification for the tomato leaf test dataset.

EFFECTIVE NAIVE BAYES CLASSIFIER FOR BIG DATA ANALYTICS BY APPLYING MAP REDUCE

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ABSTRACT:

Now-a-days Map Reduce programming model is focused for distributed large scale data processing with some constraints and properties. Bayesian Classification provides a useful perspective for understanding and evaluating many learning algorithms which calculates explicit probabilities for hypothesis and it is robust to noise in the input data. The naive Bayes model is easy to build and particularly useful for very large data sets. Hence the system proposed an efficient Naïve Bayes Classification scheme based on the Map reduce technique. In this scheme every feature of the data being classified is independent of all other features.

HAND WRITTEN DIGITS RECOGNITION USING MACHINE LEARNING

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ABSTRACT:

Hand written character recognition is one of the practically important issues in pattern recognition applications. Handwritten text recognition is the significant areas of research and development with a streaming number of possibilities that could be attained. Handwriting recognition (HWR), also known as Handwritten Text Recognition (HTR), is the ability of a computer to receive and interpret intelligible handwritten input from sources such as paper documents, photographs, touch screens and other devices. This paper presents an approach to off-line handwritten digit recognition based on different machine learning technique. The main objective of this paper is to ensure effective and reliable approaches for recognition of handwritten digits. Apparently, this paper illustrates handwritten digit recognition with the help of MNIST datasets using KNN (K nearest Neighbors), SVM (Support Vector Machine), NN (Neural Networks) Models. The main objective of this paper is to compare the accuracy of the models stated above along with their execution time to get the best possible model for digit recognition.

AUTOMATIC DETECTION OF CYBER BULLYING USING AI IN SOCIAL MEDIA

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ABSTRACT:

Cyberbullying is the use of technology as a medium to bully someone. Although it has been an issue for many years, the recognition of its impact on young people has recently increased. Social networking sites provide a fertile medium for bullies, and teens and young adults who use these sites are vulnerable to attacks. Through machine learning, we can detect language patterns used by bullies and their victims, and develop rules to automatically detect cyberbullying content. We analysed six different machine learning models, ANN, RF, LF, NB, Deep DT, SVM to detect cyberbullying using twitter dataset. In this we observed that ANN performed significantly better than other models, reaching accuracy rates 96% and f1 score 93%.

RECOGNITION OF LIVER CANCER IN IMAGE SEGMENTATION

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ABSTRACT:

Now-a-days, there is rise in the death rate of patients suffering from liver cancer. The liver cancer rate is increasing year by year. Generally, liver cancer's death rate is very high because the disease causes no symptoms, so it's often not caught until it's in final stages. The Canadian Cancer Society says, if we catch someone's liver cancer early, their chance of defeating the disease is 70 to 80 per cent. If the disease is caught late, the average person survives about a year after diagnosis. We propose an algorithm for liver cancer detection which is based on concepts of fuzzy logic and neural network. Neuro-fuzzy (NF) systems are suitable tools to deal with uncertainty found in the process of extracting useful information from images. In this work, the liver tumor is detected through the medical images in three phases, pre-processing phase, processing phase and detection phase. Initially in the pre-processing phase, a set of medical images is filtered for removing noise. Then the filtered image is segmented automatically using fuzzy logic, neural network and windowing technique. In the detection phase neuro-fuzzified segmented images of CT and MRI is registered to obtain the tumor. The result is obtained for few different set of database.

EMOTION DETECTION FRAMEWORK USING DISCRETE MULTI-LAYER PERCEPTRON CLASSIFIER FOR TWITTER DATA

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ABSTRACT:

“The process of detecting emotions normally entails text analysis. Humans have a common consistency in recognizing feelings, but their ability to do so varies greatly between individuals”. We were able to detect emotion in Twitter messages because they contain a diverse range of human emotions. We introduced the Discrete Multi-layer Perceptron (DMLP) classifier, a machine learning algorithm, to detect the emotion of Twitter messages and then classify them into four emotional groups. The information was gathered through the completion of the self-report questionnaire Trait Emotional Intelligence (TEIQue) and analysed using data mining techniques. The collected data was then selected for review, with related transformations applied so that the data could be used to implement the machine learning algorithm included in the R software package. To demonstrate the feasibility of the proposed strategy, we conducted a comparative analysis of the proposed machine learning algorithm with current techniques.

ECLAT ALGORITHM FOR FREQUENT ITEM SET

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ABSTRACT:

The ECLAT algorithm stands for Equivalence Class Clustering and bottom-up Lattice Traversal. A database can be searched using this approach to find common item sets. It is one of the popular methods of Association Rule mining (which also regroups frequent item set mining). It is a more efficient and scalable version of the Apriori algorithm. While the Apriori algorithm works in a horizontal sense imitating the Breadth-First Search of a graph, the ECLAT algorithm works in a vertical manner just like the Depth-First Search of a graph. This vertical approach of the ECLAT algorithm makes it a faster algorithm than the Apriori algorithm. The ECLAT method is a more effective and scalable variant of association rule learning.

A NOVEL FUZZY BASED APPROACH FOR ADVANCED SECURED CLOUD AUTHENTICATION

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ABSTRACT:

In this Paper the study uses a novel design of the fractal fuzzy model in devising the secured authentication process via elliptic curve cryptography. This model assistant improving the process of authentication in distributed cloud systems. The study uses attributed based data a segregation that this developed using the preference of data owners or users. Here, the priority is offered to sensitive data rather than non-sensitive data. After the grouping of the sensitive information based on the attribute, these sub groups are interpreted via group keys. Such encrypted information is then merged with the attributes that are of non-sensitive type and then it is uploaded to the distributed cloud environment. The simulation is contacted in the cloud simulator to test the efficacy of the model against various types of attacks. The results of the simulation show that the proposed model performs with minimal computational complexity storage space and processing time then the existing authentication models. Further it offers an increased date of security over sensitive and nonsense of information then other methods.

SURVEY ON COMPUTER BASED SYMMETRIC KEY ENCRYPTION TECHNIQUES

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ABSTRACT:

Nowadays, the use of internet are growing plentiful across the world, security becomes very important role in the society. Earlier security was a major issue for all applications but now the applications has been strengthen since most of the communication takes place over the web. Cryptography is an area of computer science which is developed to provide security for both sender and receiver to transmit and receive secret data through an insecure medium by a means, process of Encryption /Decryption. Cryptography makes sure that the message should be sent without any changes and only the authorized person can be able to open and read the message. A variety number of cryptographic techniques are developed for achieving secure communication. Basically there are two techniques - Symmetric and Asymmetric. This paper presents a detailed study about the symmetric key encryption techniques.

PRODUCT PRIORITIZATION USING MULTICRITERIA DECISION TECHNIQUE

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ABSTRACT:

Multi criteria decision making (MCDM) process involves evaluating alternative solutions against multiple criteria to choose the best options. The decision making process is simple if the criteria are of same type, uncorrelated and deterministic. AHP (Analytic Hierarchy Process) is one of the decision making technique. AHP is an appropriate method to address the prioritization problem to make better decisions. It allows the use of qualitative, as well as quantitative criteria in evaluation. AHP helps decision-makers choose the best product from several options. The customer chooses a best car in the given alternatives through pair wise comparison method. This paper is to discuss and apply the principles and techniques of the AHP in the product prioritization.

ENHANCING HUMAN-COMPUTER INTERACTION THROUGH ADVANCED NATURAL LANGUAGE PROCESSING TECHNIQUES: A MACHINE LEARNING APPROACH

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ABSTRACT:

This research endeavours to enhance the realm of Human-Computer Interaction (HCI) by leveraging advanced Natural Language Processing (NLP) techniques through a machine learning approach. The study focuses on developing intelligent systems capable of understanding and responding to human language with increased accuracy and contextual understanding. By employing state-of-the-art machine learning algorithms, the research seeks to improve the efficiency, adaptability, and user experience in various interactive applications. The anticipated outcomes include more responsive and intuitive interfaces, fostering a seamless interaction between humans and computers in diverse contexts. This research holds the potential to significantly elevate the effectiveness and user-friendliness of interactive systems, contributing to the evolution of HCI in the digital age.

GRAY AND COLOR IMAGE CONTRAST ENHANCEMENT BY THE CURVELET TRANSFORM

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ABSTRACT:

In this study, we propose a novel strengthening technique based on the curvelet transform. Since the curvelet transform more accurately depicts edges than wavelets, it is suitable for a specific application involving multiscale edge augmentation. In a number of instances, we contrast this method with augmentation based on the wavelet transform and the multiscale retinex. Among other processing applications, we employ edge detection and segmentation to enable quantitative comparative assessment. Our results show that curvelet based enhancement works better than other enhancement techniques on noisy images, but it is not significantly superior to wavelet-based enhancement on noiseless or almost noiseless images. Index terms improvement of contrast wavelets, ridge lets, and curvelets.

SMART SHOPPING: PRICE INTELLIGENCE THROUGH MACHINE LEARNING- BASED ONLINE WEBSITE PRICE COMPARISON

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ABSTRACT:

As consumers navigate the vast online marketplace, the need for informed purchasing decisions is crucial. This research proposes the development of an intelligent online website price comparison system using machine\ learning approaches. The proposed method aims to empower consumers with accurate and real-time price information, fostering a more informed and efficient online shopping experience.

FOLIAGE RECOGNITION IN AGRICULTURE: A MACHINE LEARNING - DRIVEN APPROACH FOR PLANT LEAF DETECTION

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ABSTRACT:

As agriculture embraces technology, the accurate and timely identification of plant leaves is crucial for crop monitoring and management. This research proposes the development of a sophisticated plant leaf detection system using machine learning approaches. The project aims to enhance precision and efficiency in the identification of diverse plant species, contributing to improved agricultural practices. This research focuses on advancing plant leaf detection techniques through the application of machine learning methodologies, with the aim of providing efficient and accurate tools for plant species identification and health monitoring. The increasing demand for automated plant recognition systems to support agriculture, ecology, and environmental research motivates the exploration of robust and adaptable machine learning models. The proposed approach involves the creation of a comprehensive dataset comprising diverse leaf images, capturing variations in species, growth stages, and environmental conditions. Leveraging this dataset, various machine learning algorithms, including convolutional neural networks (CNNs) and support vector machines (SVMs), are trained to recognize and classify plant leaves based on distinctive features. The developed models exhibit promising results in terms of accuracy, speed, and adaptability to different environmental contexts. The integration of these machine learning approaches enables rapid and reliable identification of plant species, aiding in tasks such as biodiversity monitoring and agricultural management. Additionally, the models demonstrate potential for early detection of diseases and stress factors affecting plant health, contributing to precision agriculture practices.

The research not only addresses the need for automated plant identification but also lays the foundation for scalable and accessible tools that can be employed across various domains, including agriculture, environmental science, and conservation. The continual refinement and application of machine learning in plant leaf detection showcase its potential to revolutionize and optimize processes vital for sustainable and informed decision-making.

SECURE BANKING: A FINGERPRINT-BASED ATM SYSTEM ENHANCED WITH MACHINE LEARNING

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ABSTRACT:

In the pursuit of bolstering ATM security and user authentication, this research proposes the development of a novel fingerprint-based ATM system utilizing advanced machine learning techniques. The proposed method aims to enhance the security and user experience of Automated Teller Machines (ATMs) by leveraging the unique biometric features of fingerprints for user identification and transaction authorization. This research introduces an innovative approach to enhance the security and efficiency of Automated Teller Machines (ATMs) through the integration of fingerprint recognition technology and machine learning algorithms. The proposed system leverages the unique biometric features of fingerprints to authenticate users, mitigating the vulnerabilities associated with traditional PIN-based systems. The core of the system lies in a robust machine learning model trained on a comprehensive dataset of fingerprint patterns. Through advanced pattern recognition and classification, the model accurately verifies the identity of ATM users, providing a secure and user-friendly authentication mechanism. This not only reduces the risk of unauthorized access but also eliminates the need for traditional PINs, addressing concerns related to forgotten or easily compromised passwords. Furthermore, the integration of machine learning enables continuous improvement of the authentication process over time. The system adapts to variations in fingerprint characteristics, ensuring reliable performance even with changes such as aging or minor injuries. Real-time updates enhance the models adaptability, making it resilient to evolving security threats. In addition to bolstering security, the proposed system optimizes the user experience by streamlining the authentication process. Users can access their financial resources swiftly, fostering convenience and reducing the time spent at ATMs. The implementation of this fingerprint-based ATM system aligns with the evolving landscape of biometric technology and contributes to the broader goal of creating more resilient and user-friendly financial systems.

UNMASKING DECEPTION: A MACHINE LEARNING APPROACH FOR FAKE LOGO DETECTION

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ABSTRACT:

In an era dominated by digital content, the proliferation of counterfeit logos poses a threat to brand integrity and consumer trust. This research aims to develop a robust system for detecting fake logos utilizing advanced machine learning algorithms. The proposed method seeks to enhance the ability to identify counterfeit logos, ultimately safeguarding brands and consumers from deceptive practices. Counterfeit logos pose a significant threat to brand integrity and consumer trust in the digital age. This research presents an innovative solution for identifying fake logos through the integration of machine learning algorithms. The proposed system leverages advanced pattern recognition and classification techniques to distinguish authentic logos from fraudulent counterparts. The core of the system involves the creation of a diverse dataset encompassing legitimate and counterfeit logo variations. Various machine learning models, including Convolutional Neural Networks (CNNs) and Support Vector Machines (SVMs), are trained on this dataset to learn the intricate features that distinguish genuine logos from fakes. These models exhibit high accuracy in detecting subtle discrepancies such as color variations, distortions, and imperfections that are often indicative of counterfeit logos. The proposed system not only serves as a reliable tool for brand protection but also offers scalability and adaptability to evolving fraudulent tactics. Continuous learning mechanisms enable the models to stay abreast of new forgery techniques, ensuring sustained effectiveness over time. Furthermore, the system provides real-time detection capabilities, allowing rapid identification of fake logos across various digital platforms. This proactive approach empowers brands to take timely action against counterfeit activities, mitigating potential reputational and financial risks. The integration of machine learning in fake logo detection represents a crucial step toward combating the rising tide of brand impersonation in the digital realm. By providing a versatile and accurate solution, this research contributes to safeguarding the authenticity of visual brand identities and upholding consumer trust in an increasingly interconnected digital landscape.

ADVANCED SKIN DISEASE DETECTION: A COMPREHENSIVE MACHINE LEARNING APPROACH FOR ACCURATE DIAGNOSIS

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ABSTRACT:

Skin diseases present a significant global health burden, necessitating efficient diagnostic tools for timely intervention. This research proposes the development of an advanced skin disease detection system through the utilization of machine learning approaches. The proposed method aims to enhance accuracy, efficiency, and accessibility in dermatological diagnostics by employing state-of-the-art techniques. Skin diseases are a prevalent health concern worldwide, and early and accurate diagnosis is crucial for effective treatment. This research proposes an innovative solution for skin disease detection by leveraging machine learning approaches. The system employs advanced algorithms to analyze dermatological images, aiding in the automated identification of various skin conditions. The foundation of the system involves the compilation of a diverse and comprehensive dataset encompassing images of various skin diseases, textures, and tones. Machine learning models, including Convolutional Neural Networks (CNNs) and Ensemble Learning, are trained on this dataset to recognize intricate patterns and features associated with different skin disorders. These models demonstrate high accuracy in distinguishing between conditions such as eczema, psoriasis, and melanoma, facilitating early detection and intervention. The proposed approach not only enhances diagnostic accuracy but also contributes to the efficiency of healthcare services. Automated skin disease detection reduces the time required for diagnosis, enabling timely medical intervention and improving patient outcomes. Additionally, the system can be integrated into telemedicine platforms, expanding access to dermatological expertise in remote or underserved areas. Continuous learning mechanisms within the machine learning models ensure adaptability to emerging skin disease variants and evolving diagnostic criteria. This adaptability enhances the system's ability to address the dynamic nature of dermatological conditions, staying relevant and effective over time. By

providing a reliable and scalable tool for skin disease detection, this research contributes to the advancement of dermatological care. The integration of machine learning in skin disease diagnosis not only aids healthcare professionals but also empowers individuals to monitor their skin health proactively, promoting early detection and prevention.

SECURE IMAGE COMMUNICATION: MACHINE LEARNING-ENHANCED ENCRYPTION AND DECRYPTION

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ABSTRACT:

With the increasing reliance on digital communication, the need for robust image encryption becomes paramount. This research proposes the development of an innovative image encryption and decryption system leveraging machine learning approaches. The proposed method aims to enhance the security of image transmission and storage, contributing to the protection of sensitive visual information in digital communication channels. This research presents a novel paradigm in image security through the integration of machine learning techniques in the encryption and decryption processes. With the increasing volume of digital imagery shared across networks, ensuring the confidentiality and integrity of sensitive visual information has become paramount. The proposed system utilizes advanced machine learning algorithms to enhance traditional cryptographic methods, providing a robust and adaptable solution for image protection. The encryption phase involves the utilization of machine learning models to dynamically generate encryption keys based on the unique features and patterns within the input image. Convolutional Neural Networks (CNNs) and Generative Adversarial Networks (GANs) are employed to learn complex relationships in image data, ensuring the generation of secure and unpredictable encryption keys. This approach enhances the resistance of the system against brute-force attacks and other conventional cryptographic vulnerabilities. In the decryption process, machine learning models are employed to reconstruct the encryption keys from the encrypted image data. The models, trained on a diverse set of encrypted images, exhibit the ability to adapt to variations in image content and encryption techniques. This adaptability ensures accurate key reconstruction, enabling seamless and secure decryption of the original image.

The integration of machine learning not only strengthens the security of image encryption but also introduces the capability to dynamically evolve cryptographic mechanisms over time. The models continuously learn from new data, adapting to emerging security threats and evolving encryption standards, thereby ensuring the long-term resilience of the system. Furthermore, the proposed approach facilitates the encryption of images with varying content and characteristics, making it applicable to a wide range of visual data. This research contributes to the advancement of image security in the digital era, addressing the escalating need for innovative solutions to safeguard sensitive visual information.

A HYBRID GA-ACO APPROACH FOR DIABETIC ANALYSIS

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ABSTRACT:

Diabetes mellitus, a form of uncontrolled blood sugar, is a major health concern in the medical field. It is a chronic illness that affects people with insufficient insulin production and elevated blood glucose\ levels due to improper physiological utilization of glucose. Predicting the proper diabetes is a crucial area of research in the medical industry, with the goal of developing an effective prediction algorithm to aid physicians in illness diagnosis. Feature selection is a crucial process in predictive systems as it helps identify the pertinent features for categorization. Multiple algorithms were utilized for the categorization of diabetes information. Prior to selection, the features in this suggested work are converted into a high-dimensional space. In order for the change of the features are transformed into high dimensional space before selection. So that the transformation of the features will give the better selection of attributes. With this effort, the proposed work implements the Ant Colony Optimization (ACO) for dimensionality reduction. This will reduce the features. Once the features are transformed, the proposed work] uses Genetic Algorithm (GA) to select the relevant and optimal features from the dataset. Then at the last hybrid algorithm is used as a classifier to classify the diabetes mellitus data. The proposed research on applying feature reduction before feature selection will reduce the irrelevant features that will improve the accuracy of the classification based on the selected relevant features. This proposed algorithm on diabetes mellitus data will compare with the existing algorithms to prove the effectiveness of the algorithm.

CREDIT CARD FRAUD DETECTION USING ROUGH NEURAL NETWORK ALGORITHM

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ABSTRACT:

The internet's ability to create a worldwide online communication channel has led to a rise in credit card fraud, costing consumers and financial institutions billions of dollars each year in lost revenue. Fraudsters are always coming up with novel ways to carry out illicit activities. Therefore, to reduce these losses, creative detection techniques in the fight against fraud are essential. This research provides a hybridization strategy that combines multiple classifiers to detect credit card fraud. As basic classifiers, the crude neural network technique is employed. Together, their predictions aid in producing a final prediction that leads to better detection. With simulation results compared to two other machine algorithms, it is confirmed that this hybrid model, with detection rates of 78% and 90%, can effectively identify credit card fraud.

SIGNATURE VERIFICATION ON BANK CHEQUE USING FEATURE DETECTION ALGORITHM

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ABSTRACT:

An essential component of managing security is authentication. It ranks among the top priorities in the modern period. The emergence of technology has led to an increase in automated machine contact. Recently, there has been a revived interest in signature verification due to the extraordinary spread of the Internet and the growing necessity for personal verification in various applications. Signatures are frequently used for identity verification and personal identification. Verification of signatures is necessary for many documents, including bank checks and legal transactions. Verifying several papers using signatures is a challenging and time-consuming process. As a result, biometric personal verification and authentication systems—which are linked to measurable physical or behavioural traits—have witnessed an exponential growth. As conventional identity verification techniques like tokens and passwords, tokens, pins suffer from some fatal flaws and are incapable to satisfy security necessities; this paper aims to consider more reliable easy biometric feature, signature verification and detection using feature detection algorithms.

DT-PSO HYBRID ALGORITHM FOR HEART DISEASE PREDICTION

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ABSTRACT:

The application of machine learning (ML) in healthcare is growing in popularity, especially as a means of enhancing diagnosis speed and accuracy. By evaluating enormous volumes of medical data, machine learning (ML) can forecast disease, giving patients and healthcare professionals the knowledge they need to prevent sickness. The prognosis and prevention of cardiovascular disease are among the most crucial subjects in clinical data analysis because of the growing expense of care. Because there are so many variables that can influence heart disease risk, it is challenging to determine risk factors by hand. The purpose of this work is to create and evaluate multiple machine learning (ML)-based intelligent systems that predict an individual's risk of heart disease using the publically available Cleveland Heart Disease Data. This paper describes a decision tree algorithm that utilizes a particle swarm optimization (PSO) algorithm for heart disease detection. Methods: The proposed DT-PSO hybrid algorithm and ten different ML algorithms are used in this study to predict heart disease. Various classification metrics are used to evaluate the performance of the algorithms. Results: The proposed DT-PSO outperforms all other algorithms, obtaining an accuracy of 98%. Conclusions: According to our findings, the current DT-PSO classifier enables practitioners to diagnose heart disease earlier, more accurately, and more effectively.

SMS SPAM FILTERING USING ROUGH SET THEORY

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ABSTRACT:

We communicate online through a few different channels. Two or more people can coordinate with each other thanks to digital tools. This communication can take the form of written, spoken, visual, or auditory. These days, smart technologies, such as cell phones, are the main means of communication. Prolonged SMS conversation is also contributing to spamming. Unwanted texts are classified as garbage information that our devices have been sending us. Most businesses use unsolicited spam SMS to advertise their goods and services. Generally speaking, spam emails outweigh real messages in most cases. In this paper, we have used Soft computing technique, rough set theory to define SMS and spam filtering in a short view, which segregates the messages accordingly. Some classification methods along with “machine learning algorithms” to identify how many SMS is spam or not. For that reason, we compared different classified methods such as decision tree, random forest with rough set theory and the result shows that 99% results from rough set theory.

HYBRID APPROACH OF TUMOR DETECTION IN MAMMOGRAM IMAGES BY USING SOFT COMPUTING TECHNIQUES

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ABSTRACT:

In the current era, the pandemic situation medical image processing may struggle with diagnosing the disease so the help of using soft computing techniques in the healthcare industry is very much useful to diagnose the disease, especially in mammogram images easily. Here we introduced the novel approaches of fuzzy-based dimensionality reduction by using soft computing techniques in the mammogram image dataset without loss of information. The efficient morphological operations are used for pre-processing, segmentation, and feature extraction the fuzzy logic and membership function has been used and the decision tree classification is used for classifying the tumors easily.

KEYWORDS: Techniques for feature extraction, fuzzy logic, segmentation, and classification using decision trees.

ENHANCING SECURITY IN RSA ALGORITHM

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ABSTRACT:

The landscape of secure communication is constantly evolving, and cryptographic algorithms must adapt to meet the challenges posed by emerging threats. This research introduces a comprehensive approach to strengthen the security of the RSA encryption algorithm by incorporating three prime variables into the key generation process. The first two variables are random prime numbers generated using Python robust random prime package, while the third variable is derived from the microsecond part of the system clock pulse. Additionally, user authentication mechanisms, implemented with Python Flask, are integrated into the encryption and decryption processes. This multifaceted enhancement aims to fortify RSA against potential vulnerabilities and unauthorized access, providing a more robust cryptographic foundation for secure communication.

KEYWORDS: RSA Algorithm, Cryptography, Encryption and Decryption.

DEEP LEARNING BASED FRAMEWORK FOR AIR POLLUTION PREDICTION

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ABSTRACT:

Air pollution is a significant environmental issue that poses risks to human health, ecosystems, and the quality of life. Accurate prediction of air pollution levels plays a crucial role in making informed decisions for mitigation and adaptation strategies. Traditional air quality prediction methods often rely on complex numerical models that require extensive computational resources and domain expertise. In recent years, deep learning techniques have emerged as powerful tools for solving complex prediction tasks. We propose a novel Deep sequential attention adaptive recurrent network approach based on deep learning to predict air pollution levels. We leverage a prominent air quality dataset obtained from Kaggle source and implement a series of pre-processing steps, including normalization, to ensure data quality. To extract meaningful features, we employ Principal Component Analysis (PCA), which enables us to reduce dimensionality while retaining essential features. For feature selection, we employ Recursive Feature Elimination (RFE) that systematically prunes irrelevant features, enhancing proposed method's efficiency. The classification task is undertaken using the proposed model, which inherently accounts for temporal dependencies in the data. This is particularly important in air quality prediction, where historical patterns play a significant role. To optimize our model's performance, particle swarm optimization (PSO) is employed. This optimization technique aids in fine-tuning model parameters, leading to improved predictive accuracy. The proposed research is carried out on Python tool regarding the prediction of air pollution. The proposed model's efficiency is analyzed in terms of MAE, MSE, R^2 . When compared with other existing methods, our comprehensive approach seeks to elevate air pollution prediction accuracy, contributing to more effective environmental management and public health initiatives.

KEYWORDS: Air Pollution, Deep Learning, Public Health, Deep Sequential Attention Adaptive Recurrent Network, Particle Swarm Optimization (PSO), Recursive Feature Elimination (RFE).

MODIFIED HILL CIPHER ALGORITHM

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ABSTRACT:

This study focuses on enhancing the security of the Hill Cipher cryptographic algorithm by introducing a novel approach to encryption and decryption processes. In the encryption phase, a fixed 3x3 matrix is employed, augmented by a dynamic shifted function. The use of this fixed matrix, combined with the shifting mechanism, aims to fortify the encryption process, ensuring a robust defense against potential threats. The shifted function introduces an element of variability, making it more challenging for unauthorized entities to decipher the encrypted text. The study explores the implications of this modified Hill Cipher in terms of data protection and transmission security, offering a valuable contribution to the field of cryptographic techniques.

KEYWORDS: Hill Cipher Cryptography Algorithm, Cryptography, Encryption and Decryption.

RECENT REVIEW OF APPLICATIONS OF ANT COLONY ALGORITHM

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ABSTRACT:

Path planning is a significant area of mobile robot research, and the ant colony optimization algorithm is essential for analysing path planning. However, the current ant colony optimization algorithm functional to the path planning of mobile robots still has some limitations, including early blind search, slow conjunction speed, and more turns. To overwhelm these problems, an improved ant colony optimization algorithm is proposed in this paper. In the upgraded algorithm, we introduce the idea of triangle disparity and a pseudo random state transfer strategy to enhance the supervision of target points and improve the search efficiency and quality of the algorithm. To avoid the ants from getting into a deadlock state, we introduce a backtracking mechanism to enable the ants to explore the solution space better. Finally, to verify the effectiveness of the proposed algorithm, the algorithm is compared with 11 present methods for solving the robot path planning problem, including several ACO variants and two commonly used algorithms and the experimental results show that the improved ACO algorithm can plan paths with faster convergence, shorter path lengths, and higher smoothness. Specifically, the algorithm produces the shortest path length with a standard deviation of zero while ensuring the most rapid merging and the highest smoothness in the case of the shortest path in four different grid environments. These experimental results validate the effectiveness of the proposed algorithm in path planning

KEYWORDS: Ant Colony Optimization, Backtracking Method, Partitioning Method, Path Planning.

EFFECTIVE VERNAM CIPHER ALGORITHM WITH RANDOM CHARACTER KEY GENERATOR

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ABSTRACT:

The Vernam-cipher is known as a one-time pad of algorithm that is an unbreakable algorithm. It uses a random key equal to the length of data to be coded, and a component of the text is encrypted with an element of the encryption key. In this, we propose a novel technique to overcome the obstacles that hinder the use of the Vernam algorithm. First, generating random character to form dynamic key which is used for both encryption and decryption process. Second, the Vernam and Shift row are used to hide the encrypted text; third, sending the email of encrypted text to that particular end user thus, the protection record becomes very high. The experiments demonstrate the flexibility of our method, and it's successful without losing any information.

KEYWORDS: Vernam - Chipper, Encryption and Decryption.

IOT BASED REVOLUTIONIZING HEALTHCARE SURVEILLANCE

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ABSTRACT:

The Internet of Things (IoT) is transforming the world in many ways. Wearable devices are becoming increasingly popular due to the availability of sensors, Wi-Fi networks, and Internet connectivity. All of these elements have contributed to the emergence of IoT in everyday life and in many economic sectors, especially medical imaging being one of them. Medical imaging workers' jobs can be automated and streamlined with the help of IoT. The number of Medical image IoT devices installed is expected to grow from around 98 million in 2017, to 676 million by 2022. In 2013, the market size was estimated at USD 57, 4 billion, and it is expected to grow to more than USD 420 billion by 2022. IoT devices will continue to impact the Medical imaging sector in the years to come. IoT devices are redefining the way people connect while delivering the solutions for medical imaging. There are several uses for IoT in medical imaging that benefit doctors, hospitals and insurance companies as well as families and patients. Wearable medical monitoring equipment has a wide range of benefits and drawbacks. In this article, we look at the medical imaging monitoring equipment that are essential for IoT integration in medical image processing systems.

KEYWORDS: IOT, Wi-Fi Networks, Internet Connection and Medical Image.

A REVIEW ON EXPLORING STEM ROBOTICS EDUCATION IN TAMIL NADU

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ABSTRACT:

STEM is an acronym for Mathematics, Science, Technology, and Engineering. A curriculum built around these fields called STEM Education has become more and more well-liked because of its creative approaches to pressing global issues. This kind of instruction goes beyond only studying abstract concepts. Actually, it teaches the child how to apply the skills they have learned in these areas to real-world situations. In order to foster the intelligence and talent of the next generation of students, countries such as China, Japan, Russia, and the United States of America organized robotic competitions for secondary school STEM subjects. Robotics helps learners transform abstract scientific, engineering, and technological concepts into concrete ones for the understanding real-world environment. This study examined the viability of incorporating robotics into STEM subjects using quantitative research methods. In order to foster the intelligence and talent of the next generation of students, countries such as China, Japan, Russia, and the United States of America organized robotic competitions for secondary school STEM subjects. Robotics helps learners transform abstract scientific, engineering, and technological concepts into concrete ones for the understanding real-world environment. In order to support classroom instruction in secondary schools, this study examined the viability of incorporating robotics into STEM education through quantitative research. Starting in November 2022, the Tamil Nadu government will be introducing its "STEM on Wheels" program at government schools. The goal of the strategy is to give middle school kids access to mobile labs so they can comprehend STEM subjects better.

AN EFFICIENT DEEP CLASSIFIER FOR ORAL CANCER USING CONVOLUTIONAL NEURAL NETWORK

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ABSTRACT:

One of the deadliest and most irrecoverable disease which occurs on the mouth is oral cancer or oral cavity cancer. The principal risk factors for causing oral cancer are Human Papilloma Virus infection (HPV), overuse of tobacco, cigarettes and heavy alcohol etc. Early detection of oral cancer is vital because it probably prevents the progression of the disease as well as its impacts. In this work, Convolutional Neural Network is used for the prediction of oral cancer using Mendeley oral dataset. The experimental results shows that the accuracy of CNN model was higher than the existing classifiers based on the various measures.

KEYWORDS: Oral Cancer Detection, Convolutional Neural Network, Image Augmentation, Segmentation.

IOT SECURITY USING MACHINE LEARNING TECHNIQUES AND THEIR PROSPECTS

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ABSTRACT:

This study examines the use of machine learning models in IOT detection by examining the methodology's effectiveness on individual observations across various contexts. By examining how the method functions on individual observations in various settings, this research explores the use of machine-learning models in IOT detection. With the use of a range of sensors, billions of smart objects, or "Things," as they are generally called, are able to gather a multitude of data about themselves and their surroundings. Then, for a number of purposes, including the management and oversight of industrial services or the expansion of business services or operations, they can share data with parties that have been granted permission to do so. That being said, there are currently greater security risks related to the Internet of Things more so than before. Recent important technological advancements in the field of machine learning (ML) have opened up a number of new research avenues that could be used to address current and future Internet of Things-related problems. However, machine learning is a powerful technology that may identify questionable actions and threats in smart grids and gadgets. The research did a thorough analysis of the literature on machine learning techniques and the importance of Internet of Things security in light of several kinds of possible assaults. Next, they evaluated a number of distinct machine learning algorithms in terms of their ability to identify anomalies and assaults. Furthermore, a number of machine learning-based Internet of Things security technologies have been showcased.

KEYWORDS: Internet of Things, Cyberattacks, Machine Learning, Security.

LUNG DISEASES CLASSIFICATION BY ANALYSIS OF LUNG TISSUE DENSITIES

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ABSTRACT:

Lung cancer is a sort of dangerous cancer and difficult to detect. It usually causes death for both gender men & women therefore, so it is more necessary for care to immediately & correctly examine nodules. Accordingly, several techniques have been implemented to detect lung cancer in the early stages. In this process a comparative analysis of different techniques based on machine learning for detection lung cancer have been presented. There have been too many methods developed in recent years to diagnose lung cancer, most of them utilizing CT scan images. In addition, multiple classifier methods are paired with threshold segmentation algorithms to use image recognition to identify lung cancer nodules. From this study it has been found that CT scan images are more suitable to have the accurate results. Therefore, mostly CT scan images are used for detection of cancer. Also, marker-controlled threshold segmentation provides more accurate results than other segmentation techniques. In Addition, the results that obtained from the methods based deep learning techniques achieved higher accuracy than the methods using classical machine learning techniques. The deep learning algorithm is implemented and predict the result based on accuracy, precision, recall and f1 score.

JOINT WATER MARKING - ENCRYPTION - JPEG - LS FOR MEDICAL IMAGE RELIABILITY CONTROL IN ENCRYPTED AND COMPRESSED DOMAINS

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ABSTRACT:

With the rapid development of network media, increasing research on reversible watermarking has focused on improving its robustness to resisting attacks during digital media transmission. There are some other reversible watermarking schemes that work in the encrypted domain for preserving the privacy of the cover image. The robustness of the watermarking and the privacy preserving of the cover image have become the key factors of reversible watermarking. However, there are few robust reversible watermarking schemes in the encrypted domain that could resist common attacks (such as JPEG compression, noise addition) and preserve privacy at the same time. In addition, the embedding capacity of a robust watermark and the efficiency of the encryption method must be considered. Recently, cloud computing technology has led to the rapid growth of network media, and many multimedia properties are owned by multiple parties, such as a film's producer and multiple distributors. Multiparty watermarking has become an important demand for network media to protect all parties' rights. In this paper, a Robust Reversible Watermarking scheme in Encrypted Image with Secure Multi-party (RRWEI-SM) based on lightweight cryptography is first proposed. Additive secret sharing and block level scrambling are developed to generate the encrypted image. Then, the robust reversible watermarking based on significant bit Prediction Error Expansion (PEE) is performed by Secure Multiparty Computation (SMC). For applications with high robustness, a Modified RRWEI-SM is proposed by exploiting a two-stage architecture. Furthermore, both the RRWEI-SM scheme and Modified RRWEI-SM scheme are separable and can be applied to multiparty copyright protection. The experimental results and theoretical analysis demonstrate here that the RRWEI-SM and the Modified RRWEI-SM are secure, robust and effective.

DEEP CONCATENATED RESIDUAL NETWORK WITH BIDIRECTIONAL LSTM FOR ONE -HOUR - AHEAD WIND POWER FORECASTING

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ABSTRACT:

Early fault detection in power electronic systems (PESs) to maintain reliability is one of the most important issues that has been significantly addressed in recent years. Fault detection in PESs, data mining-based techniques including artificial neural network, machine learning, and deep learning algorithms are introduced. Electrical energy has become an influential factor in the scientific, economic and welfare fields of human daily life. In recent years, the expansion of electrical energy applications and the increase of electrical energy consumers have made distributed generation (DGs) dramatically replace traditional power systems. Then, the fault detection routine in PESs is expressed by introducing signal measurement sensors and how to extract the feature from it. Finally, based on studies, the performance of various data mining methods in detecting PESs faults is evaluated. The results of evaluations show that the deep learning-based techniques given the ability of feature extraction from measured signals are significantly more effective than other methods and as an ideal tool for future applications in power electronics industry are introduced. The system is developed the different classification algorithm such as artificial neural network and random forest for predicting or detecting the fault in power systems effectively.

APPLICATION AND CONSTRUCTION OF DEEP LEARNING NETWORKS IN MEDICAL IMAGING

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ABSTRACT:

The brain tumor is a cluster of the abnormal tissues, and it is essential to categorize brain tumors for treatment using Magnetic Resonance Imaging (MRI). The segmentation of tumors from brain MRI is understood to be complicated and also crucial tasks. It can be further use in surgery, medical preparation, and assessments. In addition to this, the brain MRI classification is also essential. The enhancement of machine learning and technology will aid radiologists in diagnosing tumors without taking invasive steps. In this process, the method to detect a brain tumor and classification has been present. Brain tumor detection processes through pre-processing, and tumor segmentation. As a result of this advantage, DL has been successfully applied within the medical imaging field to address problems, such as disease classification and tumor segmentation for which it is difficult or impossible to determine which image features are relevant. The tumorous brain MRI is segmented using CNN based VGG19_U-NetPlusPlus architecture. The performance of this approach is evaluated by loss, and accuracy metrics.

IMAGE DENOISING VIA SEQUENTIAL ENSEMBLE LEARNING

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ABSTRACT:

Image denoising is about removing noise from image. Deep learning techniques have received much attention in the area of image denoising. However, there are substantial differences in the various types of deep learning methods dealing with image denoising. Image denoising is about removing measurement noise from input image for better signal-to-noise ratio. In recent years, there has been great progress on the development of data driven approaches for image denoising, which introduce various techniques and paradigms from machine learning in the design of image denoisers. In addition, image denoising plays an important role in many image recovery tasks. In our process, the input data as BSD68 dataset is taken from the dataset repository. The system is developed the SRCNN (Super Resolution Convolutional Neural Network) can effectively enhance the performance of image denoising for all input images. The results show that the performance in terms of quantitative metrics such as PSNR, MSE and SSIM. Then, the result will shows that the PSNR, MSE and SSIM values for all degraded images (i.e) denoising images and output images (i.e) SRCNN.

A DEEP LEARNING MODEL FOR SMART MANUFACTURING USING CONVOLUTIONAL LSTM NEURAL NETWORK AUTO ENCODERS

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ABSTRACT:

Smart manufacturing integrates big data, advanced analytics, high-performance computing, and the industrial Internet of things to manufacturing systems and industries to improve manufacturing processes, resulting in better quality products that are available at lower costs. Time-series forecasting is applied to many areas of smart factories, including machine health monitoring, predictive maintenance, and production scheduling. Data-driven techniques for predictive analytics in smart manufacturing can be classified as (traditional) ML techniques and deep learning (DL) techniques. The model comprises a deep convolutional LSTM encoder-decoder architecture. LSTM auto encoder architecture has been proposed for machine speed prediction in a smart manufacturing process. The auto encoder is a feed forward neural network in which the input is the same as the output. In other words, auto encoders are (unsupervised) learning algorithms that extract features from input data without the need for labeled target datasets. The experimental results shows that the some performance metrics such as RMSE, MAE, MSE and SMAPE.

DEPRNET: A DEEP CONVOLUTION NEURAL NETWORK FRAMEWORK FOR DETECTING DEPRESSION USING EEG

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ABSTRACT:

Depression is a common reason for an increase in suicide cases worldwide. Thus, to mitigate the effects of depression, accurate diagnosis and treatment are needed. An electroencephalogram (EEG) is an instrument used to measure and record the brain's electrical activities. It can be utilized to produce the exact report on the level of depression. Previous studies proved the feasibility of the usage of EEG data and deep learning (DL) models for diagnosing mental illness. The symptoms of depression are reflected in the behaviour of the patient. Hence, doctor's conduct talking sessions and use questionnaires as screening tools for determining the level of depression. Therefore, this study proposes a DL-based convolutional neural network (CNN) called DeprNet for classifying the EEG data of depressed and normal subjects. The proposed system is developed the deep learning algorithm such as convolutional neural network (CNN). The system is developed the EEG depression dataset and analyse the patient is positive, negative or neutral. The experimental results shows that the confusion matrix, accuracy, precision, recall and f1-score.

MULTI - TASK LEARNING AT THE MOBILE EDGE: AN EFFECTIVE WAY TO COMBINE TRAFFIC CLASSIFICATION AND PREDICTION - COMMUNICATION

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ABSTRACT:

By combining a mechanism to lessen and balance the energy consumption of the sensor nodes with a GWO algorithm, balanced-static clusters are created. Finally, by merging a back-off timer mechanism for CH selection and a rotation mechanism for CH rotation, cluster heads (CHs) are picked in ideal positions with rotation of the CH function among cluster members based on a new CH selection-rotation algorithm. IEECP is appropriate for networks that need to last for a long period since it improves the clustering structure, which in turn lowers and balances the energy consumption of nodes. The evaluation's findings demonstrate that the IEECP outperforms current methods. In low-energy adaptive clustering hierarchy (LEACH) technique-based particle swarm optimization (GWO). In proposed employs hybrid GWO and a K-means clustering algorithm for cluster formation. It selects the primary CH (PCH) and secondary CH (SCH) using FL. Extensive simulations were conducted using a simulation program to validate the proposed protocol's performance. The results confirmed that the proposed protocol efficiently balances energy consumption to improve wireless sensor network performance and to maximize throughput.

VOICE BASED VIRTUAL ASSISTANT

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ABSTRACT:

The voice assistant we have developed is a desktop-based built using python modules and libraries. This assistant is just a basic version that could perform all the basic tasks which have been mentioned above but current technology is although good in it is still to be merged with Machine Learning for better classifications. Hence in this process, we developed a system which recognize the voice from the dataset and then the corresponding response will be done. The process works on three stages like, pre-processing, feature extraction and classification. Based on the above mentioned steps. The process recognize the voice and then the response is done.

VEHICLE DETECTION USING CONVOLUTIONAL NEURAL NETWORK

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ABSTRACT:

UAV-based aerial imagery presents several advantages as compared to satellite imagery. In fact, UAV imagery has a much lower cost and provides more updated views (many satellite maps are several months old and do not present recent changes). In addition, it can be used for real-time image/video stream analysis in a much more affordable means. Aerial images have different resolutions as compared to satellite images. This paper addresses the problem of car detection from aerial images using Convolutional Neural Networks (CNNs). This problem presents additional challenges as compared to car (or any object) detection from ground images because the features of vehicles from aerial images are more difficult to discern. Unmanned aerial vehicles (UAVs) are nowadays a key enabling technology for a large number of applications such as surveillance , tracking , disaster management ,smart parking , and Intelligent Transportation Systems, to name a few. The system is developed the deep learning algorithm for classifying the image and YOLO is used for detect the vehicle from the input aerial images.

RAIN FALL PREDICTION USING MACHINE LEARNING

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ABSTRACT:

Rainfall prediction is one of the challenging tasks in weather forecasting. Accurate and timely rainfall prediction can be very helpful to take effective security measures in advance regarding: on-going construction projects, transportation activities, agricultural tasks, flight operations and flood situation, etc. Data mining techniques can effectively predict the rainfall by extracting the hidden patterns among available features of past weather data. This research contributes by providing a critical analysis and review of latest data mining techniques, used for rainfall prediction. In our proposed system we propose a new forecasting method that uses a SVR and Linear regression to forecast monthly rainfall for a selected location. To our knowledge, this is the first time applying a SVR in forecasting monthly rainfall. In our proposed system we are going to forecast the rainfall result based on the mean square error, mean absolute error and root mean square error, which we get in train and test of the dataset based Linear regression and SVR algorithm.

PREDICTIVE ANALYSIS FOR BIG MART SALES USING MACHINE LEARNING ALGORITHMS

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ABSTRACT:

Currently, supermarket run-centres, Big Marts keep track of each individual item's sales data in order to anticipate potential consumer demand and update inventory management. Anomalies and general trends are often discovered by mining the data warehouse's data store. For retailers like Big Mart, the resulting data can be used to forecast future sales volume using various machine learning techniques like big mart. A predictive model was developed using Ridge, Linear and Support Vector regression techniques for forecasting the sales of a business such as Big -Mart, and it was discovered that the model outperforms existing models.

MEDICINAL PLANT DISEASE CLASSIFICATION USING DEEP LEARNING

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ABSTRACT:

Today, with the development of technology, most manual methods are replaced by automated computer systems for the easiness of human beings. Plant identification and disease classification are two major agricultural research areas, focusing on introducing computerized systems rather than manual methods. Millions of plant species are in the world and play a significant role in human life. Among all the types of plants, medicinal plants play an essential role in the traditional medical field because herbal plants can heal humans. Medicinal plants grow naturally around us. Over centuries, cultures around the world have learned how to use plants to fight illness and maintain health. These readily available and culturally important traditional medicines form the basis of an accessible and affordable health-care regime and are an important source of livelihood for indigenous and rural populations. To achieve this goal, we evaluated the performance of two common pretrained deep learning models (VGG19 and ResNet50) and compared their accuracy levels. Finally, the system can estimate some performance metrics such as accuracy and error rate for both algorithms and compare the algorithms based on accuracy in the form of graph.

IDENTIFICATION OF DRUG DISCOVERY FOR PATIENTS USING MACHINE LEARNING

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ABSTRACT:

Deep learning places a very important role in the identification. Drug discovery is the first step in the drug development process to identify drug candidates for future research in clinical trials. The process of drug discovery and generation using traditional methods takes several years. The complexity of drug development has increased over the years. This paper aims at exploring various methods used to generate and validate drugs. The review of this paper starts with a brief history of how drugs are generated. We have also discussed some drug discovery processes. In this paper an Identification of drug for medicine preparing machines has been proposed. In general, medicine name contains large characters in the medicine box; the drug identification can be converted into the largest character identification in the image in this proposed system. Firstly, Support Vector Machine (SVM) is used with Connected Component to recognize the text region which intern finds largest region to identify the drug name. Later Fragment Link is used for text division purpose that is it helps to divide the drug name into two elements. Those elements are Fragment and Link which join the full word according to the rules. For identification Convolutional neural network software is used.

GRAPE LEAF DISEASE DETECTION AND CLASSIFICATION USING MACHINE LEARNING

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ABSTRACT:

Grapes (*Vitis Vinifera*) Is Basically A Sub-Tropical Plant Having Excellent Pulp Content, Rich Color And Is Highly Beneficial To Health. Generally, It Is Very Time-Consuming And Laborious For Farmers Of Remote Areas To Identify Grapes Leaf Diseases Due To Unavailability Of Experts. Though Experts Are Available In Some Areas, Disease Detection Is Performed By Naked Eye Which Causes Inappropriate Recognition. An Automated System Can Minimize These Problems. The Disease On The Grape Plant Usually Starts On The Leaf And Then Moves Onto The Stem, Root And The Fruit. Once The Disease Reaches The Fruit The Whole Plant Gets Destroyed. The Approach Is To Detect The Disease On The Leaf Itself In Order To Save The Fruit. In Our Proposed System We Have Used A Deep Learning Model Named Convolutional Neural Network and Recurrent Neural Network. The Hue Saturation Value (HSV) Is Applied And Find the Diseased Region from Leaf Image. The Image Dataset Is Consists Of Images Of Diseases Named Powdery Mildew, Downy Mildew, Rust, Leaf Blight, Black Rot, ESCA, Pierce And Anthracnose. The Deep Learning Algorithm Is Used to Detect the Sick's From the Grape Leaf Images and Find the Result Based on Accuracy.

FAKE JOB RECRUITMENT DETECTION USING MACHINE LEARNING APPROACH

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ABSTRACT:

To prohibit privacy and loss of money for individuals and organization by creating a reliable model which can detect the fraud exposure in the recruitment environments? The major contribution represented in a reliable detection model using ensemble approach based on Random forest classifier to detect Fake Job Recruitment. The automated tool using machine learning based classification techniques. Different classifiers are used for checking fraudulent post in the web and the results of those classifiers are compared for identifying the best employment scam detection model. It helps in detecting fake job posts from an enormous number of posts. The experimental results indicate that ensemble classifiers are the best classification to detect scams over the single classifiers.

BIRD SPECIES CLASSIFICATION USING DEEP LEARNING AND IMAGE PROCESSING

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ABSTRACT:

Birds are the warm-blooded vertebrates constituting of class Aves, there are lot of living species of birds in the world with multifarious characteristics and appearances. Bird watching is often considered to be an interesting hobby by human beings in the natural environment. The human knowledge over the species isn't enough to identify a species of bird accurately, as it requires lot of expertise in the field of Ornithology. By considering this, we proposed the process based on the deep neural networks which automatically identifies the species of a bird given as the test data set. The model was trained and tested for the dataset images for train and test respectively and the model has shown a promising accuracy and sensitivity.

BREAST CANCER DETECTION BASED ON DEEP LEARNING TECHNIQUE

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ABSTRACT:

Breast cancer continues to be among the leading causes of death for women and much effort has been expended in the form of screening programs for prevention. Given the exponential growth in the number of mammograms collected by these programs, computer-assisted diagnosis has become a necessity. Computer-assisted detection techniques developed to date to improve diagnosis without multiple systematic readings have not resulted in a significant improvement in performance measures. In this context, the use of automatic image processing techniques resulting from deep learning represents a promising avenue for assisting in the diagnosis of breast cancer.

FAKE INSTAGRAM PROFILES PREDICTION BY USING MACHINE LEARNING

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ABSTRACT

The majority of people now use social networking sites as part of their everyday lives. Every day, a vast number of people build profiles on social networking sites and connect with others, regardless of their place or time. False identities play an important role in advanced persisted threats and are also involved in other malicious activities. Users of social networking sites not only profit from them, but they also face security concerns about their personal details. To assess who is promoting threats in social networks, we must first identify the users' social network profiles. It is necessary to differentiate between genuine and fake accounts on social media based on the classification. Detecting fake accounts on social media has historically focused on a number of classification methods. However, it is possible to boost the accuracy of fake profile identification in social media. Machine learning and technology is used in the proposed work to increase the percentage of fake profile prediction. In feature selection model chi-square algorithm is applied and choose best data. In classification method the various machine learning algorithms are implemented, the algorithms are XGBoost, Logistic Regression, K Nearest Neighbor and Random Forest algorithm. The classification result based on accuracy, precision, recall, f1-score, sensitivity and specificity. Fake account prediction Data Mining field concentrate on Prediction more often as compare to generate exact results for future purpose.

MEDICAL IMAGE ENCRYPTION FOR AUTOMATED COMPUTING HEALTHCARE

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ABSTRACT

There exists a rising concerns on security of healthcare data and service. Even small lost, stolen, displaced, hacked or communicated in personal health data could bring huge damage to patients. Therefore, we propose a process of Medical image Encryption and Decryption, thus guaranteeing privacy and promoting secure healthcare environment. The proposed system consists of sender and receiver to perform tasks of encryption and decryption respectively, where both contain the same structure design but perform opposite operations. Before encryption of image we have done encoding and decoding. Encoding is the process of putting a sequence of characters into a specialized format for efficient transmission or storage. Decoding is the opposite process, the conversion of an encoded format back into the original sequence of characters. The design of effectively security for the communication of the image is done by using AES algorithm for encryption and decryption. The goal of this work is to develop a more secure image encryption technique for image-based communication. This research takes a step towards encrypting augmented reality content by implementing the modified Hill cipher encryption approach.

IOT BASED NETWORK INTRUSION DETECTION SYSTEMS BY USING MACHINE LEARNING TECHNIQUES

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ABSTRACT

Internet of Things (IoT) is promising technology that brings tremendous benefits if used optimally. At the same time, it has resulted in an increase in cyber security risks due to the lack of security for IoT devices. Enhancing Network Intrusion Detection Systems (NIDS) with supervised Machine Learning (ML) is tough. MLNIDS must be trained and evaluated, operations requiring data where benign and malicious samples are clearly labelled. We demonstrate the design, implementation, and evaluation of Citrus: a network intrusion detection framework which is adept at tackling emerging threats through the collection and labelling of live attack data by utilizing diverse Internet vantage points in order to detect and classify malicious and benign attacks. We are implementing machine learning algorithm (KNN) our proposed random forest algorithm give high accuracy and prediction.

CLASSIFICATION OF DIABETIC PREDICTION BY USING MACHINE LEARNING TECHNIQUES

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ABSTRACT

Diabetes, also known as chronic illness, is a group of metabolic diseases due to a high level of sugar in the blood over a long period. The risk factor and severity of diabetes can be reduced significantly if the precise early prediction is possible. Machine learning (ML) has been shown to be effective in assisting in making decisions and predictions from the large quantity of data produced by the healthcare industry. We have also seen ML techniques being used in recent developments in different areas of the Internet of Things (IoT). Various studies give only a glimpse into predicting diabetes with ML techniques. The prediction model is introduced with different combinations of features and several known classification techniques. The system is developed based on classification algorithms includes Random Forest, Logistic Regression, Gradient Boosting and Artificial Neural Network algorithms have been used. The performance measuring metrics are used for assessment of the performances of the classifiers. The performances of the classifiers have been checked on the selected features as selected by features selection algorithms.

IOT BASED PLANTS DISEASES PREDICTION BY USING DEEP LEARNING

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ABSTRACT

Crop plant diseases are a significant threat to productivity and sustainable development in agriculture. Early prediction of disease attacks is useful for the effective control of the disease by taking proactive actions against their attacks. Modern Information and Communication Technologies (ICTs) have a predominant role in Precision Agriculture (PA) applications to support sustainable developments. There is an immense need for solutions for the early prediction of the disease attack for proactive control against the plant disease attack. The present solution of disease detection using the computer vision approach can only detect the existence of the disease once the disease has already appeared. This study aims to propose a Machine Learning (ML) approach for the early prediction of the probability of disease attack based on Internet of Things (IoT) directly sensed crop field environmental conditions. Plant disease life cycles are strongly correlated with environmental conditions. The crop field environmental conditions are used to predict the occurrence of plant diseases.

The Multiple Linear Regression (MLR) is applied as the ML model due to the existence of a linear relationship between disease attack and environmental conditions. Internet of Things (IoT) based crop field environmental conditions help to accurately predict the occurrence of plant diseases using the ML approach. Now we are living in an era where the problem regarding agriculture is a major issue nowadays. The major problem in crop growth is we have to take care of the health of the plants and crops. Agriculture is one field which has a high impact on life and economic status of human beings. Improper management leads to loss in agricultural products. This process is to detect the plant leaf disease detection using the deep neural network the alternative of Densenet121 neural network.

This can easily detect the disease of plant leaf. First select the plant village dataset and apply into pre-processing method. In this part it is very useful to identify the disease, then it will process into model selection and classification. In classification it will train the dataset and the disease can analyse and show the status of plant leaf that is healthy or unhealthy.

DATA MINING CLASSIFICATION OF SOIL PREDICTION

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ABSTRACT

Grouping soils by their intrinsic property (soil morphology), behavior, or genesis, results in classes that can be interpreted for many diverse uses. Differing concepts of pathogenesis and differences in the significance of morphological features to various land uses can affect the classification approach. This is in contrast to a technical system approach to soil classification, where soils are grouped according to their fitness for a specific use and their edaphic characteristics. By using Fuzzy classification member function process can iterate the system accuracy.

INJURY PREDICTION BY USING MACHINE LEARNING TECHNIQUES

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ABSTRACT

The needs to ground construction safety-related decisions under uncertainty on knowledge extracted from objective, empirical data are pressing. Although construction research has considered machine learning (ML) for more than two decades, it had yet to be applied to safety concerns. We applied two state-of-the-art ML models, Random Forest (RF) and Stochastic Gradient Tree Boosting (SGTB), to a data set of carefully featured attributes and categorical safety outcomes, extracted from a large pool of textual construction injury reports. The construction dataset was taken from dataset repository. The system is developed the different machine learning algorithm for predicting the construction injury effectively. The experimental results shows that the accuracy, precision, recall and f1 score.

THYROID PREDICTION BY USING MACHINE LEARNING APPROACH AT EARLY STAGES OF DIAGNOSIS

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ABSTRACT

Classification based Machine learning plays a major role in various medical services. In medical field, the salient and demanding task is to diagnose patient's health conditions and to provide proper care and treatment of the disease at the initial stage. Recently, thyroid diseases are more and more spread worldwide. In Romania, for example, one of eight women suffers from hypothyroidism, hyperthyroidism or thyroid cancer. Various research studies estimate that about 30% of Romanians are diagnosed with endemic goiter. Factors that affect the thyroid function are: stress, infection, trauma, toxins, low- calorie diet, certain medication etc. It is very important to prevent such diseases rather than cure them, because the majority of treatments consist in long term medication or in surgical intervention. The current study refers to thyroid disease classification in two of the most common thyroid dysfunctions (hyperthyroidism and hypothyroidism) among the population. The main goal is to recognize the disease at the early stages with a very high correctness. Machine learning techniques play a major role in medical field for making a correct decision, proper disease diagnosis and also saves cost and time of the patient. The purpose of this study is prediction of thyroid disease using classification. The system is developed the different machine learning algorithm such as k nearest neighbour and decision tree for predicting and classifying the thyroid effectively. The experimental results shows that some performance metrics such as accuracy, precision, specificity and sensitivity.

MULTIPLE DISEASE PREDICTION USING CONVOLUTION NEURAL NETWORK

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ABSTRACT

In recent years, the development of artificial intelligence (AI) and the gradual beginning of AI's research in the medical field have allowed people to see the excellent prospects of the integration of AI and healthcare. Among them, the deep learning field has shown greater potential in applications such as disease prediction. Today, the accuracy of medical disease prediction has been continuously improved, and the performance in all aspects has also been significantly improved. This article introduces some basic deep learning frameworks and some common diseases, and summarizes the deep learning prediction methods corresponding to different diseases. Point out a series of problems in the current disease prediction, and make a prospect for the future development. It aims to clarify the effectiveness of deep learning in disease prediction, and demonstrates the high correlation between deep learning and the medical field in future development. The unique feature extraction methods of deep learning methods can still play an important role in future medical research. Here, we are collected the different images such as glaucoma (types), breast cancer and Alzheimer disease. Here, we are developed the DL algorithms for predicting the different disease and its types by using CNN.

LUNG CANCER PREDICTING BY USING MACHINE LEARNING TECHNIQUES

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ABSTRACT

Cancer is the most important cause of death for both men and women. The early detection of cancer can be helpful in curing the disease completely. So the requirement of techniques to detect the occurrence of cancer nodule in early stage is increasing. A disease that is commonly misdiagnosed is lung cancer. Earlier diagnosis of Lung Cancersaves enormous lives, failing which may lead to other severe problems causing sudden fatal end. Its cure rate and prediction depends mainly on the early detection and diagnosisof the disease. To design a model that can be useful in early identification and predictionof a lung diseases have become a necessity in the research, as it can facilitate the subsequent clinical management of patients. Here, we establish a diagnostic tool based on a machine-learning framework for the screening of patients with common treatable blinding retinal diseases. For such purpose, we employ the machine learning techniques and machine learning approaches to train the data and evaluate the efficiency of our proposed method. Machine learning techniques have been used for achieving analytical results which is one of the instruments utilized in cancer prediction. The machine learningalgorithms are utilized and assessed using distinctive evaluation measures such as recall, precision, F-measure accuracy and confusion matrix.

NAVIGATION TOOLS FOR THE VISUALLY IMPAIRED: A TECHNOLOGICAL OVERVIEW

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ABSTRACT

The concern for developing navigation tools tailored for individuals with visual impairments has garnered significant attention within the field of assistive technologies. The relentless pursuit of enhancing accessibility for individuals with visual impairments has led to the development of camera-based systems designed to interpret text patterns on objects held in hand. This paper provides a comprehensive review of various methods and tools employed in these systems, aiming to empower the blind by translating text patterns into audio output. The research community proposed new framework by capturing an image using a camera, focusing on the targeted area to identify and retrieve the object from the context. From this object, a text pattern is extracted using different algorithms, each assessed in various scenes to ensure adaptability. The development of camera-based systems for text interpretation represents a significant stride in assisting individuals with visual impairments. By seamlessly translating text patterns into audio output, this technology contributes to fostering independence and inclusivity for the visually impaired community. The ongoing advancements in algorithms and image processing techniques continue to refine these systems, promising a brighter future for accessible assistive technologies.

Keywords: Blind and Visually Impaired; Machine Learning; Deep Learning; Assistive Tools; Assistive Technology.

AN ANALYTICAL INVESTIGATION USING A MACHINE LEARNING ALGORITHM TO IDENTIFY AND CLASSIFY PLANT LEAF IMAGES

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ABSTRACT:

Plant image classification using deep learning can be a challenging task due to the complexity and variability of plant appearance. However, with the advancements in deep learning techniques, it is now possible to achieve high accuracy in classifying plant species using images. In the existing method, the plant image classification illustration with traditionally handcrafted features is to expose its complicated structure and texture. In this we proposed a novel plant image classification technique is based totally on Convolutional Neural Networks (CNN) due to its effectively functionality of characteristic extraction and classification. The visualization was once utilized for analyzing the factors influencing the accuracy rate. Here are the general steps for building a plant image classification model using deep learning, collect and pre-process the plant image dataset, the first step is to gather a dataset of plant images that are labeled with their corresponding plant species. This dataset should be diverse and representative of the different plant species. Preprocessing of the images can involve resizing, cropping, and normalization. Split the dataset into training, validation, and test sets, the training set is used to train the model, the validation set is used to tune hyperparameters and prevent overfitting, and the test set is used to evaluate the final model's performance. Build the deep learning model, the next step is to choose a suitable deep learning architecture and build the model, Convolutional Neural Networks (CNNs) are commonly used for image classification tasks. Transfer learning, where a pre-trained CNN is used as a base and Fine-Tuned for the plant image dataset, can also be used to improve model performance. During training, the model learns to recognize patterns in the images and assigns probabilities to each plant species. The final step is to test the model using the test set. The model's accuracy is evaluated based on its ability to correctly classify the test images. Once the model is trained and tested, it can be deployed for real-world applications. This can involve integrating the model into a mobile app, web service, or other software system.

KEYWORDS: Plant Image Classification, Image Processing, Feature Extraction, Pattern Recognition, Machine Learning.

COMPETENCE OF MACHINE AND DEEP LEARNING IN THE PITCH OF CYBER SECURITY

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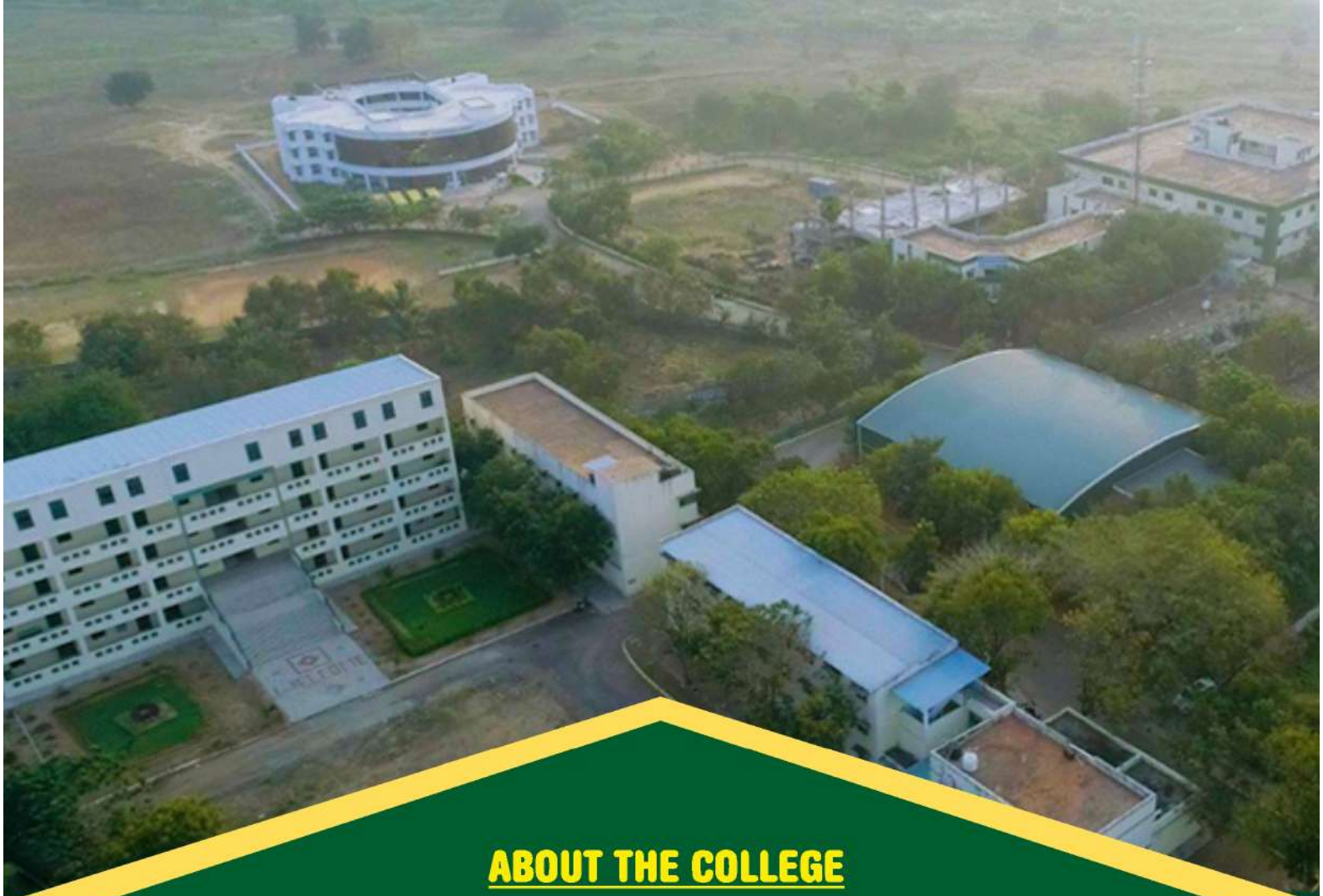
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ABSTRACT

Cyber security has been widely recognized, surpassing traditional rule-based algorithms in various domains. These advanced techniques are now being integrated into cyber detection systems, aiming to support or even replace the initial level of security analysts. However, it is crucial to thoroughly evaluate the efficacy of machine learning in cyber security before fully automating detection and analysis processes. In this paper, we provide a comprehensive analysis specifically tailored for security specialists, focusing on the application of machine learning techniques in detecting intrusion, malware, and spam. Our objectives are twofold: to assess the current level of maturity of these solutions and to identify the key limitations that hinder the immediate adoption of machine learning cyber detection schemes. Our conclusions are drawn from an extensive literature review and experiments conducted on actual enterprise systems and network traffic.

KEYWORDS: Cyber Security, Machine Learning, Deep Learning.



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