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DISEASE DIAGNOSIS USING CHATBOT USING VOICE AND TEXT CHATBOT

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ABSTRACT

In recent years, chatbots have gained significant attention as a convenient means of providing customer support, information retrieval, and task automation. With advancements in artificial intelligence (AI) and natural language processing (NLP), these chatbots have become increasingly sophisticated, offering more personalized and efficient interactions. This project aims to develop an AI-based FAQ chatbot with voice assistance, leveraging state-of-the-art NLP techniques and voice recognition technology. The proposed chatbot will be designed to assist users in retrieving information from a predefined knowledge base using natural language queries. Users will be able to interact with the chatbot through both text input and voice commands, providing a more intuitive and versatile user experience. The system will employ machine learning algorithms to understand user queries, extract relevant information from the knowledge base, and generate appropriate responses in real-time.

I.INTRODUCTION:

The AI Chatbot with Voice-Assisted Answer project aims to develop an intelligent, interactive system capable of delivering real-time responses to user queries through both text and voice interfaces. This system combines natural language processing (NLP), machine learning (ML), and speech recognition technologies to offer a seamless, user-friendly experience. The chatbot will be designed to understand and respond to text-based queries, while the voice-assisted feature enables hands-free communication, making it more accessible, especially for users on the go or those with disabilities.

In today's digital landscape, chatbots have become an essential part of customer service, virtual assistance, and information retrieval, significantly improving user engagement and experience. By integrating voice recognition technology into the chatbot, this project takes user interaction to the next level, enhancing the way users access information. Whether for educational, entertainment, or business purposes, this AI-powered system can effectively address user needs in an efficient and personalized manner.

The primary objective of this project is to create a hybrid model that not only provides accurate text-based responses but also



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TWITTER SENTIMENT ANALYSIS USING MACHINE LEARNING

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ABSTRACT

Twitter is a platform widely used by people to express their opinions and display sentiments on different occasions. Sentiment analysis is an approach to analyze data and retrieve sentiment that it embodies. Twitter sentiment analysis is an application of sentiment analysis on data from Twitter (tweets), in order to extract sentiments conveyed by the user. In the past decades, the research in this field has consistently grown. The reason behind this is the challenging format of the tweets which makes the processing difficult. The tweet format is very small which generates a whole new dimension of problems like use of slang, abbreviations etc. We review some papers regarding research in sentiment analysis on Twitter, describing the methodologies adopted and models applied, along with describing a generalized Python based approach. So, this project aims to build a system that identifies the human emotions and opinions expressed in text. This system uses machine learning models to collect the tweets-related data, classify them as positive, negative, or neutral, and evaluate the results.

I. INTRODUCTION

Now-a-days social networking sites are at the boom, so large amount of data is generated. Millions of people are sharing their views daily on micro blogging sites, since they contain short and simple expressions. We shall discuss about a paradigm to extract the sentiment from a famous micro blogging service, Twitter, where users tweet their opinions about different things. In this project, we will discuss the sentiment analysis of twitter dataset with data mining approach. An approach is introduced that automatically classifies the sentiments of

Tweets taken from Twitter dataset. These messages or tweets are classified as positive, negative or neutral. In this procedure of sentiment analysis, we will take the Twitter dataset as input and train the system to understand the positive, neutral and negative tweets and cluster them as individual data chunks. The training data consists of tweets which can be plain-text, acronyms, emoticons and abbreviations. This is very useful for the companies who want to know the feedback about their product brands and customer purchase product details which in



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SYMPTOM-BASED DIET RECOMMENDATION SYSTEM

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ABSTRACT

This project presents a machine learning-based system designed to provide personalized recommendations focused on diet, precautions, and workout routines based on user symptoms. By analyzing the user's health inputs, such as symptoms or conditions, the system leverages advanced machine learning algorithms to generate tailored suggestions aimed at improving overall wellness. The recommendations encompass dietary plans, precautionary measures and ensuring a holistic approach to health management. Developed using technologies like Python, Flask, and Jupyter Notebook, the system delivers a user-friendly interface with reliable, data-driven outputs. This platform is intended to support individuals in adopting healthier habits and maintaining long-term well-being, offering solutions that adapt to personal health requirements.

I.INTRODUCTION

The Symptoms-Based Diet Recommendations System is a machine learning-based platform that provides personalized health management suggestions. Users input their symptoms into the system, and based on this data, the platform generates tailored recommendations related to diet, workout routines, and precautionary measures. The system is designed to help users adopt healthier

lifestyles by offering data-driven, individualized advice that focuses on improving overall well-being.

1.1 PROBLEM STATEMENT

Many individuals face challenges in managing their health due to a lack of

personalized, accessible, and reliable guidance. With varying symptoms and health conditions, people often require customized diet and workout routines that cater specifically to their needs. Current solutions often fail to consider the unique health profiles of individuals, leading to generalized advice that may not be effective. The goal of this project is to develop a system that can provide tailored recommendations based on user-reported symptoms.

1.2 DESCRIPTION

This project aims to build a web-based application where users can input symptoms and receive personalized recommendations for diet, exercise, and precautions. The system leverages machine learning models to analyze the symptoms and generate reliable



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AI BASED CHATBOT FOR MENTAL HEALTH CARE

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ABSTRACT

In recent years, the integration of artificial intelligence (AI) into healthcare has paved the way for innovative solutions addressing mental health challenges. This paper presents the conceptual design and development of a mental healthcare Chabot aimed at providing accessible, scalable, and non-stigmatizing support for individuals experiencing mental health difficulties. The Chabot leverages natural language processing (NLP) and machine learning techniques to engage in empathetic, context-aware conversations while ensuring user safety and data privacy. The proposed Chabot features a modular architecture comprising an NLP engine, a sentiment analysis module, a dynamic response generator, and an escalation mechanism for high-risk situations. Designed to assist with a broad range of mental health concerns, including stress, anxiety, and depression, the Chabot provides evidence-based resources, coping strategies, and crisis intervention guidance. Furthermore, it incorporates multilingual capabilities and personalization to enhance accessibility and user experience. A preliminary evaluation of the Chabot's performance, conducted with a diverse user group, demonstrates its potential to foster meaningful interactions and provide timely support. The findings underscore the importance of ongoing collaboration with mental health professionals to ensure clinical efficacy and ethical considerations. This abstract lays the groundwork for further development, testing, and deployment of AI-driven tools to augment traditional mental healthcare services and reduce barriers to care globally.

1. INTRODUCTION

Introduction to the Mental Health Care Chatbot Project

In recent years, mental health awareness has grown significantly, yet access to timely and affordable care remains a challenge for many. A mental health care chatbot project aims to bridge this gap by offering a supportive, accessible, and cost-effective platform for mental health assistance. Combining

advancements in artificial intelligence, natural language processing (NLP), and psychological research, the chatbot provides users with a conversational interface for emotional support, coping strategies, and resources for further help. The chatbot serves as a virtual companion, designed to listen to users, understand their concerns, and provide empathetic, non-judgmental responses. It can assist individuals with mild to moderate

A Review of the Use of Nanosilica and Silica Fume in Cement and Concrete

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Abstract:

The use of silica fume (micro-silica) and nano-silica for the sustainable growth of the concrete industry is reviewed in this study along with current advancements. By reducing trash, this will not only save energy and natural resources but also safeguard the environment. There is a dearth of research on the application of nano- and micro-silica in paste, mortar, and concrete, and what is known about their effects on the development of mechanical strength and durability characteristics is very conflicting. To comprehend the impact of micro and nano-silica on the fresh, hardened, and microstructural characteristics of paste, cement mortar, and concrete, a variety of literature has been reviewed. Utilizing technologies and materials for nanostructure and microstructure characterization, the optimal usage of micro-silica and nano-silica separately and simultaneously will provide a novel concrete mixture that will lead to long-lasting concrete structures in the future.

Keywords: Micro-silica, Nano-silica, mortar, concrete, compressive strength.

1. Introduction

In the most customary sense, cement is a binder that sets and hardens independently as well as binds other materials together. Cement mortar is a building compound created by mixing fine aggregate and a selection of cementing material with a specified amount of water. Mortar has been used for centuries as a means of adhering bricks or concrete blocks to one another. Cement mortar continues to be used in many different types of construction such as the binder between bricks in walls, fences, and walkways, to make quick repairs in patio slabs and reset loosened stones or bricks in a walkway or retaining wall. Unfortunately, construction industry is not only one of the largest consumers of natural resources and energy, but is also responsible for large emissions of green house gases (GHGs) such as carbon dioxide responsible for global warming.

It is estimated that one ton of Portland cement clinker production yields one ton of GHGs. In addition, due to the accumulation of natural aggregate extraction from quarries; it poses an immediate concern for sustainable construction development.

1.1 Concrete and Sustainability

Concrete is probably unique in construction, it is the only material exclusive to the business and therefore is the beneficiary of a fair proportion of the research and development money from industry. Concrete is a composite construction material composed primarily of aggregate, cement, and water, which is a nano structured, complex, multi-phase material that ages over time. Sustainability is defined by the World Commission on Environment and Development as the development that meets the needs of the present, without compromising the ability of the future generations to meet their



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DEEP CONVOLUTIONAL NEURAL NETWORK FOR ROBUST DETECTION OF OBJECT-BASED FORGERIES IN ADVANCED VIDEO

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ABSTRACT

Video forgery detection is a critical aspect of digital forensics, addressing the challenges posed by the manipulation of video content. This paper presents a novel approach for video forgery detection using Deep Convolutional Neural Networks (CNN). Leveraging the power of deep learning, our method aims to improve the accuracy and efficiency of object-based forgery detection in advanced video sequences. In the proposed approach, we build upon the foundation of an existing method, which utilizes Convolutional Neural Networks, and introduce innovative modifications to the DCNN architecture. These modifications include data preprocessing, network architecture, and training strategies that enhance the model's ability to detect tampered objects in video frames. We conduct experiments on the SYSU-OBJFORG dataset, the largest object-based forged video dataset to date, with advanced video encoding standards. Our DCNN-based approach is compared with the existing method, demonstrating superior performance. The results show increased accuracy and robustness in detecting object-based video forgery. This paper not only contributes to the field of video forgery detection but also underscores the potential of deep learning, particularly DCNN, in addressing the evolving challenges of digital video manipulation. The findings open avenues for future research in the localization of forged regions and the application of DCNN in lower bitrate or lower resolution video sequences.

I.INTRODUCTION

The detection of object-based forgeries in videos is becoming increasingly important as multimedia content manipulation techniques have evolved. With advancements in digital media editing software, it has become relatively easy to alter or insert objects into video footage, making it difficult to distinguish between authentic and tampered

content. Object-based forgeries refer to instances where specific objects, characters, or parts of a video are inserted or modified. Detecting such forgeries is critical for various fields, including security, law enforcement, journalism, and social media, where authenticity is paramount. Deep Convolutional Neural Networks (DCNN)

Studies on the comparative strength of self-compacting concrete (SCC) by preventing steel fibers from entering the mixture

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ABSTRACT:

A flowing concrete mixture that may solidify under its own weight is known as self-compaction concrete (SCC). Concrete placement issues in crowded reinforced areas can be reduced or even eliminated with SCC technology. This project calls for the development of SCC through the use of mineral and chemical admixtures. A rational method of mix design is to be adopted using EFNARC (European federation of national associations representing for concrete) guidelines. SCC is to be created utilizing chemical and mineral admixtures once the proportions of an M40 grade mix are first determined using IS 10262:2009. Later SCC is altered by changing the aforesaid mix's steel fiber volume percentages. The experimental approach outlined in the EFNARC recommendations must be used to investigate the fresh state qualities of SCC flowability, fill-ability, and pass-ability. The stress-strain behavior and compressive and tensile strength testing of SCC with and without the addition of steel fibers for 14, 28, and 60 days, using varying volume fractions of steel fibers (1%, 2%, 3%, and 4%).

1.0 INTRODUCTION:

GENERAL

The world is currently seeing the creation of extremely complex and demanding civil engineering facilities. Concrete is frequently

the most crucial and Widely used material is called upon to feature very high strength and sufficient workability qualities. In the field of concrete technology, efforts are being made to create concrete with unique properties. By adding different admixtures to concrete up to specific ratios, researchers worldwide are trying to create high-performance concrete. Self Compacting Concrete (SCC) is one of the most notable developments in concrete technology during the past ten years. The qualities in the fresh state are the primary features of SCC. The ability of the mix to flow under its own weight without vibrating, to flow through highly crowded reinforcement under its own weight, and to maintain homogeneity without segregation are the main goals of the mix design. Because of its unique qualities, SCC has the potential to greatly enhance the caliber of concrete structures and create new concrete application opportunities.

HISTORY OF SCC

Self-compacting concrete was first developed in 1986 in Japan to achieve durable concrete structures. For several years, the problem of the durability of concrete structures is a major topic of interest for construction Engineers. Sufficient compaction is needed for conventional concrete and that causes segregation. With plain concrete, it is

BAT: DEEP LEARNING METHODS ON NETWORK INTRUSION DETECTION USING NSL-KDD DATASET

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ABSTRACT

Intrusion detection has shown to be a successful method of network security since it can detect unknown attacks from network traffic. These days, most network anomaly detection techniques are based on conventional machine learning models, such as KNN, SVM, etc. Despite the fact that these techniques can yield some exceptional features, they have a low accuracy rate and mostly rely on human traffic feature design, which is out of date in the big data era. A traffic anomaly detection model, or BAT, is suggested as a solution to the issues of low accuracy and feature engineering in intrusion detection. Bidirectional Long Short-Term Memory (BLSTM) and attention mechanisms are included in the BAT model. The network flow vector made up of packet vectors produced by the BLSTM model is screened using an attention mechanism in order to extract the essential characteristics for classifying network traffic. To capture the local aspects of traffic data, we also use numerous convolutional layers. We call the BAT model BAT-MC since it uses several convolutional layers to process data samples. Network traffic is classified using the softmax classifier. The suggested end-to-end model can automatically learn the hierarchy's essential features without the need for feature engineering expertise. It can effectively explain the behavior of network traffic and enhance anomaly detection capabilities. We evaluate our model using a publicly available benchmark dataset, and the experimental findings show that it outperforms alternative comparison techniques.

1. INTRODUCTION

With the development and improvement of Internet technology, the Internet is providing various

convenient services for people. However, they are also facing various security threats. Network viruses, eavesdropping and malicious attacks are on the rise, causing network security to become the focus of attention of the society and government departments. Fortunately, these problems can be well solved via intrusion detection. Intrusion detection plays an important part in ensuring network information security. However, with the explosive growth of Internet business, traffic types in the network are increasing day by day, and network behavior characteristics are becoming increasingly complex, which brings great challenges to intrusion detection. How to identify various malicious network traffics, especially unexpected malicious network traffics, is a key problem that cannot be avoided.

In fact, network traffic can be divided into two categories (normal traffics and malicious traffics). Furthermore, network traffic can also be divided into five categories: Normal, DoS (Denial of Service attacks), R2L (Root to Local attacks), U2R (User to Root attack) and Probe (Probing attacks). Hence, intrusion detection can be considered as a classification problem. By improving the performance of classifiers in effectively identifying malicious traffics, intrusion detection accuracy can be largely improved.

2. LITERATURE SURVEY

A SURVEY: INTRUSION DETECTION TECHNIQUES FOR INTERNET OF THINGS

AUTHORS: Sarika Choudhary and Nishtha Kesswani (1991)

The latest buzzword in internet technology now a days is the Internet of Things. The Internet of Things (IOT) is an ever-growing network which will transform real-world objects into smart or intelligent virtual objects. IOT is a heterogeneous network in which devices with different protocols can connect

AI-Powered Plant Disease Detection, Monitoring, and Prediction for Farmers

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ABSTRACT

Plant diseases pose significant threats to farmers, consumers, the environment, and the global economy. In India, crop losses attributed to pathogens and pests account for 35% of farmers' harvests. The use of pesticides, while common, raises serious health concerns due to the toxic nature of many chemicals, which can have harmful effects on living organisms. Effective disease detection, crop monitoring, and tailored treatment strategies can mitigate these issues. Traditionally, agricultural experts identify diseases by searching for visible symptoms; however, farmers often lack direct access to these specialists.

Our initiative introduces the first comprehensive, collaborative platform for the automatic diagnosis, tracking, and forecasting of plant diseases. Through a user-friendly smartphone application, farmers can quickly and accurately identify diseases by capturing images of afflicted plant parts. This process leverages advanced AI algorithms for real-time cloud-based image processing. The AI model continually enhances its accuracy based on data collected from user-uploaded images and feedback from experts. Additionally, farmers can consult local specialists directly through the platform.

The system generates disease density maps and forecasts the likelihood of disease spread using a cloud-stored database of geo-tagged images and micro-climate data for preventative strategies. Agricultural experts can conduct geographically focused disease assessments via a web interface. Our research involved training a convolutional neural network (CNN) AI model with extensive datasets of plant disease images, collected from multiple farms over a span of seven months. Validation of the automated CNN model was performed by plant pathologists, resulting in a remarkable diagnostic accuracy of over 95%. This innovative tool empowers farmers and agricultural experts in managing plant diseases effectively, enabling them to sustainably maximize crop yields.

Keywords: CNN, Machine learning, Neural Network. Artificial Intelligence

INTRODUCTION

Plant diseases pose significant threats to farmers, consumers, the environment, and the global economy. In India, crop losses attributed to pathogens and pests account for 35% of farmers' harvests. The use of pesticides, while common, raises serious health concerns due to the toxic nature of many chemicals, which can have harmful effects on living organisms. Effective

SMART AGRICULTURE: A CLIMATE DRIVEN APPROACH

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ABSTRACT

An innovative Integrating Climate Projection for Smart Agriculture System tailored to smallholder farmers is poised to revolutionize crop prediction and management practices in India. With the adverse impacts of climate change increasingly affecting crop yields over the past two decades, the ability to predict crop outcomes in advance is paramount for both policymakers and farmers. This project addresses this need by providing farmers with a user-friendly mobile website where they can input real-time data on weather, soil, and crop management practices. By incorporating climate projections and predicting seasonal diseases into our models, we enable farmers to plan and adapt their strategies to cope with changing environmental conditions effectively. Furthermore, our system prioritizes collaboration by adopting open data platforms, allowing researchers and stakeholders to share relevant agricultural data, fostering continuous improvements and innovation in crop prediction. In addition to climate change adaptation, we recognize the importance of disease detection in ensuring crop health and productivity. Thus, we are integrating a disease detection module into our website, empowering farmers with a comprehensive toolset to make informed decisions and manage resources effectively. By leveraging transfer learning, mobile-based solutions, explainable AI, Random Forest, PyTorch and a focus on smallholder farmers' unique needs, our project aims to enhance livelihoods, bolster food security, and promote sustainable agriculture practices, ultimately benefiting agricultural communities worldwide.

Keywords: Crop Prediction, Disease detection, Fertilizer Recommendation, Random Forest, PyTorch

I. INTRODUCTION

Integrating climate projections for smart agriculture is a fundamental component of modern agriculture, driven by the imperative to optimize food production amidst

increasing global demands and unpredictable environmental conditions. This study aims to delve into the intricate landscape of crop yield prediction, utilizing advanced methodologies to provide accurate forecasts



SERENITY SYNC YOUR MENTAL HEALTH COMPANION

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ABSTRACT

The Mental Health Companion, developed using Python and Django-ORM, provides a comprehensive platform for users to monitor their mental well-being through mood tracking, activity logs, and personalized assessments. The web application includes a user-friendly interface, enabling easy interaction and data entry, while login credential ensures security for each individual user and real-time synchronization. Additionally, the application offers resources like articles, videos, and music to support mental health improvement. With built-in authentication, users' data privacy is maintained and the integrated questionnaire assesses mental health, offering insights and suggestions for better management of mental well-being.

I. INTRODUCTION

In today's fast-paced and increasingly digital world, mental health has become a critical concern for individuals of all ages. The growing prevalence of stress, anxiety, and other mental health challenges underscores the need for accessible, effective support systems. "Serenity Sync: Your Mental Health Companion" aims to bridge this gap by providing users with a comprehensive, user-friendly platform designed to promote mental well-being. Through a combination of personalized tools, resources, and community support, Serenity Sync empowers users to take charge of their mental health journey. The application incorporates evidence-based practices, including mindfulness exercises, mood tracking, and guided journaling, tailored to individual needs and preferences. Users can set personal

goals, track their progress, and receive insightful feedback to foster self-awareness and resilience. Furthermore, the platform encourages community engagement by connecting users with peers and mental health professionals, creating a supportive environment for sharing experiences and strategies. By leveraging technology to enhance mental health support, Serenity Sync seeks to reduce stigma, promote emotional well-being, and ultimately improve the quality of life for its users. Whether navigating daily stressors or seeking deeper self-reflection, Serenity Sync stands as a compassionate companion on the path to mental wellness.

II. LITERATURE REVIEW

Title: Digital Mental Health Interventions: A Review of Efficacy and User Engagement



SECURING DATA IN IMAGES USING SHA AND ECC

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ABSTRACT

With the rapid advancement in digital technology, ensuring data security has become paramount, particularly in image transmission and storage. The paper proposes a method for securing data within images using cryptographic hashing (SHA - Secure Hash Algorithm) and Elliptic Curve Cryptography (ECC). Secure Hash Algorithm (SHA) is utilized to generate a fixed-length hash value from the input data. This hash value is unique to the input data and is nearly impossible to reverse-engineer. By embedding this hash value into the image, we can ensure data integrity, as any alterations to the image will be detected by recalculating the hash value. Elliptic Curve Cryptography (ECC) is employed for key generation and encryption. ECC offers smaller key sizes compared to other encryption algorithms, making it particularly suitable for constrained environments like images. The sender generates an ECC key pair: a public key for encryption and a private key for decryption. The data is encrypted using the public key and embedded into the image to further enhance security, the hash value generated by SHA can also be encrypted using ECC before embedding it into the image. This ensures that even if an attacker intercepts the image, they cannot tamper with the hash value. The proposed method provides robust data security within images, ensuring data integrity and confidentiality. Experimental results demonstrate the effectiveness of the proposed approach in securing data within images against various attacks.

1. INTRODUCTION

In today's digital age, the transmission and storage of sensitive data, such as personal information, financial transactions, and corporate secrets, are ubiquitous. With the increasing volume of digital data, ensuring its security has become a critical concern. Among various forms of digital data, images represent a significant portion, being used in fields ranging from social media to medical imaging. Securing data within images presents unique challenges due to the large

size and complex structure of image files. Traditional cryptographic techniques may not be directly applicable, as they often require extensive processing and memory resources, which can be impractical for images. The paper proposes a method for securing data within images using a combination of cryptographic hashing and elliptic curve cryptography (ECC). Secure Hash Algorithm (SHA) is employed to ensure data integrity, while ECC is utilized for key generation and encryption. SHA, particularly SHA-256, is a widely adopted cryptographic hash function



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Optimizing e-commerce Supply Chains with Categorical Boosting: A predictive modelling frame work

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ABSTRACT

Managing various aspects of the Supply Chain (SC) has become increasingly challenging in today's complex business landscape. To improve profitability, boost sales, and enhance customer satisfaction, it is crucial to explore future possibilities by adjusting key relational parameters. However, traditional forecasting methods often fail to provide accurate insights and are time-consuming. These limitations can be overcome using Artificial Intelligence (AI) algorithms such as Machine Learning (ML) and Deep Learning (DL). CatBoost algorithm is an ensemble-based ML model that can handle categorical variables effectively in its architecture, whereas other ML and DL models fail and require explicit encoding techniques. In this study, a predictive modeling approach using CatBoost to optimize supply chain processes using a mathematical approach was proposed. CatBoost evaluates the model on an e-commerce dataset through empirical analysis by tuning various hyperparameters to enhance prediction efficiency. A computational time limit of ten minutes was used to ensure practicality. Using regression and classification frameworks, this approach involves predicting sales, profit, and delivery times, and identifying potential customers. Consequently, analyzing the behavior of the learning rate and its impact on the performance metrics indicated that increasing the learning rate can lead to improved model performance.

I.INTRODUCTION

In the modern world, **e-commerce** has revolutionized the way businesses operate and deliver goods to customers. However, as the demand for online shopping continues to grow, e-commerce businesses face increasing challenges in managing and optimizing their **supply chains**. The complexity of supply chains—ranging from inventory management, supplier coordination, shipping logistics, to customer satisfaction—requires

efficient strategies to ensure timely deliveries and cost-effective operations. A key factor in addressing these challenges lies in the ability to predict demand, manage resources, and optimize processes in real-time. **Optimizing E-Commerce Supply Chains with Categorical Boosting: A Predictive Modelling Framework** aims to provide a solution by developing an advanced **predictive modeling framework** utilizing



MACHINE LEARNING FOR FAST AND RELIABLE SOURCE LOCATION ESTIMATION IN EARTHQUAKE EARLY WARNING

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ABSTRACT

We develop a random forest (RF) model for rapid earthquake location with an aim to assist earthquake early warning (EEW) systems in fast decision making. This system exploits P-wave arrival times at the first five stations recording an earthquake and computes their respective arrival time differences relative to a reference station (i.e., the first recording station). These differential P-wave arrival times and station locations are classified in the RF model to estimate the epicentral location. We train and test the proposed algorithm with an earthquake catalog from Japan. The RF model predicts the earthquake locations with a high accuracy, achieving a Mean Absolute Error (MAE) of 2.88 km. As importantly, the proposed RF model can learn from a limited amount of data (i.e., 10% of the dataset) and much fewer (i.e., three) recording stations and still achieve satisfactory results (MAE)

I.INTRODUCTION

Earthquake hypocenter localization is essential in the field of seismology and plays a critical role in a variety of seismological applications such as tomography, source characterization, and hazard assessment. This underscores the importance of developing robust earthquake monitoring systems for accurately determining the event origin times and hypocenter locations. In addition, the rapid and reliable characterization of ongoing earthquakes is a crucial, yet challenging, task for developing seismic hazard mitigation tools like earthquake early warning (EEW) systems . While classical methods have been

widely adopted to design EEW systems, challenges remain to pinpoint hypocenter locations in real-time largely due to limited information in the early stage of earthquakes. Among various key aspects of EEW, timeliness is a crucial consideration and additional efforts are required to further improve the hypocenter location estimates with minimum data from the first few seconds after the P-wave arrival and the first few seismograph stations that are triggered by the ground shaking. The localization problem can be resolved using a sequence of detected waves (arrival times) and locations of seismograph stations that are triggered by



HAND MOUSE INTERFACE USING VIRTUAL MONITOR IN CONCEPT FOR NATURAL INTERACTION

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ABSTRACT

In this paper the “Hand Mouse Interface Using Virtual Monitor Concept for Natural Interaction” presents the development of a Virtual Mouse Control System utilizing hand gestures for clicking actions, implemented using Python. This project promotes an approach for the Human Computer Interaction (HCI) where cursor movement can be controlled using a real-time camera. It will proceed to compare the existing gesture within the frames with a list of gesture tip combinations, where different combinations consist of different mouse functions. If the current gesture combination found a match, the program will execute the mouse function, which will be translated into an actual mouse function to the user’s machine.

I. INTRODUCTION

1.1 Project purpose

In the evolution of human-computer interaction, the quest for more natural and intuitive input methods has been ongoing. Traditional interfaces, such as mouse and keyboard, although effective, can sometimes feel cumbersome and detached from human movements. Gesture-based interaction systems have emerged as a promising solution to bridge this gap. By leveraging computer vision technologies, these systems interpret hand movements and gestures, offering users a more fluid and intuitive means of interaction with digital interfaces. This is an approach to virtual mouse control,

focusing specifically on enabling clicking actions through hand gestures. Rather than relying solely on physical input devices, users can navigate and interact with applications using natural hand movements. By harnessing the capabilities of libraries such as Media Pipe, OpenCV, NumPy, and Py Auto GUI, our system provides an intuitive and efficient way for users to interact with digital interfaces. This approach holds significant potential for improving accessibility and user experience across a wide range of applications. The simplicity and effectiveness of our approach make it suitable for various applications, from enhancing accessibility for individuals with disabilities to facilitating hands-free



J1970 AUTHENTICATION BY ENCRYPTED NEGATIVE PASSWORD

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ABSTRACT

Secure password storage is a vital aspect in systems based on password authentication, which is still the most widely used authentication technique, despite its some security flaws. In this paper, we propose a password authentication framework that is designed for secure password storage and could be easily integrated into existing authentication systems. In our framework, first, the received plain password from a client is hashed through a cryptographic hash function (e.g., SHA-256). Then, the hashed password is converted into a negative password. Finally, the negative password is encrypted into an Encrypted Negative Password (abbreviated as ENP) using a symmetric-key algorithm (e.g., AES), and multi-iteration encryption could be employed to further improve security. The cryptographic hash function and symmetric encryption make it difficult to crack passwords from ENPs. Moreover, there are lots of corresponding ENPs for a given plain password, which makes precomputation attacks (e.g., lookup table attack and rainbow table attack) infeasible. The algorithm complexity analyses and comparisons show that the ENP could resist lookup table attack and provide stronger password protection under dictionary attack. It is worth mentioning that the ENP does not introduce extra elements (e.g., salt); besides this, the ENP could still resist precomputation attacks. Most importantly, the ENP is the first password protection scheme that combines the cryptographic hash function, the negative password and the symmetric-key algorithm, without the need for additional information except the plain password.

1.INTRODUCTION

O WING to the development of the Internet, a vast number of online services have emerged, in which password authentication is the most widely used authentication technique, for it is available at a low cost and easy to deploy. Hence, password security always attracts great interest from academia and industry. Despite great research achievements on password security,

passwords are still cracked since users' careless behaviors. For instance, many users often select weak passwords they tend to reuse same passwords in different systems. they usually set their passwords using familiar vocabulary for its convenience to remember. In addition, system problems may cause password compromises. It is very difficult to obtain passwords from high



EMERGENCY PATIENT CARE SYSTEM USING CHATBOT

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ABSTRACT

Digital assistant bots, also known as Chatbots, are one of the emerging technologies that are growing in popularity as a result of the continued growth in demand for artificial intelligence (AI) and machine learning. Most medical apps on the market today focus on a few conveniences, such as making appointments online, sending messages, streaming videos, etc. The technologies behind artificial intelligence, and machine learning have greatly aided the healthcare industry. This effort concentrated on the prediction of diseases based on user symptoms, describing the diseases, and the reservation system. The disease prediction chatbot is made with the help of machine learning and natural language processing. In this study, four classification algorithms were used to make the prediction system: Naive Bayes, neural networks, random forests, and support vector machines. In the performance evaluation, this work compared the four classifiers with accuracy, precision, recall, and f1-score calculation. After comparing how well different models worked, the best one was chosen for predicting diseases and making medical chatbots. As per performance results, the support vector machine algorithm performed well compared to other models.

I. INTRODUCTION

Since the past few decades, humans have been tirelessly working day in and day out that they fail to prioritize their health on a regular basis. In the longer run, this problem leads to jeopardizing the quality of life. Nevertheless, with the aid of Artificial Intelligence, we can now provide health care services to individuals at their convenience at reasonable prices. One of

the biggest blessings we possess is a healthy body. A healthy body and enhanced quality of life is something each one of us looks up to. The primary focus of this paper is to provide these services to fulfill the above mentioned purpose. It is difficult to imagine our lives without high tech gadgets because they have become an essential part of our lives. Therefore the field of Artificial Intelligence is prospering due to the various applications of it in the research field. Disease prediction is one of the main



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EFFECTIVENESS EVALUATION OF EMERGENCY RESCUING PLANS ORIENTED TO URBAN WATERLOGGING BASED ON A NEURAL NETWORK MODEL

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ABSTRACT

In response to the significant impact of urban waterlogging on residents, the economy, and urban infrastructure in recent years, this study introduces an innovative wargame-based evaluation approach for emergency rescue plans. The primary goal of this research is to improve emergency rescue capabilities while minimizing costs and identifying gaps in existing emergency rescue plans. To effectively evaluate these capabilities, we extract specific content related to OODA (Observe, Orient, Decide, Act) dynamics in rescue actions. Furthermore, a comprehensive index system is developed to evaluate emergency rescue capabilities in the context of urban waterlogging scenarios. To address the challenges associated with intelligent optimization and evaluation of such systems, we employ a radial basis function neural network and conduct wargame experiments to obtain data and measure capability indices. The evaluation model is trained using data samples to ensure robust performance. In addition to the proposed model evaluation and analysis framework, we also present an evaluation and analysis method for RBF (Radical Basis Function) neural networks and compare the prediction results with those obtained from GRNN (Generalized Regression Neural Network), PNN (Product-based Neural Network), and BP (Back Propagation) neural network algorithms. This model efficiently processes and fits data by simulating expert experience for evaluation purposes. Such an approach takes advantage of machine learning's sensitivity to data characteristics, effectively avoiding the influence of human factors while stably reflecting the mapping relationship between indicators and performance outcomes. This research presents a novel solution with significant implications for the development of urban emergency rescue systems that address the challenges posed by urban waterlogging incidents.

I.INTRODUCTION

The city, acting as a crucial regional center in the realms of politics, economics, and culture, continues to be susceptible to diverse calamities. Human activities often undermine

the city's capacity to prevent and withstand disasters, thereby diminishing its safety resilience and exacerbating the impact of natural calamities. Revealing the persisting



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DISEASE DIAGNOSIS USING CHATBOT USING VOICE AND TEXT CHATBOT

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ABSTRACT

In recent years, chatbots have gained significant attention as a convenient means of providing customer support, information retrieval, and task automation. With advancements in artificial intelligence (AI) and natural language processing (NLP), these chatbots have become increasingly sophisticated, offering more personalized and efficient interactions. This project aims to develop an AI-based FAQ chatbot with voice assistance, leveraging state-of-the-art NLP techniques and voice recognition technology. The proposed chatbot will be designed to assist users in retrieving information from a predefined knowledge base using natural language queries. Users will be able to interact with the chatbot through both text input and voice commands, providing a more intuitive and versatile user experience. The system will employ machine learning algorithms to understand user queries, extract relevant information from the knowledge base, and generate appropriate responses in real-time.

I.INTRODUCTION:

The AI Chatbot with Voice-Assisted Answer project aims to develop an intelligent, interactive system capable of delivering real-time responses to user queries through both text and voice interfaces. This system combines natural language processing (NLP), machine learning (ML), and speech recognition technologies to offer a seamless, user-friendly experience. The chatbot will be designed to understand and respond to text-based queries, while the voice-assisted feature enables hands-free communication, making it more accessible, especially for users on the go or those with disabilities.

In today's digital landscape, chatbots have become an essential part of customer service, virtual assistance, and information retrieval, significantly improving user engagement and experience. By integrating voice recognition technology into the chatbot, this project takes user interaction to the next level, enhancing the way users access information. Whether for educational, entertainment, or business purposes, this AI-powered system can effectively address user needs in an efficient and personalized manner.

The primary objective of this project is to create a hybrid model that not only provides accurate text-based responses but also



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DEEP CONVOLUTIONAL NEURAL NETWORK FOR ROBUST DETECTION OF OBJECT-BASED FORGERIES IN ADVANCED VIDEO

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ABSTRACT

Video forgery detection is a critical aspect of digital forensics, addressing the challenges posed by the manipulation of video content. This paper presents a novel approach for video forgery detection using Deep Convolutional Neural Networks (CNN). Leveraging the power of deep learning, our method aims to improve the accuracy and efficiency of object-based forgery detection in advanced video sequences. In the proposed approach, we build upon the foundation of an existing method, which utilizes Convolutional Neural Networks, and introduce innovative modifications to the DCNN architecture. These modifications include data preprocessing, network architecture, and training strategies that enhance the model's ability to detect tampered objects in video frames. We conduct experiments on the SYSU-OBJFORG dataset, the largest object-based forged video dataset to date, with advanced video encoding standards. Our DCNN-based approach is compared with the existing method, demonstrating superior performance. The results show increased accuracy and robustness in detecting object-based video forgery. This paper not only contributes to the field of video forgery detection but also underscores the potential of deep learning, particularly DCNN, in addressing the evolving challenges of digital video manipulation. The findings open avenues for future research in the localization of forged regions and the application of DCNN in lower bitrate or lower resolution video sequences.

I.INTRODUCTION

The detection of object-based forgeries in videos is becoming increasingly important as multimedia content manipulation techniques have evolved. With advancements in digital media editing software, it has become relatively easy to alter or insert objects into video footage, making it difficult to distinguish between authentic and tampered

content. Object-based forgeries refer to instances where specific objects, characters, or parts of a video are inserted or modified. Detecting such forgeries is critical for various fields, including security, law enforcement, journalism, and social media, where authenticity is paramount. Deep Convolutional Neural Networks (DCNN)



CREATING ALERT MESSAGES BASED ON WILD ANIMAL ACTIVITY USING HYBRID DEEP NEURAL NETWORK

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ABSTRACT

The issue of animal attacks is increasingly concerning for rural populations and forestry workers. To track the movement of wild animals, surveillance cameras and drones are often employed. However, an efficient model is required to detect the animal type, monitor its locomotion and provide its location information. Alert messages can then be sent to ensure the safety of people and foresters. While computer vision and machine learning-based approaches are frequently used for animal detection, they are often expensive and complex, making it difficult to achieve satisfactory results. This paper presents a Hybrid Visual Geometry Group (VGG)-19+ Bidirectional Long Short-Term Memory (Bi-LSTM) network to detect animals and generate alerts based on their activity. These alerts are sent to the local forest office as a Short Message Service (SMS) to allow for immediate response. The proposed model exhibits great improvements in model performance, with an average classification accuracy of 98%, a mean Average Precision (MAP) of 77.2%, and a Frame Per Second (FPS) of 170. The model was tested both qualitatively and quantitatively using 40, 000 images from three different benchmark datasets with 25 classes and achieved a mean accuracy and precision of above 98%. This model is a reliable solution for providing accurate animal-based information and protecting human lives.

1. INTRODUCTION

In general, animal activity detection creates numerous challenges for researchers due to the continuous streaming of inputs and the cluttered backgrounds. There are huge varieties of wildlife categories with different facial, nose, body, and tail structures. The detection and classification of such animals in video sequences and the processing of

huge feature maps demand the need to develop a robust framework. Such developments in real-time cases need large-scale video data for training and testing purposes and high GPU-based computing resources. Moreover, the incorporating techniques should handle the data in an intelligent way to produce plausible results.



CONTENT BASED IMAGE RETRIEVAL USING DEEP LEARNING

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ABSTRACT

Content-based image retrieval (CBIR) systems play a crucial role in efficiently managing and retrieving images based on their visual content. Traditional CBIR methods often rely on handcrafted features, limiting their ability to capture and abstract visual information. With the advent of deep learning, particularly convolutional neural networks (CNNs) in enhancing CBIR systems directly from image data. This paper proposes a novel approach for CBIR leveraging deep learning techniques. To evaluate the effectiveness of our method, we conduct experiments on standard image datasets and compare our results with traditional CBIR techniques. We utilize a pretrained CNN architecture, such as ResNet, Mobilenet, VGG, to extract high-level features from images, which are then used to measure similarities between query images and images within a database.

INTRODUCTION

Content-based image retrieval (CBIR) has emerged as a critical technology in managing and retrieving images based on their visual content rather than relying on textual annotations or metadata. Traditional CBIR methods often used handcrafted features such as color histograms, texture descriptors, and shape features, which may not capture the complex and abstract characteristics of images effectively. With the advent of deep learning, particularly convolutional neural networks (CNNs), there has been a paradigm shift towards learning hierarchical representations directly from raw image data. Deep learning techniques have demonstrated

remarkable success in various computer vision tasks, including image classification, object detection, and semantic segmentation. Leveraging deep CNNs for CBIR allows us to extract high-level features that encode rich information about image content, enabling more accurate and efficient retrieval systems. In this paper, we propose a deep learning-based approach for content-based image retrieval. We utilize pretrained CNN models, such as VGG, ResNet, or EfficientNet, which have been trained on large-scale datasets like ImageNet. These models are capable of learning discriminative features from images through multiple layers of convolutional and pooling operations,



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AI BASED CHATBOT FOR MENTAL HEALTH CARE

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ABSTRACT

In recent years, the integration of artificial intelligence (AI) into healthcare has paved the way for innovative solutions addressing mental health challenges. This paper presents the conceptual design and development of a mental healthcare Chabot aimed at providing accessible, scalable, and non-stigmatizing support for individuals experiencing mental health difficulties. The Chabot leverages natural language processing (NLP) and machine learning techniques to engage in empathetic, context-aware conversations while ensuring user safety and data privacy. The proposed Chabot features a modular architecture comprising an NLP engine, a sentiment analysis module, a dynamic response generator, and an escalation mechanism for high-risk situations. Designed to assist with a broad range of mental health concerns, including stress, anxiety, and depression, the Chabot provides evidence-based resources, coping strategies, and crisis intervention guidance. Furthermore, it incorporates multilingual capabilities and personalization to enhance accessibility and user experience. A preliminary evaluation of the Chabot's performance, conducted with a diverse user group, demonstrates its potential to foster meaningful interactions and provide timely support. The findings underscore the importance of ongoing collaboration with mental health professionals to ensure clinical efficacy and ethical considerations. This abstract lays the groundwork for further development, testing, and deployment of AI-driven tools to augment traditional mental healthcare services and reduce barriers to care globally.

1. INTRODUCTION

Introduction to the Mental Health Care Chatbot Project

In recent years, mental health awareness has grown significantly, yet access to timely and affordable care remains a challenge for many. A mental health care chatbot project aims to bridge this gap by offering a supportive, accessible, and cost-effective platform for mental health assistance. Combining

advancements in artificial intelligence, natural language processing (NLP), and psychological research, the chatbot provides users with a conversational interface for emotional support, coping strategies, and resources for further help. The chatbot serves as a virtual companion, designed to listen to users, understand their concerns, and provide empathetic, non-judgmental responses. It can assist individuals with mild to moderate

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BLOCK CHAIN-BASED FILE REPLICATION FOR DATA AVAILABILITY OF IPFD CONSUMERS

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ABSTRACT

In the Interplanetary File System (IPFS), consumers can help each other protect data against hardware failures and improve data availability through replication. While previous replication methods in peer-to-peer (P2P) networks can be used to increase data availability in the IPFS network, they are either hostile to peers with limited availability, preventing them from achieving adequate data availability, or lack flexibility. An ideal replication method should optimize data availability in a manner equitable to all peers while providing flexibility. To achieve this goal, this paper introduces a blockchain-based file replication mechanism. Leveraging the non-tamperable and traceable nature of blockchain technology, our mechanism achieves secure storage and trustworthy query of peers' information used in the file replication process. Unlike most earlier methods, our mechanism employs an Arweave-inspired file replication algorithm that prioritizes the less available files within the system for replication until all files' availabilities are optimized. Replicating files according to predefined system-wide cooperation rules like this not only limits the selfishness of peers but also facilitates timely adjustments in response to changes in the P2P system. In addition, our mechanism also uses smart contracts to judge and exclude dishonest peers, thereby fostering honest cooperation among peers without involving any third party.

I. INTRODUCTION

In the modern digital landscape, the importance of data availability and integrity cannot be overstated, especially when it comes to the decentralized storage and sharing of sensitive information. As industries evolve and more data-centric systems are implemented, the need for secure, efficient, and reliable data storage systems becomes critical. One of the

emerging technologies aimed at addressing these challenges is blockchain. By leveraging blockchain's distributed ledger technology, businesses and organizations can enhance the availability and security of data, particularly for systems like the Internet of Public File Distribution (IPFD). The Internet of Public File Distribution (IPFD) involves the storage and distribution of files across a decentralized network, making it possible for



**CHRONIC DISEASES PREDICTION USING MACHINE LEARNING WITH DATA
PREPROCESSING HANDLING: A CRITICAL REVIEW**

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ABSTRACT

According to the World Health Organization (WHO), some chronic diseases such as diabetes mellitus, stroke, cancer, cardiac vascular, kidney failure, and hypertension are essential for early prevention. One of the prevention that can be taken is to predict chronic diseases using machine learning based on personal medical record or general checkup result. The common prediction objective is to minimize the prediction error as low as possible. The most influencing chronic diseases prediction factors are the quality of data and the choice of predictor such as machine learning methods. The five main problems those lower data quality are outliers, missing values, feature selection, normalization, and imbalance. After we ensure the quality of data, the next task is to choose the best machine learning methods. The most influencing factor to consider when we choose the predictor its performance evaluation (accuracy, recall, precision, f1-score). Thus, predicting chronic disease aims to produce increased performance and solve problems in medical data. This paper presents a Systematic Literature Review (SLR) that offers a comprehensive discussion of research on chronic diseases prediction using machine learning and its data preprocessing handling. This paper covers machine learning methods discussion such as supervised learning, ensemble learning, deep learning, and reinforcement learning. The preprocessing handling we discuss includes missing values, outliers, feature selection, normalization, and imbalance. The final discussions of this paper are open issues, and the potential future works in improving the prediction performance for chronic diseases using a data preprocessing handling and machine learning methods.

I.INTRODUCTION:

Chronic diseases, such as diabetes, cardiovascular diseases, cancer, and respiratory disorders, are among the leading causes of mortality and disability worldwide. Early detection and intervention are critical in reducing the burden of these diseases and

improving patient outcomes. Traditional diagnostic methods often rely on manual analysis and subjective decision-making, which can be time-consuming and prone to errors. In recent years, machine learning (ML) has emerged as a powerful tool for predicting chronic diseases by analyzing

pharmaceuticals, therefore assisting in the drug selection process. This method may help with personalised medicine by providing information on the efficacy, adverse effects, and patient satisfaction with these medications. Conventional medication recommendation algorithms often use already structured data sets, including patient demographics, medical records, and results from past clinical trials. There is a growing abundance of user-generated evaluations on healthcare-related websites, social media, and online forums, but current techniques fail to take them into account. As a branch of natural

Both consumers and healthcare professionals have the onerous issue of picking the best effective therapy for a specific medical problem, thanks to the rising number of medications being launched to the market every year. Due to the unique requirements of each patient and the increasing complexity of many illnesses, a cookie-cutter approach to medication prescription does not always work. In spite of this, recent developments in ML and NLP have shown promising abilities to analyse user evaluations and comments on different

1. INTRODUCTION

Legitimate therapeutic resources, such as a dearth of experts and healthcare professionals, inadequate equipment and medications, etc., have been more inaccessible since the coronavirus emerged. A great number of people die because the whole medical community is in a state of panic. People began taking medicine without proper consultation since it was unavailable, which exacerbated their health problems. Recently, machine learning has proven useful in many contexts, and inventive automation projects have been on the rise. Presenting a medication recommender system that may significantly lessen specialists' workload is the goal of this article. In this study, we develop a system for medicine recommendation based on patient reviews. We use vectorisation techniques such as Bow, TF-IDF, Word2Vec, and Manual Feature Analysis to predict the sentiment of reviews. The system then uses these predictions to determine the best drug for a specific disease using various classification algorithms. Precision, recall, F1 score, accuracy, and area under the curve (AUC) were used to assess the anticipated attitudes. With an accuracy of 93%, classifier LinearSVC employing TF-IDF vectorisation is the clear winner.

ABSTRACT

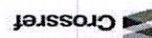
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DRUG RECOMMENDATION SYSTEM BASED ON SENTIMENT ANALYSIS OF DRUG REVIEWS USING MACHINE LEARNING



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laborious due to the massive user bases of social media platforms. Consequently, automated systems capable of accurately detecting false profiles with little to no human involvement are urgently required. In recent years, ML and NLP have grown in prominence as potent resources for combating the issue of false profile detection. While natural language processing (NLP) aids in comprehending user-generated information, machine learning (ML) may be used to examine trends in user behaviour. The combination of these technologies allows for the detection of suspect profiles using a variety of characteristics, including account activity,

The exponential rise of social media sites like Twitter, Instagram, and Facebook has altered the dynamics of human interaction. The difficulty of verifying the authenticity of the people engaging with these platforms has emerged with their rapid expansion. An increasingly widespread problem, fake accounts are often made with bad intentions to do things like steal personal information, send spam, mislead the public, or influence public opinion. Individuals and organisations alike are vulnerable to the harm that these profiles may inflict. Attempts to manually detect false accounts would be very time-consuming and

I. INTRODUCTION

Nowadays, social media is an integral part of everyone's daily routine. Social media platforms are where the majority of individuals spend most of their time every day. There has been a meteoric rise in the number of accounts on these social media sites, and many of those users are engaging in real-time conversations with people all over the world. There are benefits and drawbacks to using these social media platforms, and they also pose security risks to our personal data. We need to categorise these social media profiles as either real or fraudulent so we can examine who is posing threats on these platforms. In the past, we've used several categorisation approaches to identify phoney social media profiles. We need to improve the accuracy rate of detecting bogus accounts on these platforms, however. In this research, we propose a method to improve the accuracy rate of identifying bogus accounts using Machine Learning technologies and Natural Language Processing (NLP). As a tree classifying algorithm, Random Forest was our top choice.

ABSTRACT

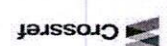
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LEARNING AND NLP

FAKE PROFILE IDENTIFICATION IN SOCIAL NETWORK USING MACHINE



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For those who are deaf or hard of hearing, sign language is an essential means of communication because it allows them to communicate themselves using non-verbal cues such as hand gestures, facial expressions, and body language. Nevertheless, as sign language is not generally understood, users of sign language have the significant obstacle of interacting seamlessly with others who do not utilise sign language. Because of this language barrier, deaf people have a harder time integrating into society and gaining access to necessary services. Machine learning and

is being used. With the use of modern languages exist. As part of this endeavour, ISL Language (Auslan), and many other sign British Sign Language (BSL), Australian Sign Language (ASL), Indian Sign Language (ISL), 135 all throughout the cosmos. American Sign The number of distinct hand signals is really physique, and overall look is considered here. to communicate. The integration of your limbs, technology, it becomes much simpler for them hearing and those with hearing loss utilise this represent them. When those with normal language—long before GIFs or graphics—to symbols that are important in the Indian translates them into text, and then uses. This technology takes vocal commands, translates spoken language into sign language. are generated from the spoken word. It creating a means of communication. Signals initiative is to assist those with hearing loss in connecting with them. The goal of our making connections is the hardest part of understand sign language or how it works, so have. For the most part, average people don't the same opportunities that hearing people virtual conference, deaf people will never have game, attending a lecture, or taking part in a Whether it's having a discussion, playing a

ABSTRACT

technology, the deaf community may participate in all the same social and informational pursuits as the hearing population. Natural Language Processing (NLP) is used for text pre-processing. Natural Language Processing (NLP) is used to publish the text, which enables hearing-impaired individuals to take part in a variety of activities, including socialising and gaining access to information. This software can take voice commands, translate them into text, and show Indian sign language. With a validation accuracy of 96% and a planned project work accuracy of 99%, you can't go wrong.

I. INTRODUCTION

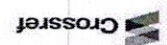
Whether it's having a discussion, playing a game, attending a lecture, or taking part in a virtual conference, deaf people will never have the same opportunities that hearing people have. For the most part, average people don't understand sign language or how it works, so making connections is the hardest part of connecting with them. The goal of our initiative is to assist those with hearing loss in creating a means of communication. Signals are generated from the spoken word. It translates spoken language into sign language. This technology takes vocal commands, translates them into text, and then uses symbols that are important in the Indian language—long before GIFs or graphics—to represent them. When those with normal hearing and those with hearing loss utilise this technology, it becomes much simpler for them to communicate. The integration of your limbs, physique, and overall look is considered here. The number of distinct hand signals is really 135 all throughout the cosmos. American Sign Language (ASL), Indian Sign Language (ISL), British Sign Language (BSL), Australian Sign Language (Auslan), and many other sign languages exist. As part of this endeavour, ISL is being used. With the use of modern

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PROCESSING
AUDIO TO SIGN LANGUAGE CONVERSION USING NATURAL LANGUAGE



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An Earthquake is a sudden slipping or movement of a portion of the earth's crust or plates, caused by a sudden release of stresses. Earthquake epicenter are usually less than 25 miles below the ear surface and are accompanied and followed by a series of vibrations. The earth has four major layers: The inner core, outer core, mantle and crust. The crust and the top of the mantle make up a thin layer on the surface of earth. But this layer is not a single cover, it is made up of many pieces like jigsaw covering the surface of the earth. These keep slowly moving around each other, slide past one another and bump into each other. These puzzle pieces are called tectonic plates, and the edges of the plates are called the plate boundaries. The plate boundaries are made up of many faults, and most of the earthquakes around the world occur on these faults. Since the edges of the plates are rough, they get stuck while the

INTRODUCTION:

soft-story buildings, and an industrial building has been chosen for this paper. mathematical models have been created in order to investigate the seismic performance of behavior. The infill wall contributes significantly to the building's lateral rigidity. Six 3D is crucial for seismic resistance; it must be so that it does not alter the structure's overall construction strength and durability against seismic threats. The placement of the shear wall supporting this storey level were not able to withstand shear. Shear walls give the frequently seen in soft-story structures during earthquakes because the concrete columns collapse inevitable in the event of a strong earthquake. Damage and collapse are most story, these features make the lateral load-resisting structure less rigid, making a progressive architecture is a common element of high-rise or multi-story buildings. Because of the soft caused by soft storeys. Due to urbanization and space occupancy issues, soft storey might cause this open ground floor to collapse. Stiffness irregularities in a structure are multi-story buildings to facilitate parking, which is an inevitable element. An earthquake stiffness of the storeys above is less than 80% or less than 70%. Soft storeys are used in susceptibility of weak structures. The term "soft storey" refers to a level where the aggregate

ABSTRACT- Around the world, earthquakes have shown the dangerous effects and susceptibility of weak structures. The term "soft storey" refers to a level where the aggregate stiffness of the storeys above is less than 80% or less than 70%. Soft storeys are used in multi-story buildings to facilitate parking, which is an inevitable element. An earthquake might cause this open ground floor to collapse. Stiffness irregularities in a structure are caused by soft storeys. Due to urbanization and space occupancy issues, soft storey architecture is a common element of high-rise or multi-story buildings. Because of the soft story, these features make the lateral load-resisting structure less rigid, making a progressive collapse inevitable in the event of a strong earthquake. Damage and collapse are most frequently seen in soft-story structures during earthquakes because the concrete columns supporting this storey level were not able to withstand shear. Shear walls give the construction strength and durability against seismic threats. The placement of the shear wall is crucial for seismic resistance; it must be so that it does not alter the structure's overall behavior. The infill wall contributes significantly to the building's lateral rigidity. Six 3D mathematical models have been created in order to investigate the seismic performance of soft-story buildings, and an industrial building has been chosen for this paper.

Using a soft storey, seismic analysis of multi-story buildings

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gravity stack passing on cutoff and parallel segment joints is linked to the protection of strengthening. The authenticity of the pole execution, and, if significant, seismic structures' identification, typical seismic this fact clarifies the need for such They address the residents' seismic risk, and practices leads to subpar assistant execution. quality, the inability to understand dividing malleability. Despite their inherent sidelong

Around the world, tremors have been showing the terrible effects and frailty of missing structures as frequently as possible. Redesigning seismic code game plans has been made possible by the lessons learned from the aftermath of seismic earthquakes and the investigative attempts. Because of this, a lot of existing reinforced concrete structures might not meet the current code requirements for sidelong quality and

INTRODUCTION

Key words: Buildings, Beam-section joints, Concrete, Nonlinear dynamic investigation, Seismic assessment, Auxiliary reaction, harm evaluation

Abstract- Extending centrality in the field of seismic tremor building is anticipated by the seismic quality assessment of existing buildings. Late earthquake events have shown the heinous consequences and powerlessness of insufficient structure everywhere in the world. Joint dependability is essential for adjacent flexural pieces to activate their quality and mishapening limit in minute confronting diagrams of reinforced concrete (R/C). Since joint disillusionments would reveal the structure's fold, obvious evidence of weak joints is essential in seismic hazard assessments. Different assessment frameworks that support the use of nonlinear static and dynamic processes have been appropriated for use in writing. Seismic appraisal projects are performed using computational devices that use a few numerical models to replicate the cyclic direction of sections. In these projects, the joints are typically depicted as resolute association segments. This hypothesis demonstrates their incapacity to anticipate the potential shear frustration within the joints. Such packages may be misleading when used in seismic evaluations of packing structures that lack joint determination.

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Considering joint flexibility, seismic evaluation of R/C moment-resisting frame structures



A PROXY RE-ENCRYPTION APPROACH TO SECURE DATA SHARING IN THE INTERNET OF THINGS BASED ON BLOCK CHAIN

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ABSTRACT

The evolution of the Internet of Things has seen data sharing as one of its most useful applications in cloud computing. As eye-catching as this technology has been, data security remains one of the obstacles it faces since the wrongful use of data leads to several damages. In this article, we propose a proxy re-encryption approach to secure data sharing in cloud environments. Data owners can outsource their encrypted data to the cloud using identity-based encryption, while proxy re-encryption construction will grant legitimate users access to the data. With the Internet of Things devices being resource-constrained, an edge device acts as a proxy server to handle intensive computations. Also, we make use of the features of information-centric networking to deliver cached content in the proxy effectively, thus improving the quality of service and making good use of the network bandwidth. Further, our system model is based on blockchain, a disruptive technology that enables decentralization in data sharing. It mitigates the bottlenecks in centralized systems and achieves fine-grained access control to data. The security analysis and evaluation of our scheme show the promise of our approach in ensuring data confidentiality, integrity, and security.

1. INTRODUCTION

The rapid growth of the Internet of Things (IoT) has led to the proliferation of interconnected devices that collect, store, and exchange vast amounts of sensitive data. As IoT systems expand, securing the data shared across these devices becomes increasingly critical. One of the primary concerns is ensuring that data remains confidential, authentic, and accessible only to authorized

users. Traditional encryption methods, while effective for securing data at rest or during transmission, may not be sufficient when it comes to data sharing, especially in decentralized environments like IoT networks, where data needs to be shared dynamically across devices or with external parties. A promising solution to address these concerns is Proxy Re-Encryption (PRE), a cryptographic technique that allows a proxy to transform ciphertexts from one encryption

is **pesticide poisoning**. Exposure to pesticides, whether through inhalation, skin contact, or ingestion, can lead to serious health consequences, including acute poisoning and long-term chronic illnesses. Early diagnosis and timely intervention are crucial to mitigating the harmful effects of pesticide exposure. This project proposes the development of a **supervised learning model** aimed at diagnosing pesticide

In recent years, the application of **data science** and **machine learning** in healthcare has gained significant traction, particularly in improving diagnostic accuracy and decision-making. Among the various domains where these techniques are proving beneficial, **public health** stands out as a key area where predictive models can be transformative. One of the critical health issues faced by rural workers, particularly in agricultural sectors,

I. INTRODUCTION

In a Data Science project, it is essential to determine the relevance of the data and identify patterns that contribute to decision-making based on domain-specific knowledge. Furthermore, a clear definition of methodologies and creation of documentation to guide a project's development from inception to completion are essential elements. This study presents a Data Science model designed to guide the process, covering data collection through training with the aim of facilitating knowledge discovery. Motivated by deficiencies in existing Data Science methodologies, particularly the lack of practical step-by-step guidance on how to prepare data to reach the production phase. Named "Data Refinement Cycle with Supervised Machine Learning (DRC-SML)", the proposed model was developed based on the emerging needs of a Data Science project aimed at assisting healthcare professionals in diagnosing pesticide poisoning among rural workers. The dataset used in this project resulted from scientific research in which 1027 samples were collected, containing data related to toxicity biomarkers and clinical analyses. We achieved an accuracy of 99.61% with only 27 rules for determining the diagnosis. The results optimized healthcare practices and improved quality of life in rural areas. The project outcomes demonstrated the success of the proposed model.

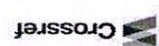
ABSTRACT

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A New Data Science Model With Supervised Learning and Its Application on Pesticide Poisoning Diagnosis in Rural Workers



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powerful connection capacity among smart devices of IoT [4] facilitate the emerging Internet of Drone (IoD) [5] which enables interconnected UAVs to be deployed in various fields for task execution involving traffic supervision, disastrous rescue, good delivery and so on. Especially, with the help of the integrated networks of satellite

The fast growth of Internet of Things (IoT) [1] and aerospace integration with satellite and 6G communication [2] techniques recently have promoted the promising Unmanned Aerial Vehicles (UAVs) applications. The massive ubiquitous access provided by 6G ground stations (GS) [3] and

INTRODUCTION

The emerging combination of Internet of Things (IoT) and aerospace integration aided by satellite and 6G communication techniques has stimulated the Internet of Unmanned Aerial Vehicles (UAVs), i.e., Internet of Drones (IoD). To accommodate and share the enormous real-time UAV data, cloud-based IoD is an inevitable choice to lower the heavy burden of mobile UAVs. Nevertheless, how to protect highly sensitive UAV data in such a honest-but-curious, open and distributed environment with resource-limited UAVs is a significant challenge. Although our previous work (PATLDAC) in SPNCE'21 devises a cloud-based UAV data access control scheme with policy privacy protection, limited access time and user traceability, it incurs inflexible and centralized cloud data storage and access as well as untrustworthy metadata in untrusted cloud environment for data access and user tracing. To this end, we further propose a blockchain-based privacy-aware data access control (BPADAC) scheme for distributed and secure UAV data sharing in cloud-based IoD. Based on fine-grained, traceable and privacy-preserving UAV data access characteristic of our previous work, we extend it by leveraging blockchain and Distributed Hash Table (DHT) for distributed and trustful UAV data access and storage, together with reliable and limited access mechanism to guarantee cloud UAV data sharing service provision. We also design public and undeniable user tracing mechanism to prevent user key abuse with traitor denial. Finally, we present formal security analysis and prototype the system leveraging the smart contracts of Ethereum block chain for performance evaluation to show the feasibility of BPADAC.

ABSTRACT

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EFFICIENT, TRACEABLE AND PRIVACY-AWARE DATA ACCESS CONTROL IN DISTRIBUTED CLOUD-BASED IOD SYSTEMS



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This has led to a surge in research into ways to automate software pattern recognition using ML and deep learning. Neural Networks (NNs) are perfect for pattern identification in software because of their exceptional performance in pattern recognition tasks. In this research, we provide a machine learning (ML) system that can automatically detect software trends in source code by using deep neural networks. Our method lets the machine learn from the data without the requirement for preset rules or human involvement by training the model on big datasets of labelled code snippets. Building a model that efficiently and accurately identifies design patterns, code

Software pattern identification involves searching through source code for common patterns or best practices. These patterns might be signs of refactoring possibilities, anti-patterns, code smells, or design patterns. When it comes to software engineering, finding and fixing these patterns is essential for making code more scalable, maintainable, and of high quality. It used to take a lot of time, energy, and expertise to manually recognise these patterns or use rule-based systems. Nevertheless, manual pattern identification approaches have become less practical due to the ever-increasing complexity of software systems.

INTRODUCTION

Software engineers must perform the essential work of pattern recognition in source code in order to optimise, maintain, and enhance code quality. Pattern recognition using rule-based algorithms or human code examination is laborious and prone to mistakes. Machine learning (ML) has gone a long way, particularly with neural networks, making automatic pattern identification a reality. This study introduces a method that uses Neural Networks (NNs) and Machine Learning (ML) to find software patterns in source code. The suggested system finds possible mistakes, refactoring possibilities, and repeating patterns in code automatically by using deep learning methods. Developers may get valuable insights to enhance code quality and maintainability, and the approach can handle complicated patterns in huge codebases. The suggested technique outperforms the status quo by using a multi-layer neural network design for source code classification and pattern identification, making it both more efficient and scalable.

ABSTRACT

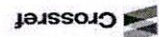
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ML BASED SOFTWARE PATTERN DETECTION IN SOURCE CODE USING NEURAL NETWORK



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human-robot interaction, computer aided tutoring,
of people. For a rich set of applications including
emotions have noticeable influence on the daily life
consider human emotions or expressions. However,
interests. Most of the recommender systems do not
the outcomes that co-relates to their needs and
in the data set by learning user's choices and produce
Recommendation engines may discover data patterns
to determine the user's emotional state and
algorithms to analyze facial expressions, it is possible
have made it possible to detect and analyze facial
processing and digital image processing techniques
emotions, and recent advancements in image
form of communication that can reveal a person's
emotional state. Facial expressions are a non-verbal
expressions as a means of detecting the user's
developing such systems is to use human facial
preferences and behavior. One approach to
personalized music suggestions based on the user's
recommendation systems, which aim to provide
led to the development of automatic song
current emotional state can be challenging. This has
users, and finding the right song to match their
volume of music available can be overwhelming for
from various genres and artists. However, the sheer
providing users with access to a vast library of songs
become increasingly popular in recent years,
human behavior. Music streaming services have
influence

1. INTRODUCTION

demonstrate that the system can accurately
recommend songs that match the user's emotional
state. The proposed system has the potential to
enhance the user experience of music streaming
services by providing personalized music
recommendations based on their current emotional
state, thereby increasing user engagement and
satisfaction.

Most of the existing music recommendation systems
use collaborative or content-based recommendation
engines. However, the music choice of a user is not
only dependent to historical preferences or music
contents. But also dependent on the mood of that
user. This project proposes an emotion-based music
recommendation. In this project we are using CNN
and digital image preprocessing. This emotional
information is fed to any collaborative or content-
based recommendation engine as supplementary data.
The results of comprehensive experiments on real
data confirm the accuracy of the proposed emotion
classification system that can be integrated to any
recommendation engine. The system uses computer
vision techniques to analyze the user's facial
expressions and map them to emotional states. The
emotional state is then used to select songs from a
database that match the user's current mood. The
system is designed to adapt to the user's preferences
over time by utilizing machine learning algorithms
that continuously learn from the user's feedback. A
user study was conducted to evaluate the
effectiveness of the proposed system, and the results
demonstrate that the system is able to accurately
recommend songs that match the user's emotional
state. The proposed system has the potential to
enhance the user experience of music streaming
services by providing personalized music
recommendations based on their current emotional
state. The emotional state is then used to select songs
from a database that match the user's current mood.
The system is designed to adapt to the user's
preferences over time by utilizing machine learning
algorithms that continuously learn from the user's
feedback. An evaluation of the proposed system was
conducted to assess its effectiveness, and the results

ABSTRACT

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AN AUTOMATIC SONG RECOMMENDATION SYSTEM BASED ON HUMAN
FACIAL EXPRESSIONS
DR RAVINDAR REDDY THOKALA¹, RAGHAVENDRA RAO ADDANAPUDI²
MOHAMMED FAUZAN³, ANDAPALLI SREEJA⁴

AN EFFECTIVE DEEP LEARNING-BASED CYBER SECURITY INTRUSION DETECTION AND ANALYSIS

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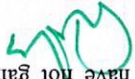
ABSTRACT

An intrusion detection system (IDS) that can quickly and automatically identify and categorize cyberattacks at the network and host levels is being developed using machine learning techniques. However, a scalable solution is needed since malicious attacks are always evolving and happening in huge quantities. Various malware datasets are publicly accessible for the cyber security community to conduct additional study on. In order to create a versatile and efficient intrusion detection system (IDS) that can identify and categorize unexpected and surprising cyberattacks, this research investigates deep neural networks (DNNs), a form of deep learning model. The constant evolution of attacks and changes in network behavior need the evaluation of numerous datasets produced over time using both static and dynamic methodologies. This kind of research makes it easier to determine which algorithm is more effective at anticipating future cyberattacks. A thorough analysis of DNN and other traditional machine learning classifier studies is presented using a number of publicly accessible benchmark malware datasets. The KDCCup 99 dataset is used to choose the best network topologies and parameters for DNNs using the hyperparameter selection techniques listed below. Every DNN experiment is conducted for 1,000 epochs, with learning rates ranging from 0.01 to 0.5. The DNN model that did well on KDCCup 99 is used to undertake benchmarking on various datasets, including NSL-KDD, UNSW-NB15, Kyoto, WSN-DS, and CICIDS 2017.

1. INTRODUCTION

For the last few decades, though huge commercial investments and substantial research were done, intrusion detection technology is still immature and hence not effective. While network IDS that works based on signature have seen commercial success and widespread adoption by the technology based organization throughout the globe, anomaly based network IDS have not gained success in the same

With the wide spreading usages of internet and increases in access to online contents, cybercrime is also happening at an increasing rate. Intrusion detection is the first step to prevent security attack. Hence the security solutions such as Firewall, Intrusion Detection System (IDS), Unified Threat Modeling (UTM) and Intrusion Prevention System (IPS) are getting much attention in studies. IDS detect attacks from a variety of systems and network sources by collecting information and then analyze the information for possible security breaches. The network based IDS analyzes the data packets that travel over a network and this analysis are carried out in two ways. Till today anomaly based detection is far behind than the detection that works based on signature and hence anomaly based detection still remains a major area for research. The challenges with anomaly based intrusion detection are that it needs to deal with novel attack for which there is no prior knowledge to identify the anomaly. Hence the system somehow needs to have the intelligence to segregate which traffic is harmless and which one is malicious or anomalous and for that machine learning techniques are being explored by the researchers over the last few years. IDS however is not an answer, all security related problems. For example, IDS cannot compensate weak identification and authentication mechanisms or if there is a weakness in the network protocols. Studying the field of intrusion detection first started in 1980 and the first such model was published in 1987.



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A framework for automatically learning to solve network optimization issues in wireless communication systems

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ABSTRACT

Network optimization problems (NOPs) are crucial for optimizing system performance in wireless communication systems (WCSs) by establishing suitable network configurations. Three issues arise when dealing with NOPs using traditional optimization techniques: high computer complexity, model invalidity, and human intervention. In order to accomplish intelligent and automatic network optimization by machine learning (ML) approaches, we present an auto-learning framework in this article. We go over the fundamental ideas of machine learning (ML) and suggest some of its basic applications in WCSs, such as automatic model building, experience replay, effective trial and error, RL-driven gaming, complexity reduction, and solution recommendation. We hope that these suggestions will inspire further research on employing machine learning approaches to address NOPs in WCSs.

1. INTRODUCTION

In wireless communication systems (WCSs), network optimization problems (NOPs) have been extensively studied to maximize system performance by setting appropriate network configuration settings. NOP contains a broad range of research aspects in wireless networking; typical applications include resource allocation and management, system parameter provision, task scheduling, and user quality of service (QoS) optimization. Figure 1 shows the basic process of solving a NOP in WCSs, which includes the following four steps.

Data Collection: the collection of essential information of the system and the surrounding environment. The collected data can be channel state information (CSI), interference, noise, user location, spectrum and time slot occupations, and so on. Some QoS information, such as delay and energy

consumption rates and mobility state, can also be the input data to support the following optimization process. Model Construction: in which the expert constructs an optimization model that contains an objective function and several constraints. The objective of the optimization model can be throughput, spectrum utilization, user-perceived delay, energy consumption/gain, facility deploy (cost), and so on. Typically, model construction is conducted by using a mathematical formulation process, and experts are required to master the domain knowledge and theories involved in the model. **Optimization:** The most commonly used methodologies for solving optimization problems are mathematical derivation-based methods (DBMs) and heuristic algorithms. The former adopt a mathematical derivation process to find the solution, such as the Lagrangian duality, Karush-Kuhn-Tucker (KKT) conditions, and gradient descent heuristic methodologies. The latter adopt a heuristic neighborhood searching process to approach the optimal solution, including genetic algorithm, simulated annealing, particle swarm optimization, firefly algorithms, and so on. In general, DBMs are quite suitable for solving problems with explicit and convex objective functions, while heuristic algorithms do not require the derivatives of the objective functions, and are generally able to produce high-quality solutions for complex optimization problems if the optimization complexity is suitably high. Besides the above two optimization methods, game theoretical techniques, including non-cooperative games, cooperative games, and Bayesian games, also have been successfully applied to solve the optimization problem by learning automatic configuration strategies from interactions with other functional nodes.

Configuration: With the optimization results, the system then reconfigures the settings of the system to improve the performance. Possible reconfigurations may include transmission power allocation, energy

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