

Result and Analysis: Data Sharing between Peer-to-Peer using Trust Model

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ABSTRACT

In this implemented project, using open nature of Peer to Peer systems that helps to expose the malicious activity. Building trust relationships among peers can reduce attacks of malicious peers. Peers create its own trust network in their proximity by using local information available and do not try to learn global trust information. Based on trust information it classifies the peers whether peer is trustworthy or not. In this paper used the technique called Self Organizing Trust Model (SORT) that aims to reduce malicious activity in Peer to Peer system by establishing trust relations among peers in their proximity. Trust information is evaluated based on service, trust values of each peers and it is based on past interactions. Which one peer having highest trust ratio that is computed using service and trust values of earlier interaction that peer to be selected for next interaction. This trust information helps to build a secure environment to transmit a packet. Simulation experiments on a file sharing application show that the proposed model can mitigate attacks on different malicious behavior models. In the experiments, good peers were able to form trust relationships in their proximity and isolate malicious peers.

Keywords

Peer to Peer system, Trust Management, Security, Establishing Trust Information, Past Interaction

1. INTRODUCTION

Systems work on collaboration of peers to accomplish tasks. Peer to peer system contain both type of peers like good peers and also malicious peers. We need to classify the both type of peers by creating long-term relationships among peers. Peers can provide a more secure environment by reducing risk and helps in future peer to peer interactions. However, establishing trust in an unknown peer is difficult in such a malicious environment. Furthermore, trust is a social concept and hard to measure with numerical values. Classifying peers as either trustworthy or untrustworthy is not sufficient in most cases. Metrics should have precision so peers can be ranked according to trustworthiness. Interactions and feedbacks of peers provide information to measure trust among peers. Interactions with a peer provide certain information about the peer but feedbacks might contain deceptive information. In the existing system, a central server is used to store and manage trust information, for example, ebay. The central server securely stores trust information and defines trust metrics but lot of problems could happen. Since there is no central server in most peer to peer systems, peers organize themselves to store and manage trust information about [1],[2].

Management of trust information is dependent to the structure of peer to peer network. In distributed hash table (DHT)-based approaches, each peer becomes a trust holder by storing feedbacks about other peers [1],[3],[4]. In unstructured networks, each peer stored trust information about peers in its neighborhood or peers interacted in the past [2],[5],[6]. A peer

sends trust queries to learn trust information of other peers. A trust query is either flooded to the network or sent to neighborhood of the query initiator. Generally, computing trust information is not global and does not reflect opinions of all peers. In this implemented system, using the technique called Self-Organizing Trust Model (SORT) that aims to reduce malicious activity in a peer to peer system by establishing trust relations among peers in their proximity. No a priori information or a trusted peer is used to leverage trust establishment. Peers do not try to collect trust information from all peers. Each peer develops its own local view of trust about the peers interacted in the past. In this way, good peers form trust groups in their proximity and can isolate malicious peers. Since peers generally tend to interact with small set of peers [7], forming trust relations in proximity of peers helps to mitigate attacks in a peer to peer system.

In SORT, peers are assumed to be strangers to each other at the beginning. A peer becomes an acquaintance of another peer after providing a service, example, uploading a file. If a peer has no acquaintance, it chooses to trust strangers. An acquaintance is always preferred over a stranger if they are equally trustworthy. Using a service of a peer is an interaction, which is evaluated based on time and bandwidth of the interaction and satisfaction of the requester. SORT defines three trust metrics. Reputation metric is calculated based on recommendations. It is important when deciding about strangers and new acquaintance. Reputation loses its importance as experience with an acquaintance increases. Service trust and recommendation trust are primary metrics to measure trustworthiness in the service and recommendation contexts, respectively. The service trust metric is used when selecting service providers. The recommendation trust metric is important when requesting recommendations. When calculating the reputation metric, recommendations are evaluated based on the recommendation trust metric. SORT helps to reduce the malicious activity in the peer to peer network by building trust relationships among peers. It helps to form secure environment to transmit the packet and only good peers have interactions with each other. We implemented a peer to peer file sharing simulation tool and conducted experiments to understand impact of SORT in mitigating attacks. Parameters related to peer capabilities (bandwidth, number of shared files), peer behavior (online-offline periods, waiting time for sessions), and resource distribution are approximated to several empirical results [8],[9],[10]. This enabled us to make more realistic observations on evolution of trust relationships.



3.3.2 Number of research papers published in the Journals notified on website during 2019

SL. No.	Title of paper	Name of the	Department of the teacher	Name of journal	ISSN number	Indexing Database
203.	An Efficient Pilot Scheduling Mechanism for Mitigating the Contamination in MIMO-OFDM Systems.	Swetha Rani.L	Electronics and Communication Engineering	Journal of Advanced Research in Dynamic and Control System	ISSN: 1943-023X	website
204.	Efficient Channel Estimation with Optimization Algorithm-Based Pilot Pattern Design for MIMO-OFDM Wireless Networks	Swetha Rani.L	Electronics and Communication Engineering	International Journal of Recent Technology and Engineering (IJRTE)	ISSN 2352-5398	website
205.	Opposition Based Genetic Algorithm for Optimizing Pilot Pattern for MIMO-OFDM Systems	Swetha Rani.L	Electronics and Communication Engineering	HKBK International Journal of Engineering, Sciences and Technology (HJEST)	NA	website
206.	An Automatic Localization of Optic Disc in Low Resolution Retinal Images by Modified Directional Matched Filter	T. Kavita	Electronics and Communication Engineering	International Arab Journal of Information Technology	ISSN: 1683-3198	website
207.	Finitely generated generalized right alternative rings	Manjula.C	Mathematics	International journal of Engineering, Science, and mathematics	2320-0294	website

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Efficient Channel Estimation With Optimization Algorithm-Based Pilot Pattern Design For MIMO-OFDM Wireless Networks.

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Abstract- In multiple input multiple output orthogonal frequency division multiplexing (MIMO-OFDM) frameworks, the channel state data ought to be known by the beneficiary for acquiring transmitted information. Channel estimation algorithms are utilized to look at the multipath effects of frequency selective Rayleigh blurring channels. It acquires the required channel data ahead of time with the aim of making the piloting code of the transmitter progressively proficient to influence the receiver to detect signals more effectively. In this way, the precision of channel estimation is the most critical in the concerns that determine the overall performance of a MIMO-OFDM system. In this paper, proficient channel estimation with optimization algorithm based pilot pattern design (ECE-OA) is proposed for MIMO-OFDM remote systems. It is utilized to reproduce the signal with improved spectral efficiency and requires transmitting the known pilot information to the receiver for estimating channel data. The ideal pilot patterns selected through reduce the negative effect of pilot pattern design. In ECE-OA, a chaotic social spider optimization (CSSO) algorithm is utilized to co-ordinate the assignment of pilot sequences across all cells to reduce the correlation between the pilots as observed at each base station. The multiple metrics are obtained from the uplink (UL) channel state information (CSI), during every UL period users in each cell transmit known pilot sequences to the base station in their own cells and the BS estimates uplink CSI. The proposed design used to maximize the accuracy of channel estimation and to reduce the computational complexity. The simulation results show that the performance of proposed ECE-OA design is perform better than existing state-of-art techniques in terms of bit error rate (BER) and Mean Square Error (MER).

Index Terms:Multi Objective Problem, Optimization Algorithm, Pilot decontamination, Multi factor social spilder optimization.

I. INTRODUCTION

MIMO technology has been shown to provide higher data rates with increased phantom proficiency [1][2]. The execution of a MIMO framework is straightforwardly identified with the gotten SINR and the relationship properties that are normal for the multipath channel and reception apparatus arrangement [3]. Despite the fact that the remote channel can convey low SINR at a portion of the MIMO get receiving wires, it is conceivable to improve framework execution with the utilization of beam forming at the transmitter. Despite the fact that regularly utilized together, it is imperative to separate here that beam forming is a flag preparing method, which is altogether different from shaft controlling where the bearing of the primary flap of radiation is changed. In MIMO, there are different receiving wires and utilized for synchronous transmission just as gathering. MIMO has the favorable position because of different reception apparatuses and propelled flag handling strategy utilized. By utilizing this procedure, different quantities of information streams can be transmitted or got over the MIMO reception apparatuses autonomously [4]. The impedance presented by the adjacent reception apparatuses is the principle issue of the MIMO system. Most MIMO plans are intended to accomplish only one of two accessible additions from these frameworks, are spatial multiplexing increase, spatial assorted variety gain [5]. There is, exchange off a tradeoff between otherworldly effectiveness and decent variety increase can be normal while considering MIMO usage. In any case, none of them recommended reasonable structures fit for accomplishing an ideal exchange off between spatial multiplexing and assorted variety gains [6]. Cross breed recognition in MIMO [7] emerges as answer for mutually accomplish spatial multiplexing and assorted variety gains. It is conceivable to significantly build the information rate while keeping a tasteful connection quality as far as bit mistake rate (BER) or SER [8]. Truth be

FINITELY GENERATED GENERALIZED RIGHT ALTERNATIVE RINGS

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ABSTRACT: *We show that weakening the hypothesis of right alternative to the three identities.*

$$(wx, y, z) + (w, x, [y, z]) = w(x, y, z) + (w, y, z)x = 0 \quad \dots (1)$$

$$(x, x, x) = 0 \quad \dots (2)$$

$$\text{And } ([x, y], y, y) = 0 \dots (3)$$

for all w, x, y, z in the ring R will not lead to any new simple rings. In fact we show a semi prime finitely generated generalized right alternative ring is right alternative. We also show that if R is a prime finitely generated generalized right alternative ring of $\text{char.} \neq 2, 3$. Then we show that nucleus is equal to the commutative center.

KEYWORDS AND PHRASES: *Generalized right alternative ring, commutative center, Nucleus.*

2010 Mathematics Subject classification: 17D15

INTRODUCTION: Using the standard notation, $(x, y, z) = (x, y)z - x(y, z)$, for the associative and $[x, y] = xy - yx$ for the commutator, a non associator ring which satisfies the identities.

$$\bar{A}(wx, y, z) + (w, x, [y, z]) - w(x, y, z) - (w, y, z)x = 0 \quad \dots (1)$$

$$(x, x, x) = 0 \quad \dots (2)$$

$$\text{and } ([x, y], y, y) = 0 \dots (3)$$

is called generalized right alternative ring and those rings that satisfy (1) and

$$(x, y, z) + (y, z, x) + (z, x, y) = 0 \dots (4)$$

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Sentiment Analysis using Neural Network and LSTM

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1.

Abstract. People put their opinions or views on various events happening in the society or world. Twitter is one of the best social networking sites where a huge amount of data generates on the daily basis. These data can be used to classify their tweets based on various sentiments attached to them. Numerous technologies are applied to analyse the sentiments of users. Sentiment analysis needs a very efficient method to manage long arrangement data and their drawn-out dependencies. In this paper, we have applied a deep learning technique to perform Twitter sentiment analysis. Simple Neural Network, Long Short-Term Memory (LSTM), and Convolutional Neural Network (CNN) methods are applied for the sentiment analysis and their performances are evaluated. The LSTM is the best among all proposed techniques with the highest accuracy of 87%. We have collected a Twitter dataset from Kaggle to perform our experiment. The future improvement of the proposed research should include REST APIs and web crawling-based solutions to get live tweets to perform real-time analytics. We have analysed 1.6 million tweets in our research work.

2. Introduction

Sentimental analysis is the textual mining applied to extract useful subjective information to understand the social sentiments about the brand which help in business improvement or quality control. The opinion about the product utility varies from person to person. Customer feedbacks are very important in terms of brand monitoring and product reputation. It is used to find negative, positive, and neutral emotions about the subject. Twitter is an American social networking service on which users put their posts, retweet and read them. It is one of the most popular platforms to express our opinions or comment on ongoing issues from all sources.

These days social media, blogs and networks produce huge information. People share their thoughts on various events and issues. This bulk information is used for opinion and decision making in a business. Twitter generates massive short tweets and because of that, the tweet size is reduced to 140 characters. Opinion and Sentiment Mining are exceptionally helpful to get the opinion from the users or to analyse their sentiments. Our main objective is to classify sentiments into different categories.



VISION ASSIST FOR AUTONOMOUS SURGERY ROBOT

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Abstract: The pedicle screw insertion has become the most exercised procedures in spine fusion surgery. It is performed to hold the vertebrae of the treated area in a fixed position. Each year there are about 1.3 million spinal surgeries performed in US alone. The miss-insertion rates in the lumbar spine region have been documented to be from 5% - 41%[1]. This paper provides a perspective on the development of vision assist system for an automated robot for fixation of pedicle-screw. Pedicle screw fixation devices are considered as class III medical devices. The technique of pedicle screw insertion in the spine has gone through significant development over the last two decades. Aim of this paper is to decrease the error rates by implementing an image-processing method which intends to eliminate the use of intra-operative fluoroscopy, MRI and CT.

1. Introduction

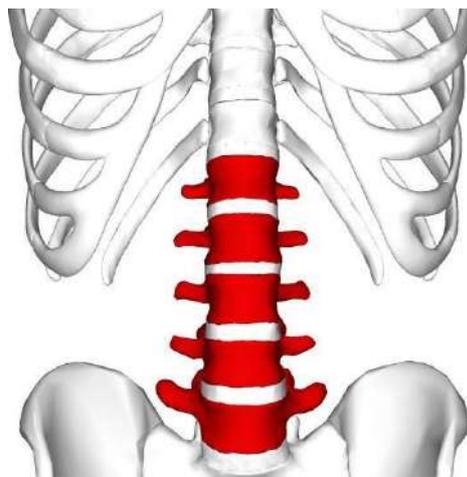


Figure 1. Lumbar region of Spine

A medical protocol that uses operative instrumental and manual techniques on a patient to treat a pathological condition such as a disease or injury is known as Surgery. Every year there are about a million spinal surgeries performed in US, 53 percentage of which is classified as spinal-fusion surgeries. Pathological condition in the spine is one of the reasons why the patient requires medical



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Effect of Hot rolling on Microstructure and Mechanical behaviour of B₄C nano particulates reinforced Al6063alloy Composites

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Abstract: In this research composite of aluminum alloy reinforced with nanoB₄C particles were fabricated through ultrasonic-cavitation assisted casting process followed by hot-rolling at a temperature of 450^oC, The Micro structural analysis showed the presence and uniform distribution of boron carbide nano-particles with good bonding with Al6063 alloy, in case of hot rolling, The B₄C particles have been found to align in the rolling direction. The Grain size analysis of composite indicates that significant grain refinement compared to base matrix alloy. The addition of nanoB₄C particles shows improvement in hardness compared to non-reinforced aluminium in before and after hot rolling. The tensile strength of as cast composites was increased with an increase in nanoB₄C particle content up to 4 wt. % but beyond 4wt% leads to the decrease in strength of composites, The hot rolled Al6063alloy and its composites show a substantial increase in hardness, tensile strength and ductility those of as cast counterpart.

Keywords: Al6063alloy, Ultrasonic Cavitation assisted casting, hot rolling, Microstructure and Mechanical behaviour

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I. Introduction

Particulate reinforced aluminum alloy composites are becoming one of the most promising materials and have the ability to provide tailored mechanical properties such as low weight, high strength, high specific strength, stiffness and good wear resistance, make them attractive for several interesting applications in the field of aerospace, automotive, defense industries as well as sporting goods and electrical packaging [1-2]. Among all the available aluminum alloys 6000series have numerous advantages including good formability, medium strength, good weldability, corrosion resistance and heat treatable [3]. Depending on applicability and functionality the aluminium matrix is getting strengthened by using hard ceramic reinforcement particles such as SiC, TiC, B₄C, Al₂O₃, Si₃N₄, AlB₂ and TiB₂ [4].

The B₄C particles are of great importance among them because of certain distinguishing features including high strength, high stiffness, which possesses lower-density (2.52g/cm³), extremely more hardness, better chemical stability, and neutron absorption capability[5]. From this point of view, composites with B₄C reinforced aluminium alloy matrix composites have been used in a wide range of industrial applications.

The performance of composites can be improved by reducing the size of reinforcement particles from micro to nano level such materials are referred as nano-composites. The several processing techniques are widely used for fabrication of metal matrix nanocomposites such as Sintering process, Powder metallurgy, Mechanical alloying, [6-7] Ball milling process [8], Spray deposition techniques, Squeeze casting, Pressure infiltration, Stir casting and other various casting techniques [9]. Uniform distribution of nano-particles in molten metal is a very challenging task due to low wettability, wide surface to volume ratio with the use of traditional stir-casting technique, This process can be used without agglomeration and clustering to disperse the micro-sized particles in molten metal, However Some researchers have been suggested the ultrasonic-cavitation assisted casting techniques to disperse and distribute the nano reinforcement particles in molten melt which improves the wettability, grain structure and homogeneous distribution of nanoparticles in the matrix alloy [10-11]. However the casting defects such as shrinkage cavities, porosities and blow holes are produced during the processing of composites which are very difficult to remove or eliminate at the time of manufacture. In order to conquer these casting defects further the developed composites materials are subjected to secondary forming process, such as rolling, extrusion and forging resulting in reduced porosity, improved bonding among matrix and reinforcement phase and uniform distribution of reinforcements particles

Segmentation and Analysis of Knee Femoral Cartilage for Osteoarthritis using MR Images

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Abstract. Knee Osteoarthritis (OA) is a chronic disease of femoral knee cartilage impairment and can be analyzed with Magnetic Resonance Imaging (MRI). Early detection of the disease helps patient from severe damages. Hence segmentation of knee cartilage is based on pixels of the image. We propose a Femoral Knee Cartilage degeneration method by 3 components: Preprocessing is done to standardize intensity and spatial characteristics and then Segmentation is carried out by registration, transformations and wrapping of reference image and results are verified using Dice Similarity Coefficients; Cartilage thickness is visualized by clouds using morphology and relaxometry. This paper aims at analyzing the femoral segmented cartilage thickness and volume via Pearson coefficients. Ground truth segmentation resulted in an average DICS Coefficient of 0.86. Pearson's coefficients were 0.96 for cartilage thickness and 0.98 for cartilage volume.

1. Introduction

Osteoarthritis (OA) is the most common arthritis of the knee. It is a multifactorial and heterogeneous disease and is characterized as Hyaline articular cartilage loss, progressively [1]. Magnetic Resonance Imaging (MRI) is a non-invasive technique that allows the assessment of various tissues composition and its states. In the MRI process, a patient is placed in a strong longitudinal magnetic field that aligns nuclear spins of atoms in the patient's body, which results in a net magnetization vector. Magnetic Field Components with the radio frequency pulses transverse to the longitudinal field frequencies produced are adjusted to the Larmor Frequency of an isotope of interest are applied often. These pulses can flip spins to a higher energy resulting in a transverse component to the Magnetization vector. Responsive signals from the patient's body can be detected when these spins return to the ground state. Characteristics of the magnetization can be measured based on the RF pulses response [2].

Evaluation of OA is carried out by plain radiographs, depicted by the joint space narrowing or gross osseous change that exist lately in the OA patients. Plain Radiographs do not show the changes of articular cartilage early. Hence the growth of joint space narrowing infers the cartilage loss indirectly, which is unreliable with proper technique of careful attention [3].

Most useful tool for direct visualization of cartilage is MRI. Morphological Imaging shows damage of cartilage at certain stage [4]. Standard sequences of MR Techniques for fat saturated T2- weighted, proton



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UFMDRA: Uterine Fibroid Medicinal Drugs Review Analysis

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Abstract: Nowadays, enormous reviews are posted online by the consumers which provide related and required knowledge to the similar consumers. Such information is very much crucial for decision making and hence trendy among the web users. This information is very essential not only for potential consumers to make decisions but also for forecasting success and sustainability in commercial businesses. Online reviews on medicinal drugs are important for patients, medical representatives and medical industries. Reviewing medicinal drugs is challenging as sentiment analysis provides very little opportunity to discuss it. Collecting the reviews for uterine fibroid medicines from websites and analysing is a challenging process. An efficient Uterine Fibroid Medicinal Drugs Review Analysis (UFMDRA) model is developed with a decision tree algorithm which is trained and tested for different split ratios to obtain 100% accuracy. Experimental analysis results show that the proposed model has better classification performance in terms of accuracy compared to other classifiers.

Keywords: *Decision Tree; Medicinal Drugs; Pre-processing; Review Analysis; Uterine Fibroid.*

1. Introduction

Most of the women suffer from problems of uterine fibroids which are non-cancerous tumors present around the uterus commonly found in the female pelvis. Presence of these fibroids ranges between 3.3 and 77% and varies with age. Fibroids are very common in childbearing women. The study conducted between July 2015 and August 2017, in a private hospital in the city suburbs, found that 11.6 % of the 4,487 women who visited the gynaecology outpatient department had uterine fibroids [1]. By the age of 50 most of the women have fibroids and underage of 20 [2] fibroids are rare. Studies suggest that this disease affected 60% of reproductive-aged women and during their lifetime 80% of women develop this disease [3, 4].

Fibroids can develop anywhere in the uterus and are classified according to their source of development. Myometrial/ Intramural Fibroids develop in and around the wall of the uterus.



Effectiveness of Virtual Education

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ABSTRACT:

Offline education, which is the ‘brick and mortar’ classrooms are losing their monopoly position in the world of learning. With the advent of internet, online education has become a reality. Many researchers and educators find online learning more attractive and popular means of enhancing student learning in education. Online education has not only become popular and cost effective, but it also requires less resource especially in the field of higher education. India, as a fast-developing country has undergone different stages of growth in its development process. One of the areas in which India has developed in, is in the field of learning. New technologies have been invented in this field to make online education more attractive and lucrative. This article, attempts to trace the beginning of online education, discusses the pros and cons of virtual education. Also, briefly discusses about the various initiatives undertaken in online education in India. A research study was done with a small group of Higher Education students to gauge their responses towards the effectiveness of virtual education. A research study was done with a group of Postgraduate and Undergraduate students to describe their responses to the effectiveness of virtual education. A statistical tool was applied to study whether student satisfaction towards virtual education was determined by their gender. The online teaching methods adopted in India, shows that there is a glaring gap in the digital infrastructure between rural and urban India. Only a minor percentage of the Indian population has access to internet and electronic gadgets. Digital infrastructure is insufficient in the rural areas, in three tier towns and in the remote parts of India.

Keywords: brick and mortar classrooms, internet, online teaching, digital infrastructure, three tier towns, internet, electronic gadgets.

1.1 INTRODUCTION:

1.1.1 Definition:

When teachers and students are separated by distance or time and make use of technology like computers, TV, radio, satellite to impart and receive education, this was termed as distance education. Online education is considered as a form of distance learning.

1.2.2 BRIEF HISTORY OF VIRTUAL EDUCATION:

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ABSTRACT

An appropriate HRMS takes care of numerous HR functionalities including recruitment, compensation, attendance, payroll, performance management, succession planning and more. Making it cloud-based is another milestone marked to achieve excellence in terms of more storage, security with anywhere and anytime access. A cloud-based HRM has the ability as it can be accessed from anywhere in the world via a secure sign on process.

This explorative paper focuses on to elaborate the importance and application of cloud based HRMS and why to invest in a cloud based HRMS. This paper discussed about the implications of turning to Cloud-based HRMS. Factors contribute to a successful HR Cloud transformation also analysed in this paper. A full-fledged human resource and management system enables seamless workflows within the organization, eliminating the data redundancy issues. This not only eases employees to manage their database, but also gives HR department an improved insight of database. With an end-to-end, cloud HRMS, can boost employee performance while making them the best workforce to reckon with.

Keywords: HRMS; HR functionalities; Cloud based HRM; Data base; and Cloud HRMS

Introduction

A cloud HR system unifies data for a centralised platform that offers better, quicker and easier HR management.

These systems allow us to manage everything from payroll to training all in one place to help to save time and energy.

HRMS stands for Human Resource Management System. HR work has become more complex and involved today than it ever has been. There's so much that goes into the management of employee information, which is used for everything from recruiting and hiring to training, evaluations, and so much more.

This is why many companies are now using an HRMS (Human Resource Management System) a combination of systems and processes that connect human resource management and information technology through HR software. HRMS can be used in candidate recruiting, payroll management, leave approval, succession planning, attendance tracking, career progression, performance reviews, and the overall maintenance of employee information within an organization.

The automation of repetitive and time consuming tasks associated with human resources management frees up some of the companies most valuable employees and allows the focus to shift to culture, retention, and other highly impactful areas.

Review of literature

- Isaac ODUN AYO, Sanjay Misra (2017), "With the emergence of cloud computing, it has become easy to store large volumes of data in the cloud to enhance human resource management, based on the elasticity and scalability that cloud computing offers."
- Abhishek Upadhyay (2019), "As technology is taking an upward trajectory, access to innovation is getting easier for companies. Irrespective of their size, organizations can make use of cloud HR software without investing heavily in it. Moving the core HR processes to the cloud provides organizations with added agility and flexibility."

Research questions

The following research questions have been determined based on the literature review:

- **Question 1:** Which factors from an HR perspective contribute to a successful HR Cloud transformation?
Also considered, HR digitization strategies, drivers, and obstacles; Prioritizing HR processes by stakeholders, etc.
- **Question 2:** Do companies use HR key performance indicators for HR process control/optimization