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Journal of Interdisciplinary Cycle Research

Aims and Scope

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Journal of Interdisciplinary Cycle Research

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Applying Convolutional Neural Networks to the Task of Image Classification

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ABSTRACT

Recent years have seen rapid advancement in the identification of digital materials, making automated picture categorization a particularly difficult job in the area of computer vision. Understanding and analyzing pictures automatically by a machine is challenging in comparison to human eyesight. Several studies have been conducted to address issues with the current categorization method, however the results have only addressed the most fundamental aspects of a picture. However, there is a problem with the accuracy of the picture categorization using those methods. In this study, we present how our system employs a deep learning algorithm to provide the desired outcomes in fields like computer vision. For automated picture categorization, our system makes use of a machine learning approach called Convolutional Neural Network (CNN). When it comes to grayscale picture categorization, our algorithm takes the Digit from MNIST collection of data as a standard. Grayscale pictures in the training data set demand higher processing resources for image categorization. The experimental results reveal that our algorithm achieves a high level of accuracy in the categorization of pictures since it was trained using a CNN network.

INTRODUCTION

Automatic picture categorization has emerged as a major obstacle in visual indexing and retrieval systems in recent years, thanks to the exponential rise in digital material. The goal of computer vision, a branch of artificial intelligence, is to give computers the same visual perception abilities as humans. There have been a number of attempts to solve these issues via study, however these techniques only take into account the most fundamental aspects of images. In order to analyze the visuals, it is necessary to look beyond the surface level.

Since the beginning of computer vision, image categorization has been a significant challenge. Image comprehension and categorization is second nature to humans, but a computationally intensive and time consuming process for computers. Pixels are the building blocks of images, and their values may vary depending on context. It follows that additional storage space is required on the computer in order to keep a picture. A larger number of computations is required for picture classification. In order to do this, more powerful and sophisticated systems are required. It is not feasible to make judgments based on the input in real time due to the lengthy computing time required.

Features extraction using Hyper Spectrum Images (HSI) utilizing the deep learning concept of Convolutional Neural Networks (CNNs) is explored in . Features (nonlinear, immutable) from the HIS are extracted using a variety of CNN pooling layers for optimal picture classification and target recognition. Problems with the interoperability of HSI pictures are also addressed. From an engineering

point of view, the goal is to develop tools that can do tasks that the visual system of humans can. It focuses on developing methods for automatically extracting, analyzing, and comprehending relevant information from photographs.

There have been several descriptions and comparisons of picture categorization methods throughout the last decade. picture classification, in a broad sense, is the process of deducing meaning from a picture by assigning each of its pixels a label corresponding to one of many predetermined categories. Supervised classification and unsupervised classification are two possible approaches. Image classification using an Unsupervised learning method for underwater fish identification is discussed.

The image's pixels are automatically grouped together using this method. The picture is parsed for its meaning based on the grouped pixels. Since labeled data is scarce in practice, most classification tasks are completed without human oversight. Supervised classification approaches are covered in, where features are extracted from labeled photos and used to train a classifier. The freshly given picture will be labeled according to the characteristics seen in the image using the training data.

In recent years, Deep Learning algorithms have shown promising results in applications such as computer vision. Specifically, a machine learning system called a Convolutional Neural Network is being utilized to categorize the images. Classifying the quality of wood boards using texture data taken from photographs of wood is the focus of [4], which use a deep learning system to do the job. The parallel to the structure of artificial intelligence was also drawn by him. Successful image analysis applications have been made using convolutional neural networks (CNNs), a sort of feed-back artificial neural network. The circuitry of the neurons is modelled after that seen in the visual brain of animals, furthering the realistic feel. Using convolutional neural networks (CNNs) to extract the relevant features from cow photographs and using support vector machine (SVM) approaches for classification, [5] discusses automated recognition of cattle images.

To classify 15 million annotated photos belonging to 1000 categories using a deep convolutional Neural network, the authors of employ high-resolution images from the ImageNet data set [6]. The layers of a convolution neural network (CNN) consist of an input layer, a hidden layer, and an output layer. Pixel values are often supplied as input to the input layer with biases as well as weights (for non-linearity) since pictures are typically built as an array of pixels. If the goal is to assign a category to a picture, the final layer will often be entirely linked. Convolutional, pooling, or completely linked layers may all be used for the hidden one. Classifying hyper spectral data acquired by remote sensing is discussed in [7], where several -learning approaches are shown.

The Convolutional layer serves as a foundational component and its settings, known as learnable filters, are flexible.

While each filter has a limited horizontal and vertical footprint, its reach is expansive throughout the input volume's vertical depth. The 2-dimensional activating map is generated by taking the dot product of each filter's input and its corresponding filter's entry. The network then "learns" a filter to turn on if a certain feature appears at a certain location in the input. In order to down sample a picture without distorting the original, a layer of pooling is used.

In max pooling, we take the highest value from the previous layer's neural cluster. All of the neurons in one layer are linked to those in all of the other layers in the completely connected layer. In contrast to conventional classification algorithms, which rely on hand-engineered filters, CNNs need little pre-processing before being used. One of CNN's benefits is that it can learn filtering mechanisms without human input.

Training a CNN needs a huge amount of labelled data since it is a supervised deep learning technique. After being trained, a model may increase its classification accuracy by learning the optimal weights to use.

The classifier is then shown a picture and displays to which category it belongs.

The self-driving automobile developed by Google is a cutting-edge deep learning project that exemplifies the rapid progress made in AI recently. In this project, realworld visual data is used as input, and subsequent judgments are made using that data. In this context, images are classified and judgments are made based on the results. If a road can be seen in the picture, the vehicle will go down it, but if a tree or somebody is in the way, the vehicle will halt. Deep learning is used to determine who is in a user's profile picture in Facebook's facial recognition project. Face traits such as the eyes, ears, and nose are taught to the network when it is trained using images of real human faces as input. In order to provide a label to a face, the classifier analyzes its visual characteristics. Using an Unsupervised Learning method, [8] discusses how to rearrange various animal and plant species. Similarities in overall form and structure across species in various groups are prioritized in this reclassification, whereas differences in object components are given less weight. Along with this, he suggests the template model for encapsulating the Co-occurrence relation of the object pattern as well as the common components and forms of the object.

RELATED WORK

A BiSegmentation Approach to Image Classification (BiCoS)

Improving picture classification accuracy is the focus of this work, which aims to achieve by the unsupervised segment of image set training into foreground and background. Specifically, we provide BiCoS, a novel alternate-based, scalable approach for co-segmentation that is easier to implement than many of its forerunners while still achieving top-tier results on industry-standard benchmark picture datasets.

An Overview of Fine-grained Object Classification and Semantic Segmentation Using Deep Learning

Image categorization, object recognition, and semantic segmentation are just a few of the many vision tasks where deep learning software has shown itself to excel. For fine grained picture classification, which tries to differentiate intermediate-level categories like bird kinds or dog breeds, the latest advancements of deep learning approaches have brought promising results. High within-class variation and relatively low between-class variance make this assignment very difficult. In this research, we examine four distinct methods of finegrained picture classification that rely on deep learning: generic convolutional neural network models (CNNs), component identification based methods, ensemble of networks methods, and visual attention methods. In addition, this work discusses deep learning-based semantic segmentation methods. Semantic segmentation methods using both region proposals as well as full convolutional networks as examples are shown.

Classification of Bird Sounds at Scale Using Convolutional Neural Networks in an Ambient Noise Setting

In this study, we present the deep learning strategy to bird song categorization using convolutional neural networks that was employed in the 2016 BirdCLEF sound record-based bird identification challenge. About 24,000 and 8,000 recordings, respectively, representing 999 different bird species were included in both training and test sets. The duration and nature of the recorded waveforms varied greatly. We did a frequency-domain transformation on the waveforms and then divided them up evenly. For feature learning, a convolutional neural network, or CNN, was used, and then fully connected layers were used for classification based on the input segments. The official scores for our approach were over

40% for the major species and above 33% for the main species combined with background species in the MAP metric..

Graphs of computations for tensor flows, optimized using polyhedral

To better compute neural networks, we introduce R-StreamTF, an polyhedral optimization tool. To parallelize and enhance the calculations done in a network of neurons graph, R-StreamTF employs R Stream, a rectangular compiler, to convert the graph's computations into C programs suitable for the polyhedral format. R StreamTF may take use of R-Stream's optimizations to provide a computation graph that is highly optimized and mapped to the intended architecture. Experiments showed that R-StreamTF is useful for converting neural network calculations to parallel architectures, with automated performance levels approaching those of hand-optimized implementations.

Deep neural networks with several columns for image recognition

Computer vision or machine learning as we know them now fall short of human performance in tasks like handwriting recognition and traffic sign identification. Our artificial neural network topologies are broad and deep, mimicking the brain's structure and function. Convolutional winner-take-all neurons with small (sometimes minimum) receptive fields create deep networks with about as many sparsely connected layers as are found between the retina and the visual cortex in mammals. Only successful neurons are nurtured. Multiple deep neural columns specialize in processing inputs in various ways, and their collective predictions are then taken as an average. Training times are reduced thanks to graphics cards. For the first time, our approach achieves near human performance on the challenging MNIST handwriting benchmark. It achieves double the human performance on a benchmark for traffic sign identification. On a wide variety of popular picture classification benchmarks, we also achieve state-of-the-art performance improvements.

Xception: Deep Learning with Depthwise Separable Convolutions

We propose that Inception sections for convolutional neural network models may be seen as an intermediary stage between standard convolution or an depthwise separable convolution function (a convolution with depth subsequently followed by a pointwise combining). This allows us to see a convolution that is depthseparable like an Inception unit with an infinitely many towers. Based on this finding, we present an innovative Inception like wide recurrent neural network architecture in which Inception modules are substituted by depthwise separable convolutions. We demonstrate that this architecture, named Xception, somewhat outperforms Inception V3 in terms of performance on the ImageNet dataset (for which Inception V3 was developed) and greatly outperforms Inception V3 on a bigger image classification dataset consisting of 350 million pictures and 17,000 classes. Because the number of parameters in the Xception architecture is same to that of Inception V3, the improvement in performance is not attributable to extra memory or processing power, but rather to better parameter use.

METHODOLOGY

1. Generate CNN Train & Test Model:

Using this module, the CNN will trained and test model is generated.

2. Upload Test Image : Using this module, We will upload test Images.

3. Classify Picture in Image.

RESULT AND DISCUSSION



After uploading image click on 'Classify Picture In Image' button to predict photo in uploaded image



In uploaded image in above screen we can see application classify image as Dog. Similarly u can test with other images

CONCLUSION

In this research, we use CNN to the task of classifying photographs from the MNIST handwriting database. This collection of data is utilized for both training and testing CNN. The accuracy rating it delivers is 98%. Training visuals are often low resolution and monochrome. Processing these photographs takes a lot more time computationally compared to processing regular JPEG images. The accuracy of picture classification may be improved by stacked the model with additional layers while training the machine learning algorithm with more visual information utilizing clusters of GPUs. Future improvements will focus on improving the classification of huge color pictures, which is helpful in the image segmentation process.

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- [13]. ETH Zurich's Yuning Chai, University of Oxford's Victor Lempitsky, and Andrew Zisserman from the Department of Engineering Science Engineering and Physical Science Division, University of Oxford BiSegmentation: A BiClassification Approach (BiCoS) for Images

A STUDY OF EFFECTIVE HRM PRACTICES FOR SUSTAINABLE DEVELOPMENT IN MSMES OF ANDHRA PRADESH

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ABSTRACT

This study investigates the Human Resource Management (HRM) practices in Micro, Small, and Medium Enterprises (MSMEs) within the context of Andhra Pradesh, with a focus on their role in fostering sustainable development. The primary objective is to analyse the effectiveness of HRM practices in enhancing the sustainability of MSMEs in Andhra Pradesh. The research employs a mixed-methods approach, combining surveys, interviews, and case studies to gather comprehensive data. The sample consists of MSMEs across various industries in Andhra Pradesh, providing a diverse perspective on HRM practices and their impact on sustainable development. It is also attempted to examine the status of MSME's. MSMEs are playing a key role in the economic growth of the country and increasing national GDP. The MSME is a vast sector containing more than 35 units which are employing over than 80 million people of the country. Hence, it is crucial to manage human asset with healthy HR practices and policies, for continuous growth of the sector as well as economic development of the county. In this study, researcher attempted to evaluated existing HRM practices in MSME sector and identified the that these practices have a great impact of employee attitude. To carry out this research 60 Micro, Small and Medium enterprises from four mandals namely Machavaram, Piduguralla, Bellam konda and Karampudi were surveyed. Findings reveal a correlation between well-implemented HRM practices and the sustainable development of MSMEs. Effective recruitment, training, and retention strategies positively influence employee engagement and productivity, contributing to the overall sustainability of these enterprises.

Keywords: MSMEs, HRM practices, HRM polices, Indian Economy.

Introduction:

The Micro, Small, and Medium Enterprises (MSMEs) sector, known for its dynamism and contribution to economic growth, plays a pivotal role in fostering innovation, generating employment, and contributing to sustainable development. In the context of Andhra Pradesh, where MSMEs form a significant part of the economic landscape, understanding and enhancing the Human Resource Management (HRM) practices within these enterprises become imperative.

Andhra Pradesh, with its vibrant business environment, diverse industrial base, and entrepreneurial spirit, provides an intriguing backdrop for this study. MSMEs, ranging from micro-enterprises to medium-sized establishments, constitute a significant proportion of the state's economic fabric. The study aims to delve into the specific nuances of HRM practices tailored to the socio-economic landscape

of Andhra Pradesh.

HRM Practices:

The following are broad categories, and the specific HRM practices that can vary based on organizational size, industry, and other contextual factors.

Recruitment and Selection:

HRM involves the process of attracting, recruiting, and selecting the right candidates for job positions. Recruitment strategies include job postings, online platforms, and networking. Selection processes often include interviews, assessments, and reference checks.

Training and Development:

HRM focuses on enhancing employee skills and capabilities through training and development programs. Training may include on-the-job training, workshops, seminars, and e-learning initiatives. Development programs aim to prepare employees for future roles within the organization.

Performance Management:

HRM is responsible for developing and implementing performance appraisal systems. Performance evaluations provide feedback to employees, identify areas for improvement, and inform decisions on promotions and compensation.

Compensation and Benefits:

HRM oversees the design and administration of compensation and benefits packages. This includes salary structures, bonuses, health insurance, retirement plans, and other perks.

Employee Relations:

HRM manages employee relations to foster a positive work environment. Handling employee grievances, conflicts, and ensuring effective communication are key responsibilities.

HR Planning:

HRM engages in strategic planning to align human resources with organizational goals. This involves forecasting future workforce needs, succession planning, and talent management.

Job Analysis and Design:

HRM conducts job analysis to understand the duties, responsibilities, and qualifications for each position. Job design involves organizing tasks, responsibilities, and relationships to achieve organizational objectives.

Workforce Diversity and Inclusion:

HRM addresses diversity and inclusion to create a workplace that values differences. Initiatives may include diversity training, equal opportunity policies, and fostering an inclusive culture.

Employee Engagement:

HRM focuses on strategies to enhance employee engagement and satisfaction. This includes recognition programs, employee feedback mechanisms, and promoting a positive

organizational culture.

Legal Compliance:

HRM ensures compliance with labor laws, regulations, and ethical standards.

This includes managing workplace safety, equal employment opportunity, and fair labor practices.

Review of Literature:

Iskandar, Y., Pahrijal, R., & Kurniawan, K. (2023), This study explores Indonesian MSMEs' complex linkages with training, recruiting, employee engagement, social entrepreneurship, sustainable business practices, and community impact. The quantitative analysis of 487 MSMEs using SEM-PLS tests numerous theories. HR procedures must be managed cautiously due to the paradoxical relationship between sustainability and training. Engaged employees and good recruiting affect social entrepreneurship and sustainable business. The study also reveals that socially entrepreneurial MSMEs promote sustainable practices and the community. The theoretical implications encourage SHRM and social entrepreneurship theory, while the practical consequences lead strategic HR planning and training program improvement. The findings can help MSMEs connect HR with sustainability goals and improve society.

Karman, A., Jaya, A., & Wibowo, T. S. (2022), This study seeks scientific support from existing publications to identify superior and damaging human resource management in MSME sectors. We publish data from multiple sources we think can solve the problem online. We collected 60 relevant publications from data and debate to address this investigation, limiting the barrier from 2010 to 2022. Our phenomenological study sought solutions from multiple data sets to support our findings. According to the study and the discussion, MSMEs have succeeded due to superior human resources, the best, which includes understanding how to sell MSME products, the soul to serve consumers with care and understanding decision-making solutions then placing the customer's face, and financial and generational governance capabilities that meet MSMEs' needs.

Nilawati, E., Sitio, V. S. S., & Prayoga, D. (2021), To achieve this, the role of good human resources (HR) practices is significant. How are the relationships and dependencies of the two variables? We have collected many international publications that discuss MSMEs and HR best practice governance issues in many contexts. We get data from an electronic search for the Google Scholar application. Next, we continue the analysis process by starting with a coding system, in-depth interpretation, critical evaluation, and final summary as the findings data on the analysis questions are valid and consistent. Based on existing data, we conclude a very close relationship between governance and HR best practices towards achieving the operational effectiveness of MSMEs to achieve profit and sustainability.

Maheshwari, M., Samal, A., & Bhamoriya, V. (2020), The purpose of this study is to explore the role of employee relations and human resource management (HRM) practices on firms' commitment to sustainability in the context of micro, small and medium enterprises (MSME) in India. This paper proposes a theoretical framework, namely "awareness, action, comprehensiveness, and excellence (AAACE)," to present the solutions and practices as adopted by MSME firms in meeting their sustainability objectives alongside pluralistic constraints related to human resource, capital and legitimacy risk.

Venkatesh, J., Kirubaharan, T. K., & Kumari, R. L. (2016), Human resource is an endless source of strength and talent. To compete and manage human resources, firms need an effective HRM system. This article covers Micro Small and Medium Enterprises (MSMEs) human resource practices and India's MSMEs sector growth and development. MSMEs comprise over 90% of all enterprises and are vital to the Indian economy. From an Indian perspective, they feed many people and drive the economy. Our country has advanced greatly thanks to MSMEs. Due to economic expansion, Human Resource Management (HRM) roles, methods, and processes are becoming increasingly important. This paper's unique focus on HRM is crucial for MSMEs to flourish and compete in India. It analyzes MSMEs' concerns and challenges and the elements that affect them, making them more resilient.

Objectives of the study:

To identify and analyze the current HRM practices implemented in Micro, Small, and Medium Enterprises (MSMEs) in Andhra Pradesh.

To assess the impact of HRM practices on the sustainable development of MSMEs in Andhra Pradesh.

Hypothesis:

H0: There is no significant influence of HRM practices on employees at different functional levels.

H1: There is a significant influence of HRM practices on employees at different functional levels.

Data analysis and Discussion:

Table1

HR policies which are there in organization				
		Frequency	Percent	Valid Percent
Valid	Compensation policy	30	78.9	78.9
	Leave Encashment Policy	34	89.5	89.5
	Career path policy	23	60.5	60.5
	Leave Attendance Policy	38	100.0	100.0
	Employee Absconding Policy	21	55.3	55.3
	Selection Policy	36	94.7	94.7
	Internship Policy	30	78.9	78.9
	Security, Safety & Health policy	33	86.8	

Table 1 shows information regarding HR policies which are there in their organisation. Out of 38 HR persons opinion, it was found that 30 (78.90%) organisation have compensation policy, 34 (89.50%) organisation have leave encashment policy, 23 (60.50%) organisation have career path policy, 38

(78.90%) organisation have internship policy and 33 (86.80%) organisation have security, safety & health policy.

Table 2

Which all Recruitment sources are used in your organization?				
		Frequency	Percent	Valid Percent
Valid	Print Advertisements	25	65.8	65.8
	Internet / Job Portals	30	78.9	78.9
	Career sites / Consultants	31	81.6	81.6
	Educational Institutes	34	89.5	89.5
	Employee Referrals	34	89.5	89.5
	Current employees (Rotation & Promotion)	34	89.5	89.5

Table 2 shows opinion of HR persons on “Which all Recruitment sources are used in your organization”. 25 (65.80%) HR persons opinions shows that they used Print Advertisements for recruitment of the employees, 30 (78.90%) HR persons opinions shows that they used internet / job portals for recruitment of the employees, 31 (81.60%) HR persons opinions shows that they used career sites / consultants for recruitment of the employees, 34 (89.50%) HR persons opinions shows that they used educational institutes for recruitment of the employees, 34 (89.50%) HR persons opinions shows that they used employee referrals for recruitment of the employees and 34 (89.50%) HR person’s opinions show that they used current employees (rotation & promotion) for recruitment of the employees.

Table 3

Which type of employee contract preferred by your organization					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Permanent	36	94.7	94.7	94.7
	Contractual	2	5.3	5.3	100.0
	Total	38	100.0	100.0	

Table 3 shows opinion of HR persons on “Which type of employee contract preferred by your organization”. 36 (94.70%) HR persons opinions shows that permanent employee contract preferred by their organization and 2 (5.30%) HR person’s opinions show that contractual employee contract preferred by their organization. It shows that maximum organizations have permanent employee.

Table 4

Which type of the selection methods as applicable and in practice in your organization?				
		Frequency	Percent	Valid Percent
Valid	Application forms & CV's short listing	34	89.5	89.5
	Interview Method	36	94.7	94.7
	Online portal Application facility	21	55.3	55.3
	Psychometric Test	11	28.9	28.9
	Ability and Aptitude Test	20	52.6	52.6
	Group Discussion Exercise	7	18.4	18.4

Table 4 shows opinion of HR persons on “Which type of the selection methods as applicable and in practice in your organization”. 34 (89.50%) HR person’s opinions show that they used Application forms & CV's short listing for the selection of the employees, 36 (94.70%) HR person’s opinions show that they used Interview Method for the selection of the employees, 21 (55.30%) HR person’s opinions show that they used online portal Application facility for the selection of the employees, 11 (28.90%) HR person’s opinions show that they used Psychometric Test for the selection of the employees, 20 (52.60%) HR person’s opinions show that they used Ability and Aptitude Test for the selection of the employees and 7 (18.40%) HR person’s opinions show that they used Group Discussion Exercise for the selection of the employees.

Table 5

Is Induction Training provided to all new entrants?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1	2.6	2.6	2.6
	Yes	37	97.4	97.4	100.0
	Total	38	100.0	100.0	

Table 5 shows opinion of HR persons on “Is Induction Training provided to all new entrants?”.37 (97.40%) HR person’s opinions show that they provided induction training to all newentrants.

Table 6

Is Performance Appraisal System implemented in your organization and done periodically?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	36	94.7	94.7	94.7
	No	2	5.3	5.3	100.0
	Total	38	100.0	100.0	

Table 6 shows opinion of HR persons on “Is Performance Appraisal System implemented in your organization and done periodically”. 36 (94.70%) HR person’s opinions show that Performance Appraisal System implemented in your organization and done periodically.

Table 7

Is there any provision of written agreement between employee and employer for service?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	33	86.8	86.8	86.8
	No	5	13.2	13.2	100.0
	Total	38	100.0	100.0	

Table 7 shows opinion of HR persons on “Is there any provision of written agreement between employee and employer for service”. 33 (86.80%) HR person’s opinions show that they have provision of written agreement between employee and employer for service.

Table 8

HR policies which are there in organization				
		Frequency	Percent	Valid Percent
Valid	Compensation policy	30	78.9	78.9
	Leave Encashment Policy	34	89.5	89.5
	Career path policy	23	60.5	60.5
	Leave Attendance Policy	38	100.0	100.0
	Employee Absconding Policy	21	55.3	55.3
	Selection Policy	36	94.7	94.7
	Internship Policy	30	78.9	78.9
	Security, Safety & Health policy	33	86.8	

Table 8 shows information regarding HR policies which are there in their organisation. Out of 38 HR persons opinion, it was found that 30 (78.90%) organizations have compensation policy, 34 (89.50%) organizations have leave encashment policy, 23 (60.50%) organisation have career path policy, 38 (100%) organisation have leave attendance policy, 21 (55.30%) organization have employee absconding policy, 36 (94.70%) organization have selection policy, 30 (78.90%) organisation have internship policy and 33 (86.80%) organisation have security, safety & health policy.

Findings:

The data reveals that the majority of organizations surveyed have well-established HR policies, with high percentages, including 100%, having leave attendance policy and 94.70% having a selection policy.

The data indicates a diversified approach to recruitment, with a notable reliance on multiple sources, including high percentages for internet/job portals (78.90%), career sites/consultants (81.60%), and employee referrals (89.50%).

The data highlights a predominant use of traditional selection methods, with high percentages for Application forms & CV's shortlisting (89.50%) and Interview Method (94.70%), while newer methods like Psychometric Tests (28.90%) and Group Discussion Exercises (18.40%) are less commonly employed.

The overwhelming majority, represented by 97.40% of HR professionals, indicated that their organizations provide induction training to all new entrants.

The data reveals that a substantial majority, represented by 94.70% of HR professionals, reported the implementation of a Performance Appraisal System in their organizations, conducted periodically.

Suggestions:

While HR rules are generally solid, there is need for improvement, particularly in career path and employee absconding regulations (60.50% and 55.30%). Strengthening these policies could improve organizational structure and personnel management.

Organizations may benefit from analyzing the effectiveness and efficiency of different recruitment sources. Additional research and refining of recruitment tactics can ensure a balanced and targeted approach to talent acquisition, thereby enhancing recruitment results.

Organizations should use a variety of selection methods, including online portals and psychometric tests, to assess individuals' abilities and appropriateness, although traditional approaches remain important. Combining conventional and contemporary methods can improve talent acquisition and selection.

As many organizations offer induction training, it is important to regularly evaluate and improve the program's content and efficacy. Regular reviews and tweaks may keep the onboarding experience relevant, engaging, and current with new hire demands.

A well-established Performance Appraisal System should be reviewed and refined to correspond with changing business goals and employee expectations. Regular feedback sessions, manager training on evaluation procedures, and employee development plans can improve the performance appraisal system and help employees grow and succeed.

Conclusion:

After reviewing the existing literature, it has been found that human assets play a key role in the existing organization, particularly in MSMEs. Thus, keeping a healthy workforce some HR policies and practices are imperative. This study revealed that organizations in MSMEs of the Guntur District have a five-level HR department. Each level has a different set of policies and practices in the organization. The top-level of the department included the HR head followed by the HR manager, Sr. HR executive, HR Journalist /Jr. Executive and supervisors or others. Further, this study explored that all served organizations have Leave Attendance Policy (100.0%), whereas, most organizations have, Selection Policy (94.7%), Leave Encashment Policy (89.5%), Security, Safety & Health policy (86.8%), Compensation policy (78.9%), Internship Policy (78.9%), Career path policy (60.5%), and Employee Absconding Policy (55.33%).

Additionally, the hypotheses of the study proved that most organizations have appraisal policies, career management, and development policies, fair selection practices, employee-friendly HR practices, and adequate communication channels in the organizations. Moreover, this study also revealed such healthy HR practices encourage employees to stay longer and stay committed to the organization which ultimately leads to productivity raise and profit maximization of the organization.

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The Interplay of Folklore Elements in Kire's *When the River Sleeps*: An Analysis

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ABSTRACT

*Northeast Writers in India are creating a niche for themselves in the field of academic production. In recent years, researchers are following the 'Look East' policy for their research. Why not? For years Northeast Region was neglected but now that writers of this region have begun writing and has become competent and adept in imparting interest for the academicians of the world to probe the unique cultures, traditions, and customs of the people of this area. One such author that has created a buzz in recent times is Easterine Kire; a poet, novelist, short story writer, and translator. She is a native of Nagaland, currently settled in Norway. Though in a foreign land, yet all her works display the cultures of her society from the collective memory. This paper is an attempt to study folklore elements in her novel *When the River Sleeps*; to identify and analyse the usage in her text. It will enable the readers to understand better about the people of Nagaland with their overwhelming traditional beliefs and rituals that have been their identity, since time immemorial.*

Keywords: *Northeast, Easterine Kire, Folklore, Cultures, Traditions, Belief*

Introduction

When the River Sleeps was published in 2014. It is one of the most prestigious and much-acclaimed novels of Easterine Kire, winner of The Hindu Prize for Fiction 2015. It explores the vibrant Naga folklore and readers get to experience the beliefs, rituals, and myths of the people of Nagaland brought alive through Vilie, the protagonist. After having a strange recurring dream for the past two years, he embarks upon a quest for a heart stone that lies in the midst of a sleeping river. The myth about the heart stone is that anyone coming into possession could enjoy untold power and luxury, "It could be cattle, women, prowess in war, or success in the hunt." (Kire, 2014:5) Vilie hikes through the forest in his quest for the „heart-stone“ and had to face dangers from unknown creatures like evil spirits, cruel witches and wild beasts lurking in the forest, yet the most dangerous was his fellow human beings who were armed and gives him a deadly chase and no respite. Not all men are bad though, some provided him shelter and food throughout his journey. Finally, after he combats with many supernatural beings, spirits, and humans; he somehow with his undeterred willpower and courage was able to obtain the heart stone which he so often had dreamt of. On his way back home, in the village of Kirhupfümia, he met a kind-hearted young lady Ate, who was an outcast, thrown out of her own village, for the villagers believed that she had the power of bringing curses just by pointing fingers at them. Vilie decided to take responsibility for Ate and brings her along with him because all the inhabitants of her village disappeared altogether and she seemed harmless enough. He took her to his ancestral village, to his aunts, and gave her the heart-stone before he moved back to his „wedded wife“, the forest. He is brutally murdered by a robber who desired the heart stone to fulfil his worldly desires.

Folklore Elements: Identification and Analysis

The novel *When the River Sleeps* is a definite legend because it fulfils all the characteristics required to be a legend-: heroic quest, heroic struggles, and heroic success. The novel deals with the heroic achievement of Vilie, the hunter who like Ulysses undertakes an adventure, strewn along the path of numerous obstacles and hurdles which he had to overcome. It not only required his physical strength but also required his mental physic i.e., his soul to be magnified to wrestle with the sleeping river to seize the heart-stone from its core. As the hero trekked through the forest in order to achieve his dream he faced many dangers- wild animals, deceiving nature, maleficent spirits, and brutal humans. Vilie's first encounter was a pack of jackals when he decided to take shelter for the night in the Nepali settlement. At night, he and Krishna's family is attacked by a pack of jackals but no harm was inflicted on them as Vilie was quick in his action to swing his gun, aim at the leader of the pack, and shot at its head. As the leader fell down flat on the ground, the rest dispersed rapidly. The second attack was attempted by the weretiger. "Weretigers are men whose spirit had metamorphosed into tiger.... Legend said that every weretiger began as a smaller animal, possibly a wildcat". [27] Among the Angami Nagas, "the folk practice of certain men transforming their spirits into tigers was a closely guarded art. Despite the secrecy, most of the villagers knew who were the men who had become weretigers." [25]-[26] So, one night, during his journey when he is visited by such a beast, he quickly remembers those men with tiger spirits in the region and calls out his name and tells him that they are no strangers, they belong to the same clansman and that he comes in peace. He shouted out these words "with absolute faith that they were being listened to and heeded. Sure enough the animal retreated for the second time, but not before it made a call like a warrior's ululating cry as it departed." [26]. The third danger that Vilie encountered was in the form of Humans. He met four hunters on his way and they decided to spend the night together. In the middle of the night, he was awakened by two hunters who were arguing, and suddenly a loud retort of a gun went off. When Vilie found a man shot dead, he grasped his bag and gun and ran for his life. A bullet was shot after him, then more bullets followed and one scraped his arm. He kept running as far as he could and could run no more, knowing that it would be unsafe for him to stop. At this juncture, he took refuge in the unclean forest, a place of detest. No quest is easy.

Besides the above-mentioned dangers, he had to overcome many angry spirits too. When he reached the territory of the sleeping river, he saw the spirit widow-women who guarded the river. The spirits after performing strange rituals headed back up-hill, "but there was something so forbidding about the spirits; both their chanting which so strongly resembled the funeral chants and in the stern way they held themselves as they walked..." [99]-[100] As the widow-women disappeared behind the hills, the river stopped flowing and went to sleep, at that instant Vilie plunged into the sleeping river and grabbed the stone from the core of the riverbed; as he plucked the heart stone the river came alive and with furious spate dragged him deeper into underwater almost strangling him to death. At first, he kept fighting the river water but soon realised that the river was a spirit and his physical struggle could lead him nowhere. Then he stopped struggling and concentrated on the spirit words that he had learned, "Sky is my father, Earth is my mother, stand aside death! Kepenuopfu fights for me, today is my day! I claim the wealth of the river because mine is the greater spirit. To him who has the greater spirit belongs the stone!" [103]. Finally, he stepped out of the river unharmed. Immediately, he had to run for his life because the widow-women gave a wild chase. Now, he possessed the valuable charm and he had to be even more careful, vigilant, and stronger both physically and spiritually than ever before. Subale told him, "There are people who would give their lives to possess that stone. Even the spirit creatures envy stone, and they will try to take it from you by force or deceit. Be very careful. Tell no one you have it." [110]-[111]. Even on his way back home, he never ceased to face numerous trials; spirits tried to lure him, selfish human beings tried to possess it so on and so forth. Nonetheless, he was prudent enough to protect the heart-stone from every untoward circumstance. Vilie is portrayed as a true hero. He gained much knowledge

in the course of his quest, and he became mentally and physically stronger. His spiritual growth is noteworthy.

Folktales of the unclean forest and forest songs are employed by the novelist to educate the readers about the dangers that lurk in the deep wild forests likewise Villie too, gained prior knowledge which helped him in his quest. Elders of the village said that unclean forest, “was the place where human children were taken away by spirit children who appeared before them and engaged them in play. The human children would go missing for days and no search party could find them until the spirit children tired of their play and released their new friend... They would say they had been playing a very nice game and been fed berries, roots and even worms.” [76] The tales of „forest song“ has also been depicted. “A Forest song was a spirit song sung very melodiously and could be heard by a lone hunter, also by a group of people such as an age-group... the spirits used forest songs to enchant human.” [76] The prior knowledge Villie gained comes in handy when he went through the unclean forest, and he actually had a terrifying experience. “A dark, indistinguishable shape was sitting on top of him, and for the life of him all efforts to dislodge it were in vain. He was screaming but the scream was stuck in his throat and his open mouth emitted no sound.” [82] Villie suddenly remembered the seer’s words that they are only spirits and would do him no harm if his spirit was greater. So, he cried out “Mine is the greater spirit! I will never submit to you!... Mine is the greater spirit! Depart from me” [83]-[84] That giant thing grew smaller and smaller until it was barely visible.

Kire, incorporated numerous myths to elucidate the culture and tradition of the Naga people. She uses myths as a tool to create a new way of picturing the Naga culture from a broader perspective. She excellently uses the myths like revering the Ukepenuopfu, the birth mother. All traditional Nagas believed that Ukepenuopfu was the creator of all. Taking anything from the forest should be acknowledged be it collecting firewood, herbs, or trapped animals by saying „Terhuomia peziemu”; literally, it means „thanks be to the spirits.“ The novelist also displays how the unfulfilled love story of Vilie and Seno became a village mythology. Vilie and Seno seriously loved each other; the villagers believed that they would eventually be wedded. However, a peculiar set of circumstances soon put an end to such dreams when Seno died out in mysterious circumstances. Seno along with two friends went to the forest to gather herbs. “They climbed a tree to pluck a beautiful orchid that grew in its branches. When the three girls were making their way home, Seno said to her friends that a tall, dark man had climbed down the tree and was following them home. She kept looking back in fear. Her companions saw nothing at all.” [5] She was buried outside the village gate because her death was considered to be in „ominouscircumstances“. Vilie for many months kept the flower at the lonely grave but suddenly stop when he made the forest his hideout. His absence was felt by the community and many began to believe that he had passed away and met again in spirit. “Rumors circulated that the two lovers used to meet in their spirit forms in the woods. As the years passed, the rumors slowly disappeared, and the events surrounding Seno’s peculiar death, and Vilie’s departure were soon relegated to village mythology, and only occasionally retold by Vilie’s mates.” [6]

In the novel, proverbs are used as the mechanism to focus on Naga’s cultural knowledge and values. Kire skilfully uses proverbs as the title of the chapters in her novel. These helped to restate the themes and character development. Chapter 13 “You Can Eat Yourself Dead” [55], this proverb is used to reaffirm Villie’s knowledge as a hunter that one had to eat slowly after a long period of starvation otherwise one would be choked to death. The novelist makes use of another proverb as the title of Chapter 49 “From the Moment We are Born, We Begin to Die” [226] to foretell the impending death of Vilie as he walked towards his forest home. It is a universal fact that all humans born are bound to die someday.

Rituals are folklore elements that help in creating a cultural identity. When the River Sleeps highlights

certain rituals to reveal the Naga culture and their practices. Through the protagonist, Naga rituals are displayed and it also acts as a guide for Vilie in his quest. He could have killed the weretiger when it attacked him, but he didn't because he knew, "he would be obligated to perform the tiger-killer ritual which was complicated and not meant for a solitary hunter to fulfil alone in the forest. It was a ritual that required the presence of many members of the clan." [25] The novel deals with other important rituals and practices that are associated with the Naga people. One such practice is the observance of 'genna day'. Every time a person catches the sleeping river, the villagers of the border village observe "a genna-day, a no-work day. The villagers here will not do any work in their fields today. They will not go fishing or go to look at their traps. It is a day of thanksgiving for delivered life." [109] Traditional Naga rituals of chicken sacrifices for sick people find mentioned in the novel. In olden times, the non-Christians feared death so much so that "they would bring a chicken into the woods and proclaim, "Life for life" and release the chicken so that it cheeped all evening until it died or was eaten by a bigger animal. But no one did now because the Christians taught that Jisu had been sacrificed for everyone's sickness so nobody needed to offer chicken sacrifices again." [54] This shows that change for the good is easily accepted by Naga society while doing away with the old rituals which seemed illogical and unnecessary.

When the River Sleeps exhibits a number of Naga beliefs too. One of the beliefs is exposed in what Subale had to say, "This is our home, do you understand? We cannot abandon it and try to live in another place. Our umbilical cords are buried here, and we would always be restless if we tried to settle elsewhere." [87]-[88] Nagas believe in the spirit/soul returning after death. Thus, Ate had a strong belief that her sister Zote's spirit would return to bid her farewell. She along with Vilie kept waiting for her sister's spirit to return. When Zote's spirit returned for a short span, both Vilie and Ate were able to distinguish the sense of hopelessness that had gripped Zote's spirit. Vilie believed that Zote had met her untimely death, "the spirits of those who die before their appointed time always carried such anguish with them, that it passed on to the people in their path." [68] The knowledge about his people and beliefs and the wisdom that had passed down helped him understand the grim circumstance which encouraged him to force Ate to leave the abandoned village along with him.

The Forest, one of the important elements of tribal culture is portrayed by Kire in various capacities. For this reason, the setting of the novel is placed in the Naga thriving hills and green forest. It not only fulfils the aesthetic sense but is also depicted as a provider of food, shelter, medicine, and solace. People have a close affinity with nature which is deftly represented by Villie who had spent 25 years of his life in the forest, protecting the Gwi (Mithun) and the rare tragopan. Therefore, he says, "The forest is my wife" [9] In the course of the novel, the author reveals the importance of nature as a provider of food, shelter, and a shield from all dangers of life, "the forest was his wife indeed: providing him with a sanctuary when he most needed it; and food when his rations were inadequate. The forest also protected him from the evil in the heart of man." [51]

The novel projected Naga values as well as their beliefs and traditions. It beautifully unfolds the rich traditions and culture of Nagaland. Kire, in portraying the quest of Vilie has brought out a variety of belief systems of the Naga tribe. Vilie as a man of the forest has acquired full wisdom passed on to him by older generations and is able to return safely with the heart-stone.

Conclusions

Easterine Kire has fully justified- bringing out her state's exceptional culture and belief system by integrating folklore elements into her storytelling. The treatment of the folklore elements makes her novel more engaging and captivating. Readers outside the region are able to satiate their curiosity about Nagaland and its tribes. Rightfully, Kire the first English novelist, of Nagaland earned eminence among the global writers of the world.

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MAGICAL REALISM IN NEIL GAIMAN'S THE OCEAN AT THE END OF

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ABSTRACT

Neil Gaiman's "The Ocean at the End of the Lane" is a novel that blends elements of fantasy and magical realism. The story is narrated by an unnamed middle-aged man who returns to his hometown for a funeral and revisits his childhood home. The novel explores themes of memory, childhood, and the boundary between reality and fantasy. Magical realism is a key element in the novel, as the fantastical events are presented in a matter-of-fact manner, seamlessly integrated into the everyday world. Gaiman weaves magical elements into the fabric of reality, blurring the boundaries between the mundane and the magical. This serves to create a sense of wonder and mystery. The novel employs magical realism to seamlessly integrate fantastical elements into a seemingly ordinary world. Memories, particularly those from childhood, serve as a lens through which the narrative unfolds, exploring themes of innocence, trauma, and the transformative power of recollection. The interplay between magical realism and memories contributes to the novel's unique and enchanting storytelling.

Keywords: Fantasy, magical realism, childhood, recollection, and memories

Neil Gaiman is a prolific and versatile British author known for his contributions to the fantasy, horror, and graphic novel genres. Born on November 10, 1960, in Portchester, England, He has achieved widespread acclaim for his imaginative storytelling, rich characterizations, and ability to blend the fantastical with elements of reality. Gaiman studied at Ardingly College, a boarding school in West Sussex. Later, he attended Whitgift School. His literary career is characterized by a diverse and imaginative body of work that spans novels, short stories, graphic novels, and collaborations with other authors. Gaiman initially started his career in journalism, writing book reviews, interviews, and articles for various publications, including The Sunday Times, The Observer, and Penthouse.

Neil Gaiman's literary career is marked by a creative exploration of mythology, folklore, and the fantastical, as well as a commitment to storytelling in various mediums. His work has garnered critical acclaim and a dedicated global fanbase. Neil Gaiman gained prominence in the late 1980s with his work in comic books. His groundbreaking series, "The Sandman," published by DC Comics' Vertigo imprint, became a critical and commercial success. Gaiman has been involved in screenwriting, contributing to adaptations of his own works and collaborating on various film and television projects. Neil Gaiman has received numerous awards for his contributions to literature, including the Hugo, Nebula, Bram Stoker, and Newbery Medals.

Gaiman holds both British and American citizenship.

Neil Gaiman is celebrated for his ability to seamlessly blend fantasy, horror, and mythology. His works have left a lasting impact on the literary landscape, appealing to a diverse audience. "The Ocean at the End of the Lane" (2013): A semi-autobiographical novel that delves into themes of memory, childhood,

and the boundary between reality and fantasy that is magical realism. The story follows an unnamed protagonist middle-aged man who returns to his childhood home and recalls a series of supernatural events.

Magical realism often takes place in ordinary, familiar settings. The magical elements are introduced into the everyday lives of the characters, making the extraordinary seem commonplace. This integration of magic into the mundane is a hallmark of the genre. It is a literary genre that incorporates fantastical elements into a narrative while maintaining a strong connection to the real world. Unlike traditional fantasy, where magical elements exist in a separate, fantastical realm, magical realism seamlessly blends the extraordinary with the ordinary, often in a way that challenges the reader's perception of reality.

The novel maintains a dreamlike atmosphere throughout, where the boundaries between dreams, memories, and reality are blurred. Events unfold in a way that feels both fantastical and plausible, contributing to the overall sense of wonder and mystery. This dreamlike quality enhances the magical realist tone. Certain objects in the story possess symbolic and magical significance. The silver coin, for instance, becomes a conduit for supernatural forces and a link between different realms. The symbolic nature of these objects adds depth to the narrative and reinforces the novel's magical realism.

Gaiman introduces unexplained and surreal occurrences that challenge the characters' understanding of the world. From monstrous creatures to magical entities, these phenomena are seamlessly integrated into the narrative without overt explanations. This technique creates a sense of ambiguity and wonder. The novel plays with the concepts of time and space in a way that aligns with magical realism. The characters experience time differently in the magical realm, and the boundaries of space are not confined by the laws of the real world. This distortion adds to the enchanting and otherworldly aspects of the story. In "The Ocean at the End of the Lane," Neil Gaiman masterly employs magical realism to create a narrative that blurs the lines between the ordinary and the extraordinary. The infusion of magical elements into the characters' lives and the seamless integration of fantastical occurrences contribute to the novel's unique and enchanting atmosphere. The genre thrives on blurring the boundaries between reality and fantasy. It challenges conventional distinctions, allowing magical and real elements to coexist without clear separation. This interplay creates a sense of wonder and ambiguity.

In the novel several characters embody the magical realism that permeates the novel. These characters possess otherworldly qualities, and their interactions with the protagonist contribute to the blending of the magical and the real. One key family central to the magical realism in the story is the Hempstock family. Lettie is a pivotal character in the novel and plays a central role in introducing the protagonist to the magical elements of the story. She claims that the pond behind her house is an ocean, and it serves as a gateway to another realm. Lettie possesses a wisdom and maturity that extend beyond her apparent age, and her character blurs the line between a wise guide and a magical being.

Ursula is a mysterious and malevolent character who enters the protagonist's life as the family's new boarder. She is associated with dark forces and serves as an antagonist in the novel. Ursula embodies the darker side of magical realism, introducing elements of danger and fear into the story. Ginnie is another member of the Hempstock family, and while her role may not be as prominent as Lettie's, she contributes to the family's overall enigmatic presence. The Hempstocks collectively embody the novel's magical realism, with Ginnie representing an additional layer of mystical qualities. The grandmotherly figure of Old Mrs. Hempstock adds depth to the family's magical lineage. Her character exudes ancient wisdom and a connection to forces beyond the understanding of the human characters. Old Mrs. Hempstock's presence reinforces the timeless and supernatural nature of the magical elements in the story.

These characters, particularly the Hempstock family members, serve as conduits between the ordinary

world and the magical realm within the novel. Their mysterious qualities, magical abilities, and the way they navigate the boundaries of reality contribute significantly to the overall atmosphere of magical realism. The Hempstock family's farmhouse, with its pond that is more than it seems, becomes a focal point for the interplay between the magical and the real in the narrative. The Hempstock family, particularly Lettie, Ursula, and Ginnie, embodies magical realism. Lettie claims that the pond behind her house is an ocean, and the characters possess mystical qualities that challenge traditional perceptions of reality. These characters serve as a bridge between the magical and the real, grounding the fantastical elements in the narrative.

"The Ocean at the End of the Lane" employs magical realism to seamlessly integrate fantastical elements into a seemingly ordinary world. Memories, particularly those from childhood, serve as a lens through which the narrative unfolds, exploring themes of innocence, trauma, and the transformative power of recollection. The interplay between magical realism and memories contributes to the novel's unique and enchanting storytelling. The protagonist's memories are not only about magic and fantasy but also about trauma and fear. The novel delves into the impact of childhood experiences on shaping one's identity and resilience. The blending of magical elements with the darker aspects of the narrative creates a nuanced exploration of the human psyche.

Gaiman introduces magical elements into the everyday lives of the characters without treating them as extraordinary. For example, the Hempstock farmhouse and the pond behind it serve as a gateway to a magical realm, yet these elements are presented as matter-of-fact. The integration of fantastical elements into the characters' ordinary experiences contributes to the magical realist atmosphere. Magical events and elements are presented in a matter-of-fact manner, without explicit explanations or justifications. Characters in a magical realist story may accept the fantastical occurrences as a natural part of their world, and the narrative treats them as such.

Magical realism often draws inspiration from cultural myths, folklore, and traditions. The incorporation of cultural elements adds depth to the narrative and connects the magical aspects to the cultural context in which the story is set. Magical realism frequently uses magical elements as symbols or metaphors, conveying deeper meanings beyond the literal interpretation of events. The fantastical elements contribute to the overall thematic richness of the narrative.

The introduction of magical elements can have a profound impact on the characters' lives, beliefs, and perspectives. While some characters may embrace the magic, others may struggle to reconcile the fantastical occurrences with their understanding of the world. Despite the inclusion of magical elements, magical realism often reflects and comments on real-world issues, societal norms, and human experiences. The fantastical elements serve as a lens through which the author explores and critiques aspects of the human condition.

Many of Gaiman's works, including "The Ocean at the End of the Lane," feature elements of magical realism. He skillfully blends the fantastical with the everyday, creating worlds where magic feels natural and integral to the narrative. Throughout the story, there are unexplained and surreal occurrences that challenge the reader's perception of reality. These elements contribute to the dreamlike and mysterious atmosphere of the novel. Magical realism is a key element in the novel, as the fantastical events are presented in a matter-of-fact manner, seamlessly integrated into the everyday world. Gaiman weaves magical elements into the fabric of reality, blurring the boundaries between the mundane and the magical. This serves to create a sense of wonder and mystery.

Magical realism has been employed by various authors, with notable works including Gabriel García Márquez's "One Hundred Years of Solitude," Salman Rushdie's "Midnight's Children," and Isabel Allende's "The House of the Spirits." This genre offers a unique and imaginative approach to storytelling, inviting readers to engage with narratives that transcend the boundaries of the ordinary.

Neil Gaiman's work has left a significant impact on the literary landscape, and his imaginative storytelling continues to captivate readers around the world.

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FAQ CHATBOT USING ML AND NLP WITH VOICE ASSISTANCE

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ABSTRACT

FAQ section answers the frequently asked questions of the user. Generally, these are answered by humans but not a chat bot. Hence, this paper proposes a new chat bot which can also answer Frequently asked questions. In addition to answering textual queries, it also has the capability of answering the queries by observing images provided by the user. If user is not satisfied with the answers given by chat bot, then the control is given to agent and agent replies to the query and adds it to the database.

INTRODUCTION

People tend to go to different places and sometimes they may feel completely lost in a new place. At that time, they may have difficulty asking people around them to get on the bus to their destination. You arrive at the bus stop; you are ready to board the bus and you have no idea which bus you can take to get to your destination. This is a major problem we face in our daily lives for many years while using public transport to get to the places we want. You arrive at an unfamiliar place and have no idea which bus to take. There will be no information provided about the buses or bus numbers or the bus to your destination. This is the state of the outside world when we move to a new place. When you get to the bus stop you will see many people waiting for the bus. Some of them know which bus to take to get to their destination and some of them are in trouble as to which bus they should take. So, in that case, you are in for a shock. If so, most of them have no idea of bus data or bus numbers or times. People face a problem when they first arrive at a destination and do not know which bus they will take. If this is the case, a lot of time is wasted on waiting or collecting bus information to get to their destination. There is only a solution available to this problem that Chat-bot interacts with all the details of buses and their times making it easy for people to use or communicate from anywhere and anytime.

RELATED WORK

“Designing and Developing a Chatbot Using Machine Learning“

Problem-Deep Learning is a new area of Machine Learning and research, which was introduced with the aim of taking the Machine learning closer to one of its original and main goal which is: AI (Artificial intelligence). If we speak of automatic learning algorithm, they tend to be linear, the DL (Deep Learning) algorithms are configured to increase complexity and abstraction. Methodology-To learn in depth, imagine a 5-year-old whose first word is cat. The child keeps on learning what a cat is by showing objects and saying the word cat. The mother says: "Yes, it's a cat" or "No, it's not a cat". As the child continues to point objects, he becomes more aware of the characteristics and features of all cats. What the child does, without even knowing what he is doing, it clarifies a very complex level of abstraction by constructing a scale in which each level of abstraction is created with the help of Knowledge acquired the layer which was before on the scale. The programs that run on the system which uses deep learning

go through the same process. Each algorithm in the way that applies a non-linear approach on its input and it uses what it learns to make a statistical model from the given output. Findings-Repetition continues until the output has reached an acceptable point of correctness. The number of layers in which the process is passing at each stage is what gave the name a prefix as deep.

“Automatic Generation of Business Intelligence Chatbot for Organizations.”

Problem-Business Intelligence (BI) helps organizations in making data-driven decisions by visualizing the current and historical data. Despite the plethora of BI tools, their accessibility and usability are still issues. To alleviate these issues, organizations use Chatbot. However, due to the variety of requirements and different organizational structures, developing a AI chatbot is a complex task that requires the collaboration of technical and BI experts. Methodology-To address this problem, in this paper, the author proposed a model driven approach for the automatic generation of personalized BI chatbot for organizations. The approach is implemented as a framework, which includes two components. First is a modelling component that allows the user to model the business-specific chatbot. Second is an automation component that automatically generates the chatbot code. Findings-The results are promising for developing interactive BI chatbot according to various organizational needs.

“Language Use, Personality and True Conversational Interfaces”,

Chatbot is widely popular now-a-days and catching speed as an application of computer communication. Some programs respond intelligently like human. This type of program is called a Chatbot. This paper addresses the design and implementation of a Chatbot system. We will also study another application where Chabot could be useful and techniques used while designing a Chatbot.

“Chatbot Evaluation and Database Expansion via Crowdsourcing”,

Chatbots use a database of responses often culled from a corpus of text generated for a different purpose, for example film scripts or interviews. One consequence of this approach is a mismatch between the data and the inputs generated by participants. We describe an approach that while starting from an existing corpus (of interviews) makes use of crowd sourced data to augment the response database, focusing on responses that people judge as inappropriate. The long term goal is to create a data set of more appropriate chat responses; the short term consequence appears to be the identification and replacement of particularly inappropriate responses. We found the version with the expanded database was rated significantly better in terms of the response level appropriateness and the overall ability to engage users. We also describe strategies we developed that target certain breakdowns discovered during data collection. Both the source code of the chatbot, Tick Tock, and the data collected are publicly available.

METHODOLOGY

To implement this project, we have designed following modules

- 1) Admin: admin can login to system using username and password as „admin“ and then can add FAQ new questions and answers and once new question added then AI model automatically get trained to accommodate new question data. Admin can view all registered users
- 2) User: user can sign up and login to system and then can start Voice based Chatbot and then record and send his question and then AI will analyze question to predict best answer and reply to user with recommended questions.
- 3) Extension Concept: in this project as extension, we are making Chatbot to save all recorded voices which user can play and download and this feature is not existing in any existing voice based Chatbot.

RESULT AND DISCUSSION



In above screen click on „Admin Login Here“ link to get below admin login page



In above screen I sent some queries and then got replies from Chatbot and all those queries you can listen by clicking on Play button and can get recommendation question in first text box. In below screen I am asking unknown question

CONCLUSION

Chatbot are programs that mimic human conversation. It is designed to be the ultimate virtual assistant. Chatbot and specifically FAQ Chatbot has become more popular in business groups right now as they can reduce customer service cost and handles multiple users at a time. In this paper we provide the design of a FAQ chatbot, which provides an efficient and accurate answer for any query based on the dataset of FAQs. We looked into the best approach to develop a simple Chatbot. The proposed method is one of the simple and automated solutions to transport data from a computer without having to think for proper keywords to look up in a search or browse several web pages to collect information, it allows organizations to handle many customers at once, and simultaneously. By “employing” Chatbots that complements human agents, you will not only save on employee costs but you will also avoid the problems caused by human errors. Users can easily type their query in natural language and retrieve information. In this paper, information about the design, implementation of the FAQ chatbot has been presented that is simple, friendly and conversational.

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