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3.4.6 Number of books and chapters in edited volumes published per teacher during the last five years

3.4.6.1: Total number of books and chapters in edited volumes / books published, and papers in national/international conference-proceedings year wise during the last five year

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Production Prediction based on News using Sentimental Analysis

Nishant Singh
Dept. of CEA
GLA University
Mathura
nishant.singh@gla.ac.in

Aprna Tripathi
Dept. of CEA
GLA University
Mathura
aprna.tripathi@gla.ac.in

Vivek Kumar
Dept. of CEA
GLA University
Mathura
vivek.kumar@gla.ac.in

***Abstract*—In the current scenario, market is changing with a drastic rate. In such a phase taking right decision at right time with respect to organization benefits is a challenging task. Industries are indented to fulfill customers need and the news plays a vital role to change the sentiments of the targeted customers. News from the online sources is mined and combined with sentiment analysis to produce the best suitable suggestions. The recommendation then given to the production based companies to speed up or speed down the production so that they could take the optimum benefits from the market. The association analysis is performed to show the words which are contextually associated with each other. The news article and its complete analysis is performed and verified.**

Keywords—news analysis, real-time, word association, context mining, prediction, business, prediction, loss, sentiment analysis, mining, analysis

I. INTRODUCTION

The news reflect the changes and incidents in society. The medium may be local newspapers, national newspapers, internet sources, television broadcasts and public sources. The incidents reported become accidents to various sectors of the market. The stock market affects highly with the news. The local politics affects local newspaper and local newspapers affect local public and local businesses. Similarly, national news published by national newspapers, national television news broadcast affects the nationwide businesses. The internet sources including public sources like social media e.g. whatsapp, facebook, twitter, etc. also affects people. Although social media is not trusted sources of news, to be considered, but it may be used to find out the effect of news on the public. The intensity of particular news on affected people may be calculated with the analysis of social media.

Organizations worldwide got affected by the news sooner or later. Many organizations are so involved in their process that they don't have enough knowledge and expertise to analyze the effect of news on their businesses. The manufacturer has to dump its products and processes due to rapid change in technology and necessity, which is reported through news. This problem has to be addressed so as to stop an unexpected financial loss.

There are various other factors that affect the market includes, but is not limited to, lifestyle, government policies, foreign policies, environmental change, daily life incidents, etc. The prediction does not work if we do not add sufficient conditions to our analysis and reporting. The above factors affect at first and further factors contain market trends, surveys, reviews, and users' interest in a particular product. Precision and accuracy of a prediction depends on the size of data. The decisions made with additional analysis of social media are then more accurate and effective. The context mining followed by sentiment analysis and association of words, on news, will automate the entire process of decision-making. The steps and process proposed will minimize the loss to businesses.

The keywords given by domain experts helps to find the association factor. One news is somehow associated with other news by a factor of 0 to 100. The news having 0-factor association is referred as nuclear news in this article and is not considered for analysis. The news having a factor of 10-100 is referred to as contextual news in this article and considered for further analysis.

II. LITERATURE SURVEY AND RESEARCH GAP

In telecommunication, association rules can be used to predict the failure by identifying root causing events occurring just before failure [1]. The author in [2] extended their work and applied association rule mining technique to deal with product and process variety mapping. The association rules then designed was deployed to support the production planning of product families within existing production processes. In [3], the author focuses on the continually changing demands of customers and associated supply chain management of an enterprise. These algorithms are compared with fitness, precision, generalization, and simplicity. It has been found that there is a little work done on identifying the number of units to be manufactured in a time-frame. In an ontology-based system for supporting manufacturing sustainability[4], the author proposing a product-centric ontology in which the parameter of function are product, processes and resources, by using these parameters and concept the system contain sustainability manufacturing knowledge. The main idea is to create a knowledge-based system that automatically identifying changes in the behavior of the market and simultaneously proposing the alternate solution for productivity. In [5], the author explains the sentiments analysis method to extract sentiments of some core subjects in the documents instead of complete documents. The sentiments are based on the specific subjects either they are positive or negative in the documents. It focuses on how to expressed sentiments in text and whether the expression is favorable or unfavorable depending on the subjects of the document. The system uses the semantic relationship between

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An Analysis to Identify the Importance of Visual Face Features and Ranking

Mohd. Aamir Khan
Department of Computer Engineering and Applications
GLA University, Mathura, India
aamir0509@gmail.com

Anand Singh Jalal
Department of Computer Engineering and Applications
GLA University, Mathura, India

***Abstract*—A person can remember thousands of faces. The face can be remembered based on their different shape size and color. The difference in facial structure and color makes people different from others and easy to remember. The face is a key feature to identify a person. When somebody interacts with an unknown person they remember them with the highlighted features of their face. However, sometime later memory fades. i.e. when some crime happens, the eye witness looks the criminal for a few seconds. Some of the features of his face are remembered by the eye witness. These features are used by the sketch artist to generate the sketch and help for the identification of the suspect. Sketches contain shape and texture information about the face. Color information lags in the sketches. To identify the importance of color information, we have performed a survey. Eye color and skin color along with the twelve other face features are used in conducting this survey. The 3690 responses from 314 persons are collected and analyzed. This survey helps the research community to identify the importance of facial features and ranking them**

Keywords*—*Face Key Features, Face Attributes, Forensic Sketch, Ranking of Face Features.

I. Introduction

To identify a person both face and body information are useful. Body appearance changed due to wearing apparel. The face is generally uncovered and one of the commonly used feature to identify a person. Face perception is an individual's understanding and interpretation of the face, particularly the human face, especially in relation to the associated information processing in the brain. Recognizing and perceiving faces are vital abilities needed to coexist in society. Faces can tell things about a person such as identity, age[1], sex, race, emotions and much information. Face identification is used in many applications such as control access to sensitive areas, validate identity, human emotion detection [2], protect law enforcement, etc. One of the major uses of the face recognition system is for law enforcement. It is used to secure access, verifying a person or identifying the suspect of any criminal activities.

Face recognition plays a vital role in identifying a suspect of a crime scene. Methods used to identify the suspects are based on the sketch generation of the suspect and match it with mugshot images. Sketch generation takes place with the help of sketch artists and eye-witness. On the basis of the description given by the eye-witness, sketches are drawn. This sketch is totally dependent on the memory of an eye-witness. As memory fades according to time and eye-witness loses some information too. It also depends on the focusing area of eye-witness on the face and highlighted part of a face which are eye-catching. Sketches can also be used to automaically identifying the suspect in mugshot images in the database.

Automatic face sketch-to-photo identification has always been an important topic in computer vision due to its important uses in law enforcement. In last two decades, great efforts have been devoted to the study of automatic face sketch-based image retrieval. Uhl and lobo [3] proposed the first facial image retrieval using a query sketch. Most studies on automatic face sketch-based image retrieval have focused on viewed sketches where the original photograph is available. Traditional sketch recognition algorithms can be categories into two categories: generative and discriminative approaches. In generative methods a query sketch is matched with a model sketches of different database images. While, in discriminative methods matching is performed at feature level.

As sketches are drawn by the pencil, color information is missing from it. To identify the ranking of face features and importance of color information we have performed an analysis to rank the face features.

II. Visual Face Attributes

Face information plays a vital role in the identification of a person. The brain identifies a person by remembering facial features. Brain recognized more features of our relatives or friends with whom we met frequently. But in the criminal identification system, the information provided by the eye-witness is less. Information provided by the eye-witness is proportional to the memory and focusing area. In a traditional system, these generated sketches are sent on different police stations for display or get pasted or displayed on the walls of public areas. If someone identifies the suspect then the criminal is captured. The approach in which sketches are generated by the sketch artist on the basis of description based on eye-witness memory is known as the forensic sketches. To match the forensic sketch with mugshot images [4][5] by using image processing automation visual features are required. The performance of the process might be increased if visual features are ranked in terms of salient face attributes. By using these face information matching of the sketch a with mugshot images can take place. A structure of face depends on the shape and size of different visual attributes [6]. Due to the difference in these attributes peoples looks different form each other. Texture based approach is used to match with mugshot [7]. However, sketch contents are uncertain, therefore, texture information mostly lags.

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Fake News Detection: A long way to go (Conference Paper)

Sharma, S. ✉, Sharma, D.K. ✉

Save all to author list

GLA University, Department of Computer Engineering and Applications, Mathura, India

Abstract

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One can easily say in today's world, information aka news to few is more precious than money itself. This news needs to be in authentic form which is usually found in adulterated version. Leading us to have a dire need for an identification of real news from any possible fake news. News, being a form of information can be subjective to the proofs and source for its authenticity. As a human, one can easily identify real news from fake news with the help of one's innate capability to deduce logic and outlandish source of the information piece. Just that one needs few trusted sources to check for the facts and myths. But on a real time basis, there is a dire need for some software which can nip such 'false news' in its bud. Leading it to be one of the most researched area nowadays. Primarily being a part of Information Retrieval, this area is taking up a lot of attention from researchers worldwide to come up with a real-time solution for such an issue. In this article we have checked and analysed many research articles along with many survey articles and summed up this paper so as to provide the readers with a short idea of what fake news is, it's different flavours in the news spectrum, its characteristics and identification basic. We also included the different methods used by prior researchers in the same field. Using few researches as examples we learned about the basics of those methods used in fake news identification. The future aspects are also included in this article along with the challenges one faces while doing research in this very field. © 2019 IEEE.

SciVal Topic Prominence

Topic: Rumor | Fake | Disinformation

Prominence percentile: 99.347

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dataset | Fake News | identification | real news | survey | types of fake news

Indexed keywords

Engineering controlled terms: Identification (control systems) | Information systems | Information use | Surveying | Surveys

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Sentiment/Opinion Review Analysis : Detecting Spams from the good ones!

(Conference Paper)

Agarwal, Y.[a], Sharma, D.K.[a], Katarya, R.[b]

Save all to author list

[a]GLA University, Computer Engineering Applications, Mathura, UP, India
[b]Delhi Technological University, Computer Science and Engineering, Delhi, India

Abstract

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In this era of Whatsapp, Facebook, Twitter, Instagram, and various other social media platforms, we all are connected to each other's thought in one way or another. The Internet has brought us closer to everybody's work, place, plans, ethics, feelings, and emotions. We are much more interested in showing off our day, commenting and reviewing each and everything we came across throughout the day, knowing others opinion on the same and identifying how and why are they different from ours. Reviews also help in identifying the market conditions and strategies, and it could be done via Sentimental analysis as it helps us in identifying the things that are in trend and helps the organizations, businesses to utilize and expand accordingly. It can also be used in general by people themselves to look for which movie to watch to which laptop to buy, but when we encounter spam reviews we sometimes do not know whether they are fake or not in reality, but they do change our point of view. In this article, we go through this in a step by step format of different papers and summarize for other readers how we can identify the correct emotions and differentiate between the real and fake reviews. Using some researches, we get to know in-depth about how to choose the correct dataset, and the challenges faced. © 2019 IEEE.

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Deep Learning for Opinion Mining: A Systematic Survey

Yshika Agarwal
Computer Science and Engineering
GLA University
Mathura, UP, India
yshika0581@gmail.com

Rahul Katarya
Computer Science and Engineering
Delhi Technological University
Delhi, India
rahulkatarya@dtu.ac.in

Dilip Kumar Sharma
Computer Science and Engineering
GLA University
Mathura, UP, India
dilip.sharma@gla.ac.in

***Abstract*—The hype of sharing the thoughts, plans, opinions, sentiments, reviews what-so-ever comes in our mind on Social networking sites are increasing day by day and is at an all-time high. The data collected and made from this is enormous, and using them for analyzing, reviewing and as a guiding light by the calculative minds shows the advent of this era and the tremendous growth of technology. It also helps the industries, organizations in various forms. One of them is to gather the thoughts of the people globally, which is termed as opinion mining or sentimental analysis. This helps them to understand the market demand and help make the things consumers want and to separate the goods that are undesired or to fix a specific issue. It enables growth at a much higher pace. This study focuses on the literature done in the years 2015-2019 and will help the researchers and scholars to analyze the recent works in the field of Opinion mining.**

Keywords— Opinion Mining, Deep Learning, Sentiment Analysis, Neural Networks.

I. INTRODUCTION

The role of social networking has slowly but steadily made a base in our lives. In one way or another we are slowly drawn towards it no matter how much we keep ourselves at bay but at the end of the day we always find our way back to it whether we want to check the reviews or are bored and want to look at other people plans or want to buy a particular thing. It's a new trend to post everything you feel or does to share with others, and opportunists use this habit of people for their profits. The textual content, emoticons, photos and videos all help in coming up at a better conclusion of the opinions regarding a specific subject. Sentiment analysis or opinion mining classifies the data into three categories: positive, negative and neutral. Since it is not physically possible for anyone to read all the reviews and posts posted on a site thus, researchers and scholars are adamant on finding a way that does it with lesser computational power and time frame and therefore the vast area of machine learning and text mining is Sentimental analysis. The three basic approaches of Opinion mining are: Lexicon drove in which we use word dictionary of textual guide or corpus-based method, Machine Learning approach and Hybrid, i.e. integration of both Lexicon and Machine Learning approach. In recent years, various powerful techniques are implemented in machine learning for a higher possibility of correct prediction such as SVM ("Support Vector Machines"), DT ("Decision Tree"), NB ("Naive - Bayes"), and its ensemble approaches such as GBT ("Gradient Boosted Trees"). Other than this Deep Neural Networks (DNN) is also in use for text classifications. In this survey,

The concept of fuzzy networks is introduced in [1] as in a simple sentence there may be positive and negative or both words and thus discriminative algorithms such as SVM, DT, NB and GBT do not provide a correct representation. This paper focuses on a "fuzzy method that involves combining or the fusion of relationship degrees for each class of multiple fuzzy classifiers produced with discrete arguments setting (e.g., T-norms and T-conorms)". It focuses on the detection of cyberhate, i.e. hate speeches that are posted on online platforms that can result in antisocial activities. It deals with race, sexual orientation, religion and disability by developing the fuzzy approach to deal with the text ambiguity that can arise in other methods. Secondly, it deals with the semi-fixed rule of defuzzification. This proposed fuzzy method with both qualities can achieve effective recapitulate of text.

A Knowledge-based recommendation system which helps in monitoring human emotions and detecting psychological disturbances such as stress and depression is addressed in [2]. Based on this monitoring, messages will be sent to the users according to their state like motivational, happy and calming posts and the intensity of them can also be monitored by it as well as warnings can also be sent to higher and designated authorities. Character level representation is done using Convolutional Neural Network and disorder entity recognition by BiLSTM-RNN ("Bi-directional Long Short term memory-Recurrent Neural Network"). It provides an enhanced recommendation system that provides a personalized and improved sentiment metric and a mobile application that requires low computational power, memory and energy. The projected model gives the precision of 0.90 and 0.89 to identify stressed and depressed users, respectively.

A deep learning-based model is introduced in [3] to categorize reviews expressed by different users called RNSA. In this, a "consolidated feature set which is representative of sentiment knowledge, word embedding, sentiment shifter rules, statistical and linguistic knowledge is thoroughly studied for sentiment analysis". This model differentiates between the senses of the word and applies a strategy to create a single demonstration per word procedure. Contextual polarity is also taken into account as it changes concerning contexts. Therefore, yielding advanced performance enhancements in contrast with other existing renowned methods.

Guang Yang addresses the issues in [4] that in micro-blog sentimental analytics, emoticons also help to get precise

An Algorithm for Prediction of Web User Navigation Pattern and Restructuring of Web Structure Based on Visitor's Web Access Pattern

Deepak Mangal(✉), Saurabh Singhal(✉), and Dilip Sharma(✉)

Department of CEA, GLA University, Mathura, U.P., India
{deepak.magal, saurabh.singhal, dilip.sharma}@gla.ac.in

Abstract. The automatic discovery of user navigation pattern can be done by web usage mining. The web logs which are created on daily basis at the time web pages access by various user. The paper presents restructuring of web contents according to the user preference and pattern. The proposed algorithm suggests optimal path for users by considering eye tracking and mouse movement. The path suggests by the proposed algorithm considers only the true users those who are physically present and suggests a optimal path as per the logs recorded.

Keywords: Time to first fixation (TTFF) · Eye fixation

1 Introduction

The internet with web structure serves as the powerful tool for searching and communicating information to a widely distributed environment. It consists a database that has a dynamic collection of hyperlinks and information of dynamic data on web corpus. The data on Web classified in four main categories [1]: Usage data, Content data, Structure data and User profile. Content data is related with text data, pictures, or systematic data. The HTML tags XML tags are example of structured data. Hyperlinks on web page is also important. IP address of user's machine, the day and time of access and directories path forms web usage data while the user profile consists of profile with information. The mining of data on web is done through web mining [7, 9–12]. The large amount of log data has been stored to improve web services and web logics. Applying web usage mining on web logs, information about web access pattern and web personalization can be extracted.

Therefore, patterns of frequently co-occurred path can be discovered by using web mining. These patterns are beneficial to improve the website design by providing proficient access among highly correlated websites, suggesting navigation path for users. These patterns also help in providing useful information for developers and decision makers to provide optimal web path traversal pattern (WPTP) to all users and decision regarding advertisement policies and customer classification.

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Digital Image Restoration of Historical Devanagari Manuscripts

Nidhi Dubey

Abstract We live in a world where lots of manuscripts were written in earlier times. There are lots of historical manuscripts which are in deteriorated form. There is a need to restore these manuscripts in order to preserve our cultural heritage and ancient knowledge for future generation. Our focus is to restore the manuscripts that have been deteriorated because of age. These manuscripts got crushes, turned yellowish and got torn. There are some existing techniques for background restoration, and lot of work has already done in removing the background deterioration but very less work is done on foreground of manuscript for removing the deterioration. Our focus is to restore the foreground of manuscript by completing the incomplete characters in a torn places of manuscript through restoration techniques and for performing the background restoration, we have used in built Otsu binarization thresholding method. We are applying image processing methods for restoring text, foreground and background on deteriorated manuscript images.

Keywords Manuscripts · Deteriorated · Image enhancement · Image refinement Binarization methods

1 Introduction

A manuscript is defined as any document written by hand, being printed or reproduced in some other way [1]. The deterioration of ancient manuscripts happens because of the presence of iron gall inks that results mainly from two phenomena: hydrolysis and oxidation. The deterioration of manuscripts can result in following forms of manuscripts that are described below in Fig. 1 [1].

Manuscripts are one of the very important aspects of medieval society. The preservation of these manuscripts is very important because these manuscripts contain lot

N. Dubey (✉)
Department of Computer Engineering and Application,
GLA University, Mathura, Uttar Pradesh, India
e-mail: dubey.nidhi52@gmail.com

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Soft Computing Techniques Based Automatic Query Expansion Approach for Improving Document Retrieval

Dilip Kumar Sharma[1], Rajendra Pamula[2], D.S. Chauhan[3]

[1]IIT(ISM) Dhanbad/GLA University, India
[2]IIT(ISM) Dhanbad, India
[3]GLA University, Maihura, India
[1]dilip.sharma@gla.ac.in, [2]rajendrapamula@gmail.com, [3]pdschauhan@gmail.com

Abstract: Automatic Query Expansion provides most suitable terms for retrieving relevant documents from datasets. In this paper, a new query expansion approach is proposed and implemented which is based on accelerated particle swarm optimization(PSO) . Focus of the proposed technique is to find the most suitable expanded query in place of related expansion terms. The proposed technique uses Fuzzy logic to enhance the accuracy of accelerated particle swarm optimization with changing different parameters. The proposed technique is compared with another state of the art work on different performance parameters such as F-measure and Mean Average Precision. The efficiency of the proposed algorithm technique is also evaluated on two datasets as CACM and CISI. The results indicate that the proposed technique shows improved results compared to existing similar existing technique.

Keywords: fuzzy logic, query expansion, accelerated particle swarm optimization, F-measure, mean average precision.

I. INTRODUCTION

The objective of a efficient information retrieval approach is to extract the most relevant documents from data repository as per the user input queries. Different component of a information retrieval system are as searching, crawling, querying. indexing, document repository and web page ranking. It has the variety of applications such as information filtering (recommender system), media search (blog retrieval, microblog retrieval, news search, and image retrieval), digital libraries, web search engines (enterprise search, web search, federal search and mobile search) and many others. Automatic Query Expansion (AQE) is a process of finding suitable terms or phrases to be added for original query automatically and it is one of the promising techniques to improve the performance of document retrieval. This Query Expansion technique gives more appropriate query as compared to original queries by adding keywords [1]. An effective query is highly influenced by automatic query expansion. Query expansion finds it use in various areas such as multimedia information retrieval [2], Question Answering System[1], and information filtering [3], Healthcare [5], Sports [4], Medical [6] and e-commerce [7]. Traditional retrieval mechanism explores the most suitable documents corresponding given query. In addition to this Automatic Query Expansion extracted first top related documents using initial user query after this various unique terms are extracted from these documents to further expend the query after identifying further suitable terms. Existing works use different techniques to enhance the efficiency of document retrieval technique by using soft computing which is based on the identification of most suitable term for query expansion but these lack in performance due to use of traditional query modeling. To solve this issue a novel technique of query modeling is suggested for a AQE(automatic query expansion). The efficiency of the proposed technique is evaluated based on the two standard datasets CACM and CISI. The proposed technique is compared with Ramalingam et al. AQE approach [8]. Search engines are computer programs that browse and extract information from the World Wide Web in a systematic and automatic manner [25].

In literature, many researchers have used AQE based on Pseudo Relevance Feedback (PRF) to enhance queries and retrieval processes. [27] But, PRF based AQE contains few limitations, therefore, semantic filtering such as WordNet are used to overcome these limitations [9]. Gupta et al. [9] propose a novel technique of query expansion using co-occurrence approach to improve the efficiency of the retrieval system. Authors have tested the approach on CACM, CISI and TREC-3 datasets. In reference [10], authors have developed a method for term weighting scheme to improve information retrieval. The genetic algorithm is applied to provide the weighting factor to the query vector based on the relevance feedback provided by the user. A new fuzzy-based query expansion approach was implemented by authors in [11]. The results were satisfactory. Fuzzy logic based AQE technique is used Nowacka et al. [12] to enhance the performance of information retrieval system. An AQE approach based on domain-related topical and non-topical terms is employed by Fattahi et al. [13]. An AQE technique based on semantic modeling of the user query is proposed by Piotr Wasilewski [14]. Latiri et al. [15] also established a query expansion method which was based on association rule mining. It was one of the biggest collection of information and plenty of web pages in the form

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Credibility investigation for tweets and its users

Pawan Kumar Verma
GLA University, Mathura
pawankumar.verma@gla.ac.in

Vivek Sharma
GLA University, Mathura
viveksharma.cea@gla.ac.in

Shalini Agarwal
GLA University, Mathura
shalini.agarwal@gla.ac.in

Abstract. Fake news has been evolved since the internet use has been increased and mainly when the focus has been diverted on to some social networking sites for gaining any kind of information or news. The widely accepted definition of fake news is the news that is not true or unreal spreaded either intentionally or unintentionally.people are using twitter, Facebook and Instagram for seeking any kind of news or information. In this paper we have proposed the framework to find out the authenticity of the twitter user and tweets by computing tweet score and user score. With the help of these scores we will be able to label the tweet and its user as an authentic tweet or user that has been verified by some methods.

Keywords: Fake News, Fake Tweets, Fake User.

I. INTRODUCTION

The current era is of the social networking sites only. Social networking sites are the online available sites to share your thoughts and views freely. Also it is available free of cost. Various social networking sites are Facebook, twitter, snapchat and Instagram etc. Now a days any information, data, review about anything or any person can be obtained from these websites only. In the same way now a day's people are using these websites to retrieve the news about anything. It is a less time consuming and cheap way to gain the news. This online news facility is categorized in digital media. Along with so many pros of this digital media there are few drawbacks as well. Like people have started sharing the fake news.

Fake news [11] [12] is defined as the news that is not true and spreaded with some intension. It is not necessary that the intension is malicious always. Sometimes due to lack of information fake news gets viral. Social networking websites are the best found platform for spreading fake news. On these social networking sites, the reach and effect of news occurs at a very fast speed. It can affect millions of users in seconds.

In this paper we are considering twitter. Twitter is a micro blogging website to share our views and thoughts through tweets. Now days it has been widely using to share the news and views and thoughts. It is a very popular site among the youth. According to Anderson [1], youth are more tech savvy as comparedto their parents but have less ability to differentiate between the real and fake news.

Online news is influencing people with great power and for that reason only people are misusing it. For fulfilling their intensions, they are sharing the unreal news and it might affect the community positively or negatively. Hence it became important to know if that shared news is real or not but there is not any best method found to decide if that piece of new is true or false. According to research kids with age 10 to 18 have shared at least one news which they found fake later. It has become very tough to find out the veracity of the news. Hence from the last two decades a lot of work is being done to detect the fake news. According to global study published by Edlemen [7] 63% people trusted search engine and 58% people trusted newspaper and television for news.

In this paper we have discussed the problem that occurred due to spreading of fake news. We have tried to find out the ways to decide if the piece of news is true or false (i.e. fake) based on the tweet score and user score who has shared or post the tweet. In the section 2 the problem related to detect the fake the news has been discussed and also discussed about the cause and effect of spreading fake news on our society. In Section 3 we have developed an algorithm that defines if the piece of news tweeted should be trusted or not by computing the tweet and user score.

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Auto Adaptive Differential Evolution Algorithm

Vivek Sharma
GLA University, Mathura
viveksharma.cea@gla.ac.in

Shalini Agarwal
GLA University, Mathura
shalini.agarwal@gla.ac.in

Pawan Kumar Verma
GLA University, Mathura
pawankumar.verma@gla.ac.in

Abstract: Differential Evolution algorithm has proved to be effective and best method for solving various optimization challenges. It has been proved to be rather cumbersome to manually set control parameters in DE. This paper sketch a new variant of the DE algorithm that provides an environment to auto -adjust the control parameters settings. For the past years, DE has captured the attention in many practical cases. It makes use of a few control parameters that are bound to the same value throughout the evolutionary process. Manual control parameters setting is a time-consuming process, so the proposed work provides a reliable, accurate and fast technique to optimize numerical function. This work is tested against various numerical set functions. Final results show that this proposed algorithm performs a cut above when compared with the classical Differential Evolution algorithm, and the other control parameter setting variant of DE considered in the literature.

Keywords: Evolutionary Algorithm, Self-Adaptive, Testbed, Differential Evolution

I. Introduction

Differential Evolution [1] lies under Evolutionary Algorithm [2] i.e. Differential Evolution is encouraged by the biological evolution and the general evolutionary algorithm procedure undergoes- mutation, recombination, crossover, and selection". EA had shown great success in various fields of engineering, biology, economics, marketing, genetics, robotics, etc. EA is used to optimize continuous and differential mathematical problem over continuous search space. Algorithms like GA, GP[3], EP[4], ES[5], and DE[1] shares some common roots. These are population-based algorithms in which the entire population is searched for the optimized fitness function value. EA is the constant stochastic pursuit technique that chips away at the rule of 'survival of the fittest' to produce an improved outcome from a set of candidate solution.

Differential evolution had been acquainted by Storn & Price [1]. It also registered its importance in optimizing non-continuous, non-differential problem. DE is reasonably fast, the efficient and robust algorithm as compared with its counterpart. It comprises three basic steps mutation, crossover, and selection. Mutation means changes are introduced within one particular candidate, results in the form action of a new candidate. Crossover means changes are applied to two or more candidates, results in one or more candidates. Mutation and crossover clubbed together to introduce diversity within the search space while a decision who will proceed for the next generation is done in the selection step. The reason for the determination of a contender for the cutting edge is the wellness estimation of the goal work.

In Classical DE algorithm, some vital control parameters like Crossover constant Cr, Mutation scale factor F and the population size NP does not experience changes amid the evolution phase. F and Cr are set under some predefined ranges. Later, it was concluded to include control parameters during evolving steps [2][6]. According to Eiben et al. [7], the changes in control parameters can be characterized as:

1) Deterministic parameter controls are some pre determinism axiom that can change control parameters.
2) Adaptive parameter control that can be altered during the evolution phase using assessment from the search i.e. used to guide the search.
3) Self Adaptive parameter control where control parameters are made self-versatile to the evolution procedure and they change themselves as the pursuit continue.

This paper is an experiment on self-adaption of two parameters F and Cr. The motive of this work is to exhibit an extensible Differential Evolutionary Algorithm with auto-adaptive control parameters.
Section II explores past research work. Differential Evolution is canvassed in Section III. Section IV presents a novel variant of DE. An experimental result from Benchmark functions is discussed in Section V and in the last Section VI covers conclusion and future work.

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Palm Print Recognition Using CEDA

Shalini Agarwal
GLA University, Mathura, India
shalini.agarwal@gla.ac.in

Vivek Sharma
GLA University, Mathura, India
viveksharma.cea@gla.ac.in

Pawan Kumar Verma
GLA University, Mathura, India
pawankumar.verma@gla.ac.in

***Abstract*— Nowadays, Palm Print is one of the most reliable biometric traits among all of personal identification due to its high stability and various unique as well as stable features like principal lines, minutiae points, singular points, ridges, textures etc. In this paper we present a new method using Curvelet energy distribution algorithm. We extract texture feature from palm image using Curvelet Energy Distribution Algorithm (CEDA), in which First, 2 level curvelet transform is performed over palm image and then energy distribution of each sub-bands will be calculated at both level of transform. These energy distributions will be collected as feature vector, sort them and use as a texture feature of an image. This feature vector generated after sorting does not change for input palm image if one person scans his palm in any angle hence effectively achieve good recognition rate with rotation invariant property. Multi class SVM classifier is used for classification which is a less complex high performance classifier. Experiment will be performed over PolyU palm print database collected over 250 persons. This proposed algorithm compared with recognition using wavelet transform and texture extraction using Gabor filter and achieve a good recognition rate.**

Keywords*— *palm print recognition, rotation invariant, curvelet transform, SVM

I. INTRODUCTION

Human identification is now become a challenge for security system of an organization. Knowledge based Security system which include password, pin etc or possession based which includes key are considered traditional security system which can be easily faked, cracked and stolen. Identification of a person based on biometrics now becomes need for security system in recent years. Biometric identification utilizes behavioral and physiological characteristics of a person like fingerprints, palm print, face, ear, voice, signature, gait etc. Each biometric trait possesses various stable and unique features but also have some limitations which make them fail to be accepted widely. Fingerprint used by various organizations for identification of personnel but current sys-tem failed to identify fake & distorted finger [1]. Iris recognition systems are also reliable and accurate but costlier as well as it involves some hygiene related issues [2]. Among these biometric traits, Palm print is one of the most reliable and stable human physiological trait and it attract researchers because of its rich features like principal lines, ridges, delta points, curves, texture that uniquely identify a person. It also has several positive characteristics over other biometric traits like

- Palm print patterns consists rich and stable line and curve features that are unlikely to change over time and age. Even twins don't have same palm print pattern.
- Less intrusiveness,
- Low cost capturing device because even low resolution image covers enough feature to differentiate two persons. [3].

II. RELATED WORKS

There are various algorithms has been proposed for palm print recognition system in recent years. Different features such as line, orientation, delta points, minutiae, and texture were exploited for significant improvement the recognition performance.

Jiaa et al. [5] proposed a new Palm print recognition approach using line orientation code and enhanced finite Radon transform were used to extract line orientation feature. Line matching technique based on pixelto-area algorithm has been used for matching train images with test images.

J. You et al. [6] introduced a new dynamic feature selection scheme by combining global texture feature measurements as well as by locating interesting local points within ROI.

Zhang et al.[7] proposed online Palm print recognition system that reads online palm print images with low resolution. Input image will be pre-processed by Low passfilters and then boundary tracking algorithm applied. Circular Gabor filter used for feature extraction andc2-D Gabor phase coding used for feature representation. Finally after feature extraction hamming distance has been applied for matching .

Mona A. Ahmed et al. [8] introduced three different algorithms Vascular Pattern Extractor Algorithm, Vascular Pattern Marker Algorithm and Vascular Pattern Thin-ning Algorithm for recognizing Palm Vein Pattern of an individual.

Prasad et al. [9] proposed Palmprint Authentication Using Fusion of Wavelet Based Representations. For pre-processing low pass filtering has been applied and then ROI

A Review on Offensive Language Detection

Rahul Pradhan, Ankur Chaturvedi, Aprna Tripathi and Dilip Kumar Sharma

Abstract Offensive language, hate speech, and bullying behavior is prevalent during textual communication happening online. Users usually misuse the anonymity available online social media, use this as an advantage, and engage in behavior that is not acceptable socially in actual world. Social media platforms, analytics companies, and online communities had shown much interest and involvement in this field to cope up with this problem by stopping its propagation in social media and its usage. In this paper, we will propose the work done by researchers to form effective strategies for tackling this problem of identifying offense, aggression, and hate speech in user's textual posts, comments, microblogs, etc.

Keywords Hate speech · N-gram · Offensive language · tf-idf · Machine learning · Twitter · Offensive language detection · Antisocial behavior online

1 Introduction

Abusive and offensive language is the prime concern of technical companies nowadays due to exponential growth in number of Internet users around the world and since these people are from different walks of life and different culture. There is a fine line between hate speech and offensive language, and to detect and differentiate among them is a big challenge. In literature, researchers generally classify the text into three classes:

R. Pradhan (✉) · A. Chaturvedi · A. Tripathi · D. K. Sharma
GLA University, Mathura, India
e-mail: rahul.pradhan@gla.ac.in

A. Chaturvedi
e-mail: ankur.chaturvedi@gla.ac.in

A. Tripathi
e-mail: aprna.tripathi@gla.ac.in

D. K. Sharma
e-mail: dilip.sharma@gla.ac.in

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Multiplexer based Voltage Controlled Delay Buffer Element

Pooja Saxena
Electronics and communication Department
Greater Noida Institute of Technology
Greater Noida, India
saxena06pooja@gmail.com

Mohd Amir Khan
Technical Trainer
GLA University
Mathura, India
amirkhan1092@gmail.com

***Abstract*—This paper presents a voltage controlled delay buffer using a 2:1 multiplexer, designed in 0.35 µm CMOS process. The multiplexer is realized with transmission gate, which results in achievement of high speed, low power and full swing output characteristics of delay buffer. The least attained post layout rising edge delay is 120 ps that is comparable with standard cell inverter. The delay regulation range achieved over control voltage of 0 V to 3.3 V is from 120ps to 560ps. The performance of delay buffer for single edge delay control across PVT variations is successfully verified by design of modified delay lock loop.**

Keywords— Time-to-Digital Converter (TDC), Current Starved Inverter, Delay Lock Loop (DLL), Process Voltage and Temperature (PVT)

I. INTRODUCTION

The voltage controlled delay element is a critical part for implementation of time-to-digital converter (TDC) based on the tapped delay line technique [1, 2]. Here, the least delay obtained from delay element of delay line defines the resolution of TDC. To design a delay line based TDC using mixed signal design flow with target resolution of less than 200ps, a high speed (<150 ps), low power (zero static current) and full swing delay element is needed. The full swing of delay element provides a good interfacing with standard cell provided by process design kit. Various types of delay elements have been reported in the literature. The conventional *current starved inverter* [3, 4] based delay element features simple design, low power (ideally zero static power), wide delay regulation range and full output swing. However, it's least delay achieved in available resource of 0.35 µm CMOS process is around 400 ps.

The *Transmission gate* based delay element [5] is fast due to relatively low resistive path between input and output. Also, it is power and area efficient and has full output swing. However, in the cascaded delay line, the delay increases quadratically with the number of delay elements [6]. This causes non-linearity in the tapped delays which can be mitigated by using the input signal (clock or step) as a control signal of transmission gate. Based on this concept, a voltage controlled logic buffer using 2:1 multiplexer is designed. The multiplexer itself is implemented using transmission gate, thereby utilizing its above stated features.

Thus, a delay buffer with salient features of high speed (120 ps), low power (~ zero static current), full swing (0 to 3.3V) and wide delay regulation range (120ps to 560ps) in rising edge is presented in this paper. Also to verify the performance of delay buffer against process voltage and temperature (PVT) variations, a modified delay lock loop (DLL) with single edge delay control is implemented.

This paper is organized in the following sections: In section 2, architecture of multiplexer based delay buffer is presented. In section 3, a brief description of DLL blocks and its working with proposed delay buffer has been presented. In Section 4, post layout simulation results are presented. In section 5, conclusions are drawn..

II. MULTIPLEXER BASED VOLTAGE CONTROL DELAY ELEMENT

This delay element is based on the realization of logic buffer using 2:1 multiplexer as shown in Fig.1. Here, its selection line is connected to the 'V_{in}' and inputs 'I_0' and 'I_1' are connected to supply voltage (V_{dd}) & ground (gnd) respectively. When 'V_{in}' is high, the output node 'V_{out}' connects to Vdd, thereby pulls up to high state. When Vin is low, V_{out} connects to gnd thereby pulls down to low.

The multiplexer is realized using transmission gate (TM_1 and TM_2) where, the delay in transmission of V_{dd} (or gnd) to output node is determined by the time to charge (or discharge) a load capacitance C_L through the equivalent resistance R_{eq} of two transistors (M_1 and M_2) connected in parallel. This transmission delay defines the rising and falling edge transition delays of logic buffer.

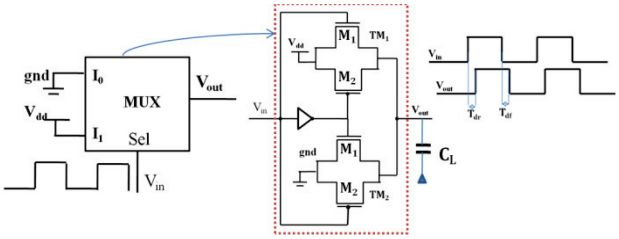

Fig. 1: Logic buffer derived from transmission gate based 2:1 multiplexer

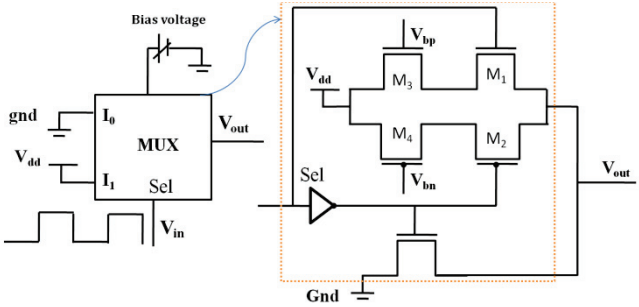

Fig. 2: Proposed voltage controlled logic buffer using transmission gate based 2:1 multiplexer

In order to introduce a voltage controlled variation in rising edge delay at V_{out}, additional transistors M_3 and M_4 are added in series with M_1 and M_2 respectively, as shown in Fig.2. Theses transistors have their gate controlled by the bias voltages (V_{bp} and V_{bn}), generated from bias circuit. The

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Performance of Synthetic Rosenblatt Process under Multicore Architecture

Amit Chaurasia
Department of Computer Engineering & Application
GLA University
Mathura, India
amit.chaurasia@gla.ac.in

***Abstract*—The Networks-on-Chip provides the solution for communication amongst different processing units placed on a single chip through the interconnection network for Multiprocessor Chip or Multiprocessor System-on-Chip (MPSoC). However, the simulation of real-time traffic is complex and requires a lot of machine-hours. So the need for synthetic traffic becomes crucial for its flexibility and fast simulation time which saves a lot of machine-hours. In this paper, we proposed the use of non-Gaussian Rosenblatt process for generation of synthetic traffic as compared to Gaussian process. We have analyzed the performance of the Rosenblatt process designed from different *Hurst parameter* index for different traffic patterns. Our study provides help to optimize & selection of network resource units used for communication for the network designer.**

***Index Terms*—Hurst Parameter, Networks-on-Chip, Rosenblatt process, Self-similarity**

I. Introduction

With the increasing number of transistors placed on the single chip makes the computational power of chips more and more sophisticated. As the technology increasing there are issues related to power dissipation, resource utilization and application mapping [1], [2] As the size of the chip is decreasing it becomes quite complex for the network designer for the selection of optimal network resources. The selection of communication makes the smooth functioning as there will be less power dissipation by better selection of hardware (buffers). The size of the buffers placed inside the routers can cause the overflow/underflow packets. The NoC has become the solution for communication between the different processing unit placed inside the chip, the system performance depends on the routing algorithm, network topology, selection of network processing resources and queueing technology [3]. As we come across all the issues related to multicore archetype, the problem faced by simulation on these technologies becomes complex so the need of synthetic traffic becomes crucial. A lot of studies has been done on generation of synthetic traffic ranges from stochastic model to wavelet-based model found in [4], [5], [6]. In this paper, we analyze the synthetic traffic generated from wavelet-based process known as Rosenblatt process. It is one of the non-Gaussian based process which is self-similar in nature i.e. similar to apart from which it is originated.

A. Rosenblatt Process

Rosenblatt process is a self-similar process which is used in the field of economics, hydrology, networking or telecommunications. First, understand the Rosenblatt process. Rosenblatt process is one of the "*Hermite processes*" which makes it important which is obtained from dependent random variables from the normalized sum of long-range. The Gaussian fractional Brownian motion is the simplest Hermite process, whereas Rosenblatt is the simplest non-Gaussian Hermite process with stationary increments [7]. Consider $(\xi_n)_{n\varepsilon\mathbb{Z}}$ the self-similar Gaussian process whose mean is zero and unit variance, it's covariance function is denoted as

$$C(n) = E(\xi_0 \xi_n) = n^{\frac{2H-2}{k}} L(n) \tag{1}$$

where $L(n)$ is slowly varying function with a very slow lag as corresponds to x-axis which ranges from $[0, \infty)$, H is the *Hurst parameter* used to measure the long term memory of the time series ranges from $(1/2, 1)$.

To understand the Rosenblatt process we start with *fractional Brownian motion* with single integral $(m = 1)$ as comparison to Rosenblatt which uses two integrals $(m = 2)$. Let $F_H(t), t \geq 0$ be Fractional Brownian motion with zero mean, stationary increments $F_H(0) = 0$ and is self-similar with $H\varepsilon(0, 1)$ such that for any $p > 0$ satisfies $F_H(pt), t \geq 0$ and $p^H F_H(t), t \geq 0$ will have the similar distribution. Self-similarity and stationary increments shows more properties as follows

$$\mathbb{E}F_H^2(t) = \sigma^2 t^{2H} \tag{2}$$

$$\mathbb{E}F_H(t_1)F_H(t_2) = \frac{\sigma^2}{2}\{t_1^{2H} + t_2^{2H} - |t_1 - t_2|^{2H}\}. \tag{3}$$

It will be in standard form if $\sigma^2 = 1$ then the X_k process will be Gaussian, stationary and has long-range dependency for $H\ \varepsilon\ (1/2, 1)$

$$X_k = F_H(k+1) - F_H(k), k \geq 0 \tag{4}$$

Autocorrelation function can be denoted as

$$c_k = \mathbb{E}F_0 F_k \sim \sigma^2 H(2H-1)k^{2H-2}, \tag{5}$$

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Raspberry Pi based voice-operated personal assistant (Neobot)

Piyush Vashistha
GLA University
piyush.vashistha@gla.ac.in

Juginder Pal Singh
GLA University
juginder.singh@gla.ac.in

Pranav Jain
GLA University
jpranav289@gmail.com

Jitendra Kumar
GLA University
hispy3@gmail.com

***Abstract*—This research work aims to build up a personal assistant by using Raspberry Pi as a processing chip and underlying architecture. It emphasizes the substitution of screen-based interaction by utilizing ambient technologies, Robotics and IoT, means the user interface is integrated with the physical gadget. It comprises of components, for example, IR sensors, Pi camera [6], Mic and Motor driver. It is a voice-controlled personal assistant whose movements will be controlled through voice directions and it has the capacity to peruse the content from pictures and then articulate the equivalent to the client by utilizing the inbuilt speaker. It can help the outwardly disabled to connect with the world by giving them the access to informative sources like Wikipedia, Calculator, and so on by using their voice as the command.**

Keywords—IoT, Raspberry Pi, Virtual Assistant, OCR (Optical Character Recognition), Voice Controlled

I. INTRODUCTION

Today, it has become very rare to find a human being without interacting with a screen, regardless of whether it is a PC or mobile. A screen which is a postcard-sized surface has somehow become a barrier and escapes the route in social situations, absorbing our gaze and taking us somewhere else. Soon, with the increasing proliferation of the Internet of Things (IoT), we will enter the period of screen-less cooperation or Zero UI[7][11] where we will wind up with more screens, everything will be a screen. Zero-UI [7][11] is a technology that utilizes our movements, voice and even musings to make system react to us through our conditions. Instead of depending on clicking, composing, and tapping, clients will currently enter data by means of voice. Interactions will be moved far from telephones and PCs into physical gadgets which we'll speak with. This all eventual conceivable by utilizing Robotics or IoT. Robotics is the branch of technology which manages the development, design, operation, and application of robots.

Our assistant is artificially intelligent and controlled through the predetermined voice directions. It gets a consistent signal from the IR sensor so as to locate the constant way for a run. It makes the utilization of the Pi camera module for distinguishing handwritten or printed content from the picture and articulates it to the client utilizing a built-in speaker. It can perform Arithmetic computations dependent on voice commands and giving back the processed solution through a voice and furthermore look web dependent on client's query and giving back the answer through a voice with further intuitive questions by the assistant.

Existing System

The current system experiences the downside that just predefined voices directions are conceivable and it can store just constrained commands. Subsequently, the client can't get full data lucidly. These systems are playing out the restricted assignment either just voice controlled or OCR.

Proposed System

The proposed system is with the end goal that it can defeat from the disadvantages of the current system by making it a standalone personal assistant that can be associated exclusively through the client's voice. Furthermore, which perform different errands like perusing content from a picture, controlling movement through voice-based indicated directions, and so forth. This system is a model for an assortment of employment.

II. HARDWARE DESIGN

List of hardware

1) Raspberry Pi model B+
2) Motor driver(L298N)
3) DC motors
4) Pi Camera
5) IR Sensor
6) 4AAA battery
7) Speaker
8) Mic
9) L shaped aluminum strip to support Pi camera.

Raspberry Pi:-

The Raspberry Pi [2][4] is a minimal effort, Visa estimated computer that connects to a computer or TV. It is an able little device that provides power to individuals of any age to explore computing and to figure out how to program in dialects like Scratch and Python. It can do everything you would expect a personal computer to do, from browsing the web and playing the top-notch video to spreadsheets, word processing, and playback.

A Study on Email Security Through Cryptographic Techniques

Akhilesh Kumar Singh(✉), Vinesh Kumar, and Sharad Pratap Singh

GLAU, Mathura, UP, India
{akhileshkr.singh,vinesh.kumar,
sharad.singh}@gla.ac.in

Abstract. E-mail is one of the leading and most reliable mode of communications even after the emergence of many new methods of electronic communication systems. E-mail messages are transmitted from the senders' system to the recipients' system over the Internet with the help of some intermediary nodes including servers, switches, gateways, etc. E-mail communication relies on some of the oldest communication protocols which have not been modified ever enough since. Hence e-mail communication is vulnerable to some security risks including eavesdropping, spoofing, tampering, phishing, etc. The e-mail communication system makes use of some security protocols, techniques and data encryption methods in many ways to make this communication secure and reliable. This paper reviews the security of e-mail protocols and data encryption techniques that are in use in the e-mail system. It reports the results of a study of the roles and advantages of e-mail security techniques, protocols, and algorithms. This paper also highlights security vulnerabilities in an e-mail communication system and the possibility for improvement in the control measures.

Keywords: Secure E-mail · Cryptography · Spam · Symmetric key · Asymmetric key · RSA

1 Introduction

E-mail communication starts with a sender composing a message on an e-mail client and attaching files to the e-mail message. The e-mail message is then submitted for transmission to a sending mail server which is a Mail Transfer Agent (MTA) or a Mail Submission Agent (MSA) which in turn hands it over to another MTA in the path. The MTA then sends it over to the recipients' mail server which is also an MTA. The e-mail message is sent from the sending MTA to the recipient MTA directly, or through one or more intermediate MTA nodes thus an e-mail message may take multiple hops before arriving at the destination mail server. E-mail messages are submitted for sending and transferred between MTAs using Simple Mail Transfer Protocol (SMTP) or its extended version called ESMTP protocol. From the recipients' mail server, the e-mail message can be downloaded to the recipients' mail client (MUA) using IMAP or POP3 protocols. The protocols work with or without the use of any secure communication channels [1]. E-mail messages are vulnerable to security threats right from the spot where they are created, up to the recipients' system. Figure 1 depicts steps of

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Detection of Glaucoma in Retinal Fundus Images Using Fast Fuzzy C means clustering approach

Law Kumar Singh
Research Scholar ,Computer Science and Engineering, School of Engineering and Technology
Sharda University
Greater Noida (U.P.),INDIA
Assistant Professor, Department of Computer Science and Engineering,
Hindustan College of Science and Technology, Mathura(U.P.),INDIA
lawkumarcs@gmail.com

Pooja
Associate Professor, Computer Science and Engineering,School of Engineering and Technology
Sharda University,
Greater Noida (U.P.),INDIA
pooja.1@sharda.ac.in

Hitendra Garg
Associate Professor, Department of Computer Engineering and applications
GLA University,
Mathura(U.P.)INDIA
Hitendra.garg@gmail.com

Abstract: Glaucoma is one of the major causes of vision loss in today's world. Glaucoma is the disease where fluid pressure in the eye increases; if it is not timely cured, the patient may lose their vision. Glaucoma can be detected by examining boundary of optics cup and optics disc acquired from retinal fundus images. The proposed method suggests automatic detection the boundary of optics cup and optics disc with processing of fundus images. This paper explores the new approach of fast fuzzy C-mean technique for segmenting the optic disc and optic cup in fundus images. Results evaluated by fast fuzzy C mean a technique is faster than fuzzy C-mean method. The proposed method reported results to 97.75% 92.50% and 95.00% when tested on DRIONS, DRIVE and STARE on publicly available databases of retinal fundus images.

Keywords —Cup to disc ratio, Glaucoma, Optic disc,Fast Fuzzy C-Means.

I. Introduction

In today's time, approx. 66.8 million people has been affected with vision loss due to Glaucoma and by 2022 possibly this number increases by 79 million worldwide [9][18][13].There are 27.9 million glaucoma affected patients in India only[7]. This disease mostly happens due to increase in the fluid pressure inside the optic nerve which is also known as intraocular pressure that may sometimes lead to permanent blindness. Therefore, it is necessary to detect it in the early stage to prevent blindness. Eye is most valuable and sensitive sense organ of our body which receive the information visually from the environment and convert them into electro-chemical impulses for the brain [9].Increasing number of glaucoma patient needs an automatic system to detect glaucoma, so that it can be detected at initial stage and cured [12].

The eye is nearly spherical in shape and slightly bulge in front part.In the proposed paper, glaucoma can be detected by extracting feature like OPtic-Cup-to-Disc Ratio (CDR) from the eye.CDR has been obtained after extraction of area of optic disk and optic cup. CDR range from 0.1 to 0.3 for normal eye and value greater than 0.3 reports presence of glaucoma.

-Optic Disc is the point where retinal ganglion cells exits or leaving the eye and entry point of major blood vessels in the eye. When there is no rods and cones, then there is a blind spot. A small blind spot correspond with optic disc is due to absence of receptors rods and cones in that region [10]. Optic disc is inside the fovea which is of 1.5 mm (approx.) in diameter. It is used for finding Optic Cup-to-Disc Ratio (CDR) for glaucoma detection.

-Optic Cup exists in the centre of optic disc where two walled depression found is known as optic cup. The neuroretinal rim is the outermost region in the optic cup where the nerve fibers bend. The structural emergence of the optic disc is changed due to the size reduction in optic nerve fibers [10]. Fig.1 shows the optic cup and optic disc.

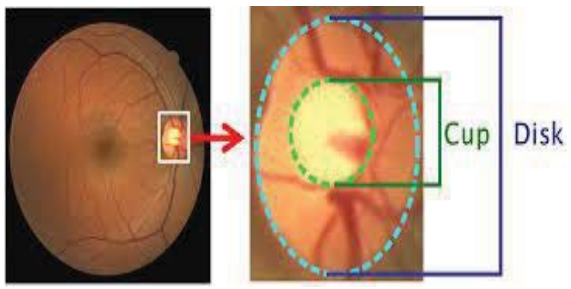

Fig. 1 Colour Fundus image and optic disc & optic cup [11]

Retinal Fundus image plays one of the most important roles in identification of different entities by performing various operations on these fundus images to detect glaucoma [14].So, examination of fundus image is one of the most established ways of analysis of retinal image.Glaucoma is verified by extracting various features like Cup-to-disc Ratio (CDR), Inferior region area, Superior region area,Nasal region area, Temporal region area (ISNT) etc from retinal fundus images.

II. Detection of Glaucoma: Review

Glaucoma is a disease that leads to the damage of optic nerve resulting progressive and irreversible vision loss. Glaucoma

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A Proposed Model: Linearly Extensible Triplet Network (LETN)

Varsha Kumari
Department of CEA
GLA University
Mathura
varsha.kumari@gla.ac.in

Aprna Tripathi
Department of CEA
GLA University
Mathura
aprna.tripathi@gla.ac.in

Nikhil Govil
Department of CEA
GLA University
Mathura
nikhil.govil@gla.ac.in

Sandhya Pundhir
CSE Department
KIT,
New Delhi
sandhya.pundhir@gmail.com

***Abstract*—Past few years, there has been keen interest over computation power and scalability of the computer system. The computation power can be increased massively in two ways either in terms of optimizing hardware by increasing the number of processor (nodes) or in terms of optimizing software by structuring the program in such a way that the large task is subdivided into independent subtasks (load).**

The scheduling and mapping of tasks on the set of processors has significant role in parallel and distributed computing system. The scheduling problem involves assigning a balanced task to each processor according to its performance capabilities. It also minimizes communication overhead in the network.

To speed up computation power, a linearly scalable triplet based multiprocessor architecture (network) has been proposed here. It has been designed to meet the current trends in achieving high computation power in multiprocessor architecture. It allows the extension of the network by adding new subsystems of three processors at a time which increases the parallel computation. The properties and task Allocation algorithm of proposed model has been discussed deeply. By discussion and comparison authors come to the conclusion that proposed model is better and is need of the time.

Keywords— multiprocessor architecture, linearly extensible, task scheduling, and parallel computing.

I. INTRODUCTION

The main focus of researchers nowadays is to increase the computational power of the systems. In parallel and distributed systems, more than one processor are processing simultaneously to execute the task. The amount of processing time required to execute the task assigned to a processor is called workload of a processor. To obtain the desired performance, a number of new parallel interconnection topologies have been designed.

Also, there are various parameters to evaluate the performances of these topologies. The load balancing and execution time along with suitable routing are critical parameters for achieving high performance. The main objective is to design an appropriate network and structured approach to distribute the tasks evenly and execute them parallel among different processor to maximize throughput, maintain stability, resource utilization. Also the network should be fault tolerant in nature[1][2][3].

Broadly multiprocessor networks models are classified into two classes: shared-memory and message passing system. In the shared memory model, a single address space exists that provides a global memory which is shared by all the processors. However, there is a multiple address space in the message-passing model. Also in this model each processor has its own local memory.

In related literature, various techniques and methodologies are proposed by various researchers for scheduling processes of a distributed system. Among those the major techniques are task assignment, load balancing, and load sharing approaches. In task assignment approach, each task executes as a collection of related sub tasks. To improve the performance of the system subtasks are allocated on suitable nodes.

While in load sharing approach, tasks are allocated to nodes such that no node is idle while some tasks already wait for being processed. In load balancing approach, tasks are distributed among the processors so that equal workload is assigned at each node at any point of time [4][5][6].

Higher degree of performance is always in demand. Also, after analysis the existing work, it is found that there is a enough scope of improvement in performance by designing a new network model.

Here, Novel linearly extensible triplet based architecture is proposed by author. . Also a comparative study has been done with other similar architectures to find the pros and cons of proposed techniques. Paper is organized in to seven sections. Section II presents a brief review of several existing parallel architectures. Section III gives an overview of properties that help to understand the performance of a particular parallel architecture. Section IV describes the review of scheduling schemes for load distribution. Proposed model and its properties has been described in Section V. Section VI gives the comparative analysis and results. Conclusion is stated in section VII along with the scope of future work.

II. PARALLEL ARCHITECTURE MODELS

Over the year many interconnection topologies have been proposed for distributed multi processors systems.

Some of the popular topologies are hypercube, deBruijn network, cube connected cycles, star, triangle and LET networks [1][5][7].

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Additive Fabrication and Additive Technique : A Survey

Vivek Dwivedi[1], Manish Raj[2],Ajeet Yadav[3],Anuj Kumar Sharma[4]
Centre for advanced Studies, Lucknow[1,3,4], GLA University, Mathura[2]
dwivedivivek933@gmail.com,18mech02@cas.res.in, rajmanish@cas.res.in.

***Abstract*—In the process of additive fabrication, information for manufacturing is taken from CAD(computer aided design) or other designing software. It generate sliced file following layer by layer step of fabrication process. Several classifications were made during the year of 2004 by the Society of manufacturing engineering. This paved a better opportunity to develop the product in non-conventional manufacturing process. There where certain review up on the various technique and the process to be followed for standardizing the manufacturing units, because it is very difficult materials by conventional processes. There is a great requirement for improving the finishing processes. After great reflection and analysis about certain technique of additive fabrication in current scenario has lead to the consequences that the process has a good future in the upcoming era. This technique uses converted stereo lithography files and generates the product. It still requires more research and a lot discovery.**

***Keywords*—Additive Fabrication, Additive Technique, Rapid Prototype,FDM,LOM**

I. Introduction

Rapid Prototyping is one of the older technique to be followed in the process of additive fabrication (AF) [1]. It was just a process of layer by layer polymerization of raw material in the form of product in 3D system. It came into existence in the year 1980. It is used for generating models as well as printed sub parts. This process reduces the cost and developed in less time [2], [3]. It requires lesser human interventions and develops very complex shape and size product which seems to be very difficult by conventional machining. Students, scientists and others use the technology for very complex design and models [4],[5]. It enhances the better creativity and exploration. Today this technology is renamed as 3D printing and other nomenclature but its roots are from rapid prototyping. From Wohlers report of 2011 growth rate was 24.1 percent in 2010 [6],[7]. This system uses CAD(computer aided design),CAM (computer aided manufacturing)and CNC(computer numeric control) technologies for manufacturing 3D parts [8]. Rapid prototyping still requires some improvements in certain case because it requires certain finishing after fabrication [9],[10]. Raw materials are still limited. This review paper comprises the process of SLA (Stereo lithography apparatus),SLS (selective laser sintering), 3D printing, EBM (electron beam melting), Polyjet, FDM (fused deposition modeling) [11],[12]. The raw material in the process in the form of solid liquid and powder. In all processes the above processes LOM (laminated object manufacturing) is predominant in todays world [13],[14],[15].

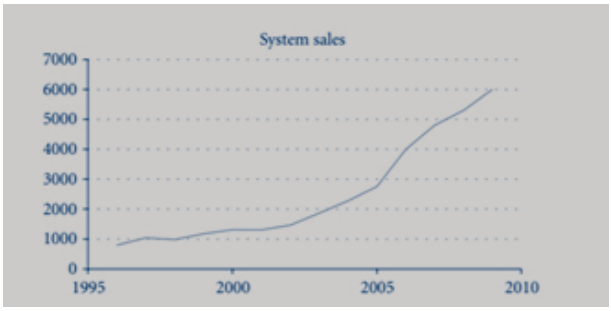

Fig. 1. Wohler report of growth rate

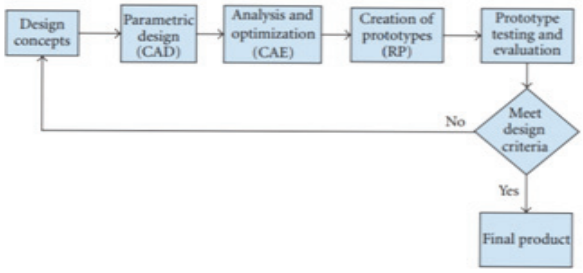

Fig. 2. Architecture for Rapid Prototyping

II. Additive Fabrication and Additive Technique

A. Stereo lithography (SLA)

Stereo lithography (SLA) is the advanced process which was introduced by a reputated firm,3-D Systems, which is widely used under the technology of rapid prototyping. The technology used liquid raw material for curing polymerisation process. CAD model is generated likewise in the earlier processes of rapid prototyping followed by generation of STL file and formation of slice. Ultra violet laser system is basically used for solidification of layers followed by another layer. The thickness of layer generate is10micrometer to15micrometer.

Photo polymerization process is used as basic principle of curing which converts monomer into polymers. It is also called as ultra violet curing or UV laser curing. There are certain flaws which usually generated at the time of manufacturing. Over curing is the major error occurs because of lack of fusing in the bottom layer. Another problem lies in the scanning process. All these errors can be minimized or eliminated by using machinery upgraded quality for generating various material through SLA process new materials of different resin

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Design and Control Dynamics of Multi-Fingered Prosthetic Hand

Neha Mohanta,Rishish Mishra
Centre for Advanced Studies
Lucknow,India
mailatmohanta@gmail.com

Anuj K Sharma
Centre for Advanced Studies
Lucknow,India
anujksharma@cas.res.in

Manish Raj
GLA University,Mathura
rajmanish@cas.res.in

***Abstract*—A prosthetic device plays an important role in rehabilitation of people with inability and Research on multi-fingered robot hand is being completed to suit an assortment of assignments like getting a complete control of articles in the field of mechanical applications,administration robots, and restoration robots.This paper investigates the anatomy of the human hand and proposes a mechanical model of automated hands with contemplations of DOF and requirements.**

***Index Terms*—Robotic Manipulator,Prosthetic Hand, 3D Printing**

I. Introduction

As per the report by the Disability Inclusion Overview done by the World Bank Group, approximately One billion individuals or 15 Percent of the total populace, experience some type of inability, and handicap commonness is higher for developing nations. One-fifth of the evaluated worldwide aggregate, or between 110 to 190 million individuals, experience critical inabilities [3]. One developing innovation that has the potential for low asset settings is open-source, 3D printed prostheses. A large number of these structures are body-fueled, minimal effort, adjustable, and simple to amass is 3D printing, or additive fabricating [15] [16], includes a three-dimensional design model in the computer [1]. The advancement of prosthetics is a long and storied history, from its crude beginnings to its modern present [14], to the energizing dreams of things to come. From ancient ages to modern era the prosthetic field has transformed into a complex case [13] of man's assurance to improve [12]. An exemplary demonstration is shown in Fig 1. As in the advancement of some other field, a few thoughts and innovations have worked and been developed, for example, the fixed-position foot, while others have fallen by the wayside or become outdated, for example, the utilization of the iron in a prosthetics [2].
The Layout of circuitry Fig 2, for the proposed project is designed on Fritzing software. Futhermore, In this paper, a prototype has been developed using advanced 3D modelling techniques, which incorporates a highly efficient actuation system replicating all joints and motion variation of the hand along with a very low cost fabrication and light Weight design simplicity [8]. Contrasted with the human hand, the automated hand has embraced comparative mechanical attributes and movement scope of each joint. The link driven strategy is made to impersonate this human movement framework. Six Servo motors has been deployed to impel the fingers in a link driven framework. [11] The remaining paper is organised as follows,

Fig. 1. Ancient Era Prosthetic Hand Design

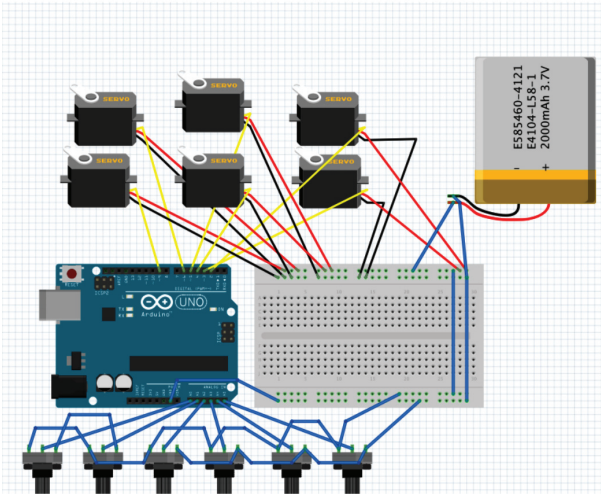

Fig. 2. Layout Circuitry for Proposed Prosthetic Hand

Section II presents the Technology used for 3D printed design for prosthetic hand, Control Dynamics of the hand movement is evaluated in Section III, Section IV outlines the framework of Experiment conducted , Followed by Section V for Result and Discussion. Section VI acknowledges the Conclusion and Future Work.

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Actuation and Fabrication of Human Inspired Artificial Hand

Juwairiya Siraj Khan
dept. of Mechatronics
Centre for advanced Studies
AKTU, Lucknow
18mech09@cas.res.in

Mithilesh Kumar Koiri
dept. of Mechatronics
Centre for advanced Studies
AKTU, Lucknow
koiri2013@gmail.com

Manish Raj
dept.of CEA
GLA University
Mathura , India
rajmanish.03@gmail.com

Anuj Kumar Sharma
dept. of Mechatronics
Centre for advanced Studies
AKTU, Lucknow
anujksharma@cas.res.in

Rabesh Kumar Singh
dept. of Mechatronics
Centre for advanced Studies
AKTU, Lucknow
rabeshkumarsingh@cas.res.in

***Abstract*—Multifarious tasks can be performed by a human hand such as- grasping, two or higher dimensional motions and various other daily life based manipulations. Here interest has been taken to analyse various artificial hands so as to develop one that could have the capability to perform motion in a plane, grasp an object for desired time interval and mimic various functions of a human hand. Hence, different articles and papers have been reviewed which gave an idea about its state of development and can also help emerging researchers in the field of rehabilitation robotics. This paper mainly focuses on some of the electrical actuator based biomimetic fingers, pneumatic actuator based artificial hand and Shape Memory Alloy(SMA) based artificial hand, their working principles and controlling process using various sensors.**

***Keywords*—Mechanical link, Pneumatic actuator, Piezoresistive sensor, Shape memory alloy (SMA), Soft robot, Silicon rubber.**

I. INTRODUCTION

Living creatures utilize the deforming ability of soft structures for efficient motion in intricate natural environments. Similarly, robotic engineers have incorporated such capabilities into their designs resulting in the creation of soft robots, inspired by the morphological behaviors of animals and plants. To acclimatize the mechanical potently and multi-functionality innate to natural organisms, the properties such as elasticity and viscoelasticity are important considerations while selecting the materials for soft robotic components [1]. Materials used for soft components in soft robots mostly include braided fabrics, silicone elastomers, urethanes, hydraulic fluids, hydrogels, and gases.

This review describes few artificial hands which have been developed till now in different laboratories and their use in our daily life. The working principle, design and idea for making ideal artificial hand, have been described briefly. The comparative performance of these soft robotic hands (grippers) and human hand is also described here. As it is known, variety of tasks can be performed using a human hand such as: grasping, pick and place, playing musical instruments, drawing etc. Here, it has been tried to understand how these tasks can be performed using these artificial hands and the difficulties that come in their ways. The comparative study of the applications of soft and rigid grippers in various fields such as prosthetics and rehabilitation, industries and human-robot interactions [2] has been done below in Fig 1.

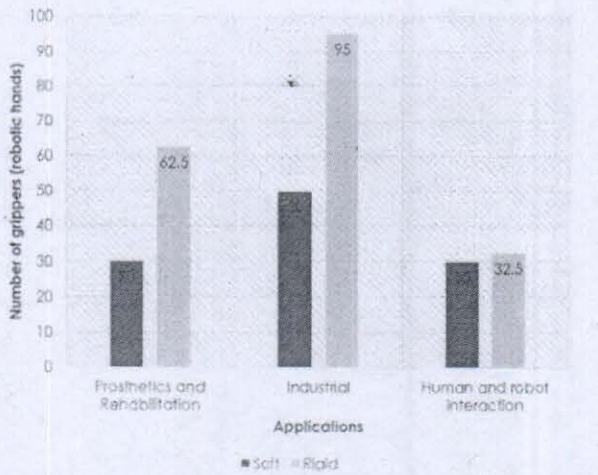

Fig. 1. Comparative study of the applications of soft and rigid grippers

Coyle et al. have discussed the three basic principles of actuation in soft robots, which includes:

A. Variable stiffness

Similar to living beings, the technologies used in soft robotics have an inherent coupling between stiffness and contraction [3]. Such as, there exists variations in stiffness in muscles between their low stiffness or passive states and high stiffness or active states. Similarly, these soft robots employ similar techniques for the application of force and attune their load capacity.

B. Mismatch strain

Mismatch strain is the basic principle in the working of monomorphic actuators [4]. Widely used actuation technologies exploiting deformation induced due to mismatch strain are

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Embedding Framework for Identifying Ambiguous Words in Code-Mixed Social Media Text

Shashi Shekhar
Department of Computer Engineering and Applications,
GLA University,Mathura, India
shashi.shekhar@gla.ac.in

Dilip Kumar Sharma
Department of Computer Engineering and Applications,
GLA University,Mathura, India
Dilip.sharma@gla.ac.in

M.M. Sufyan Beg
Department of Computer Engineering, AMU,Aligarh, India
mmsbeg@cs.berkeley.edu

***Abstract*— Now a day's text *on* social media contains code-switched and code-mixed contents. These contents are widely used by people to express their opinions on any topic in the languages known to them. Her code-mixing technique is analyzed to find the words which can be used both in Hindi and in English, having different contexts. This leads to word sense ambiguity problem as one word can have a different meaning when it used in context to other words in a sentence. As Hindi Roman and English language exhibit word sense ambiguity, and resolving this ambiguity is a current research issue using the machine learning model. Here character embedding features are used for the representation of each word written in code-mixed content. The proposed method was developed for identifying context words by classifying the intent for using the ambiguous word in code mixed sentence. A well-known hierarchical LSTM model is used in the paper for context-based sub-word-level ambiguity detection to identify the language of the word. The work on Language Identification in the code-mixed text using character-based embedding for processing ambiguous word is a novel approach and shows promising results.**

Keywords—NLP, Embedding, Word sense disambiguation, Transliteration

I. INTRODUCTION

Language identification is the most necessary prerequisite for processing any user-generated text, where the language is unknown. Now a day, it is a challenging task where the text is available in code –mixed format i.e., two or more languages are used within the same text. This type of data is very common in social media, where further challenges might arise due to contractions and transliterations. The existing language identification systems are not well designed to deal with code-mixed text. This paper shows that word-level language identification is most likely to confuse between languages that are linguistically related (e.g., Hindi and Gujarati, Roman Hindi, and English) , for which special disambiguation techniques are needed to differentiate the words which are syntactically similar in both the languages. Humans use natural language as their medium for communication. Natural Language Processing (NLP), is an area of Artificial Intelligence where one train the machine to understand and process the text to make human-computer interactions more efficient. Applications of NLP lies under several fields like machine translation, text processing, entity extraction and so on [1]. With the emergence of several social media platforms and the availability of a large amount of text data in them, NLP plays a great role in understanding and generating data today. The social media platforms are used widely today by people to discuss the interests, hobbies, reviews on products, movies, and so on. In earlier days, thelanguage used in such platforms was purely English. Today mixing multiple languages together is a popular trend. These kinds of languages are called code-mixed language. A large amount of textual data is available on the web in code mixed format. An example of Hindi-English code-mixed text is described in the following sentence:

Sentence 1:***Main main*** market Jaunga
E/A E/A E H

In this Hindi words are labeled as H, English word are labeled as E, and the certain word which is labeled as E/A is ambiguous as these words are used to represent sentence context in Hindi though the word is English. We can observe from the example that the Hindi words, tagged as H, were written in Roman Script instead of Unicode characters. In sentence one the word Main is marked as E/A, it illustrates that word is an English word, but it can be used in Hindi context as मैंand as मेन .The paper presents a novel architecture, which captures information at both word-level and context-level to output the final tag for language identification in regard to the word level language identification, especially to those words which are marked as English and ambiguous where the word has been used to represent Hindi word.

The remaining section of the paper is organized as follows: An overview of the related works on language identification in the multilingual domain is discussed in section 2. A discussion on the methodology proposed is discussed in section 3. The dataset description and result evaluation is described in section 4, and finally, section 5 concludes the work with a pointer to the future direction

II. RELATED WORK

In this section, some of the recent techniques regarding language transliteration and identification are listed and reviewed as follows:

Code-switching and mixing is a current research area in the field of language tagging. Language Identification (LID) is a primary task in many text processing applications, and hence several types of research are going on in this area, especially with the code-mixed data. King and Abney [2] used semi-supervised methods for building a world level language identifier. Nguyen and Dogru [3] used CRF model limited to bigrams for identifying the language. Logistic regression, along with a module that gives code-switching probability was used by Vyas et al. [4]. Das and Gamback [5] used various features like a dictionary, n-gram, edit distance, and word context for identifying the origin of the word.

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Comparative Analysis of various Techniques for Heart Disease Prediction

Sakshi Goel
IT Department
NIET, Gr. Noida
sakshigoel1207@gmail.com

Abhinav Deep
IT Department
NIET, Gr. Noida
deep.abhinav012@gmail.com

Shilpa Srivastava
IT Department
NIET, Gr. Noida
shilpa.srivastava2016@gmail.com

Aprna Tripathi,
GLA, Mathura
arpanatripathi@gla.ac.in

***Abstract*- With the increasing death counts due to heart diseases, a system is required in place for accurately predicting heart disease. Various researchers have proposed a number of models for predicting heart diseases using different technologies such as artificial neural networks, machine learning, data mining, etc. This paper analyses the work done by various researchers on the accuracy of heart disease prediction through the different approaches. A detail literature review has been provided in the study. The analysis has also been presented on the basis on technology used.**

Keywords- Heart Disease Prediction, Cardiovascular Diseases, Artificial Neural Networks (ANN), Deep Learning, Fuzzy Logic, Data Mining, Genetic Algorithm

I. INTRODUCTION

Heart is one of the most vital organs for the proper functioning of our body. According to a survey by WHO, 31% of the worldwide deaths every year occurs due to Cardiovascular Diseases (CVDs). Also, more than 75% of these deaths occur in low and middle income countries including India. The main challenge is to accurately predict the existence of CVDs inside human body. The older techniques have not been very successful in efficiently predicting the heart diseases. Many medical instruments are available in the market for the prediction of heart diseases but there are some drawbacks of these instruments like they are very costly, they are not efficient enough for predicting heart diseases[10]. Age, Sex, Blood Pressure, Cholesterol, Blood Sugar, Diabetes, etc. and some lifestyle factors like obesity, eating unhealthy food, less physical activity, smoking, consumption of alcohol, etc. are some of the major risk factors that leads to heart diseases. Most of the lifestyle risk factors are controllable.

In the last few decades, medical science has used the technological advancements very well to improve the quality of healthcare. These advancements in technology have paved ways for accurate diagnosis and prediction of diseases. Machine learning could be a very good choice to achieve high accuracy for predicting heart diseases as it is able to analyse large amounts of data and identifying patterns & trends. Moreover, machine learning provides much faster and reliable results. There are other soft computing approaches as well such as Artificial Neural Networks (ANN), Deep Learning, Fuzzy Logic, Data Mining, Genetic Algorithm, etc. that can put into effect for predicting heart diseases.

The primary objective of this paper is comparing different soft computing techniques that can predict whether a person is suffering from Heart Disease or not based on a combination of risk factors (features) describing the disease.

This paper is organized in the following manner: Section 2 contains brief introduction about various technologies analysed. Section 3 provides the literature review of heart disease prediction. Section 4 shows the comparative analysis of various soft computing techniques for prediction of heart disease. Section 5 gives conclusion and future scope.

II. BASICS OF TECHNIQUES ANALYSED

A. Machine Learning

Machine Learning is a technique that allows the computers to learn from the past data without being explicitly programmed. So, basically it is a discipline to predict things accurately using statistical methods and algorithms. Machine learning enables computers to manage new situations by analyzing, self-training, observations and experiences. Machine learning has found its application in numerous fields such as healthcare, agriculture, banking, natural language processing, speech recognition, optimisation, etc.

B. Deep Learning

Deep learning is a part of machine learning that helps to teach computers to do what comes naturally to humans: learn by examples and observations. Deep learning is a type of machine learning which is inspired by the structure and functioning of a human brain. Deep learning came up into the picture when the processing power of modern computers grew exponentially. Applications of deep learning involve automatic speech recognition, fraud detection, healthcare, etc.

C. Artificial Neural Networks (ANN)

It is an effort to simulate the network of neurons that make up a human brain in order to enable computers to learn things and take decisions just like humans. It consists of many layers and each layer has many neurons. Initially, an ANN undergoes a training phase where it learns to observe and recognize patterns in dataset, whether visually, aurally or textually. During this training phase, the network makes a comparison of its predicted output with actual output. The variation between both outcomes is adjusted using back propagation.

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Analysis of Double Compression Detection in a Video

Varshney N.[a, b] , Kushwaha A.K.S.[a]

Save all to author list

[a] I.KG Punjab Technical University, Department of Computer Science and Engineering, Jalandhar, India

[b] GLA University, Department of Computer Engineering and Applications, Mathura, India

Abstract

Author keywords

Indexed keywords

Topics of prominence

Abstract

In the age of 21st century hand holding device such as mobile phone, PDA, digital cameras are easily available and accessible by everyone. Video captured by these devices can be share through internet medium for various purposes like information dissemination, video conferencing, and social platform etc. The video quality can be upgrade and degrade or the video contents can be modified by using various software available freely on internet. It is possible for digital attacker to modify the contents by using these software for malicious purpose and is very difficult to see through the necked eyes. Many of the illegal video alteration cases are identified in the areas like social media, politics, criminal investigation etc. Authentication of a digital video minimizes the false information flow. The content validation of the digital video ranges from an individual, barrier and security setups to law authorization organizations. In this regard forgery detection techniques play important role. In this paper, we are going to take a review of the work done by various researchers previously to identify the forgery in the digital video contents. We also show the comparative study of surveyed techniques and goes for opportunities in the field of forgery detection . © 2019 IEEE.

Author keywords

Descrite cosine transformation; Double Compression ; support vector machine

Indexed keywords

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GLA University, Mathura, UP, India. Nov 21-22, 2019

An Analytical Study of the Chain Based Data Collection Approaches

Jagrati Kulshrestha
Department of Computer Engineering and Applications,
GLA University,
India
jagrati.kulshrestha@gla.ac.in

Anant Ram
Department of Computer Engineering and Applications,
GLA University,
India
anant.ram@gla.ac.in

***Abstract*—In Wireless Sensor Networks(WSN) and Internet of Things (IoT) domain, data needs to be routed from different nodes/devices to some central controller or the processor (base station/sink). Over the years various routing protocols have been developed that tend to decrease the energy dissipation of the nodes during transmission of the data to the sink. In this work, we present a comparative study of the various chain based routing protocols present in the literature. This work also presents a concise analysis of the various aspects of these protocols.**

***Index Terms*—Chain-based protocols, Wireless sensor networks, Hierarchical routing protocols, Routing, Data collection, Data gathering, Energy-efficiency, PEGASIS, DPEGASIS.**

I. Introduction

In Wireless Sensor Network (WSN) there are several small sized devices (called sensor nodes). These sensor nodes have communication and computational capabilities and sense some parameter of the environment like temperature, vibrations, etc. [1], [2]. The wireless sensor networks can further be integrated with the internet to provide accessibility to data of the deployed network or to control different aspects of the deployed network using the technology of IoT. Few applications of WSN and Internet of Things (IoT) are as follows:

- Smart environment monitoring system.
- Smart health monitoring system.
- Smart structural monitoring system.
- Smart security system.
- Smart surveillance system.
- Smart transportation system.
- Smart irrigation system.

The sensor nodes have limited resources like processing, memory and power/battery capacity. So these nodes transmits their sensed data to some base station (sink) for processing. For transmitting the sensed data, nodes follow a multi-hop path. Direct transmission consume higher energy than multi-hop transmission. This is because larger the distance of transmission, greater is the energy consumption [1], [2].

Several multi-hop routing approaches are present in the literature. Each routing protocol targets one or more of the following major issues mentioned in Fig. 1:

- **Security** - whether the data is delivered in secure manner or not?

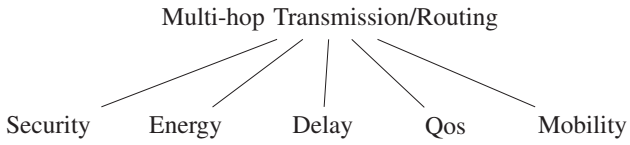

Fig. 1: Issues in Multi-hop Transmission/Routing.

- **Energy** - how energy efficient is the path through which the data is delivered? The more energy efficient is the selected path, more will be the lifetime of the network.
- **Delay** - how fast data is delivered through the path to the sink?
- **Qos** - what is the quality of the path selected for data transmission? For example, what are the reliability, latency, jitter, etc. parameters of the path selected?
- **Mobility** - are the sensor nodes on the selected path mobile or not? How the selected path is reconfigured on the change of topology due to the mobility of the nodes if the nodes are mobile.

Among all these, energy is the most focused upon in the literature as the nodes have very limited battery power. Moreover, it is very difficult or sometimes impossible to recharge or replace the battery in most of the application areas where the nodes are deployed in inhospitable terrains like that of forest, battlefield, boiler, radioactive tank, etc. Hence, we need to conserve the energy available with the nodes to prolong the lifespan of the WSN. Further, a node consumes more energy in communication than in computation [3], [4]. Hence, we require routing protocols that are energy efficient, that is, they tend to reduce the energy consumption during communication of data. Energy efficient routing techniques can further be classified into three categories as shown in Fig. 2.

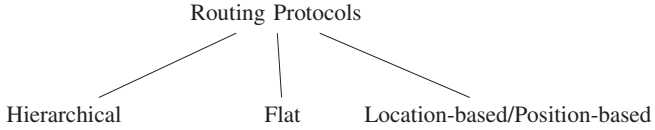

Fig. 2: Categorization of Routing Protocols.

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Speech Recognition and System Controlling using Hindi Language

Sandeep Rathor[1], R. S. Jadon[2]

[1]Assistant Professor, Dept of CEA, GLA University, Mathura, Uttar Pradesh, India.

[2]Professor, Dept of MCA, MITS, Gwalior, Madhya Pradesh, India

Abstract- This paper presents a speech recognition techniques, especially for Hindi origin speakers. It also controls the system applications through the input voice. This paper proposes a method for Hindi speech recognizer which can be extended, its domain from Hindi speech recognition to multiple Indian origin speech recognition like Bangla and Marathi. For this purpose, we used CMU sphinx 4 as the base model of voice recognition and built it over an acoustic language model and language-specific phoneme dictionary. This paper exhibits an efficient way of MLVR (Multi-Linguistic Voice Recognizer) with a considerably low error tolerance.

Keywords- Hindi Speech Recognizer, System Automation, Voice Recognizer, Speech Recognition.

I. INTRODUCTION

Speech recognition is the way toward changing over an acoustic signal to a set of words. The speech signals can be captured through a microphone or a telephone. Recognition of isolated word is a fundamental application of speech recognition [1]. We can use the recognized words for the applications such as commands & control, data entry, and document preparation. Speech recognition system necessitates further advancements for physically challenged persons such as blind and deaf so that they could communicate with machines. The research on speech has begun in the eighteenth century. Today the popularity of voice recognizers and in turn the popularity of voice-automated applications is increasing. These applications have a craze because of the areas it can be applied in like home automation, controlling personal systems, monitoring the phone calls.

In a country like India, where there are 28 languages in use and among these most widely used language in the country is Hindi [2]. Today, the techniques in machine learning have advanced to such an extent that the voice recordings, video recordings, live camera streaming, images are all used for the extraction of various information such as actors in the images, videos, or recognizing and authenticating a person through audio [3].

Speech is the requisite necessity of human being. For performing any operation speech recognition is required. Even it is also required for speaker recognition. The work on speech recognition has already been done by various researchers. However, most of the work related with a specific language i.e. English. We have seen the "Audrey" of digits and "Shoe Box"[4] of 13 spoken English words in earlier times by the introduction of voice recognition which was around 1950-1960. The sphinx is a continuous-speech, speaker-autonomous recognition framework, making the utilization of Hidden Markov acoustic models (HMMs) [5]. The voice signals are in the form of longitudinal waves which can be determined at 44,100 Hz for a proper approximation of a voice also known to us as digitizing. Further, these sounds are processed using different acoustic models and

Study and Detection of Fake News: P^2C^2-Based Machine Learning Approach

Pawan Kumar Verma and Prateek Agrawal

Abstract News is the most important and sensitive piece of information which affects the society nowadays. In the current scenario, there are two ways to propagate news all over the world; first one is the traditional way, i.e., newspaper and second is electronic media like social media websites. Electronic media is the most popular medium these days because it helps to propagate news to huge audience in few seconds. Besides these benefits of electronic media, it has one disadvantage also, i.e., "spreading the Fake News". Fake news is the most common problem these days. Even big companies like Twitter, Facebook, etc. are facing fake news problems. Several researchers are working in these big companies to solve this problem. Fake news can be defined as the news story that is not true. In some specific words, we can say that news is fake if any news agency declares a piece of news deliberately written as false and it is also verifiably as false. This paper focuses on some key characteristics of fake news and how it is affecting the society nowadays. It also includes various key viewpoints which are useful to categorize whether the news is fake or not. At last, this paper discussed some key challenges and future directions that help in increasing accuracy in detection of fake news on the basis of P^2C^2 (Propagation, Pattern, Comprehension & Credibility) approach having two phases: Detection and Verification. This paper helps readers in two ways (i) Newcomer can easily get the basic knowledge and impact of fake news; (ii) They can get knowledge of different perspectives of fake news which are helpful in the detection process.

Keywords Credibility-based content classification · Comprehension content study on social media · Fake news classification · Pattern-based news content · Machine learning · Viral news verification

P. K. Verma
GLA University, Mathura, India
e-mail: abes.pawan@gmail.com

P. K. Verma · P. Agrawal (✉)
Lovely Professional University, Punjab, India
e-mail: prateek061186@gmail.com

P. Agrawal
University of Klagenfurt, Klagenfurt, Austria

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4th International Conference on Contemporary Computing and Informatics, IC3I 2019; Amity Global InstituteSingapore; Singapore; 12 December 2019 through 14 December 2019; Category numberCFP19AWQ-ART; Code 159023

Combined techniques based query expansion approach for document retrieval system

(Conference Paper)

Sharma, D.K.[a], Pamula, R.[b], Chauhan, D.S.[c]

Save all to author list

[a]GLA University, IIT(ISM) Dhanbad, India
[b]IIT(ISM) Dhanbad, India
[c]GLA University, Mathura, India

Abstract

View references (46)

Automatic query expansion technique is used generally to resolve term mismatch problems existing in Information Retrieval System (IRS). This paper explores the necessary conditions to obtain the best query using knowledge sources and other IRS parameters. This paper proposes a new combined techniques based query expansion approach to enrich the performance of documents retrieval process. In this work, all the experiments are performed on two English written datasets CACM and CISI. At last, the proposed is tested and compared with recently developed similar types of query expansion techniques on the datasets, as mentioned above. The obtained results show a significant improvement in the performance of query expansion. © 2019 IEEE.

SciVal Topic Prominence

Topic: Query Expansion | Web Search | Pseudo-Relevance Feedback

Prominence percentile: 85.585

Author keywords

F-measure | Ontology | Pseudo-relevance feedback | Query expansion

Indexed keywords

Engineering controlled terms: Expansion | Information retrieval

Engineering uncontrolled terms: Automatic query expansion | Combined techniques | Knowledge sources | Mismatch problems | Query expansion | Query expansion techniques | Retrieval process

Engineering main heading: Search engines

Metrics

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Semantic approaches for query expansion
Sharma, D.K. , Pamula, R. , Chauhan, D.S.
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Soft Computing Techniques Based Automatic Query Expansion Approach for Improving Document Retrieval

Document details

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November 2019, Article number 9036251, Pages 376-379
4th International Conference on Information Systems and Computer Networks, ISCON 2019; GLA University MathuraMathura; India; 21 November 2019 through 22 November 2019; Category numberCFP1962U-ART; Code 158562

Airline recommendation prediction using customer generated feedback data (Conference Paper)

Jain, P.K.[a], Pamula, R.[a], Ansari, S.[a], Sharma, D.[b], Maddala, L.[a]

Save all to author list

[a]IIT (ISM), Dept of CSE, Dhanbad, India
[b]GLA University, Dept of CEA, Mathura, India

Abstract

View references (16)

Nowadays consumers are increasingly relying on online resources to aid in purchasing decisions. Online resources also help companies to learn from customer reviews, how different types of customers have different priorities and how customer choice affects their review. In the U.S. 82%, the adult says that they have been referring online reviews and ratings provided by the customer, before going to purchase items for the first time, including 40% who say that they have referring always or almost always do so. In this paper, we have been performed predictive analysis for qualitative reviews on the data that have been collected by different online sites. We have been also performed an explanatory analysis of the different classes of airline services. The findings of this paper show that the review of most of the business class is on the food and friendliness of staff whereas most of the economy class views were on legroom and seat comfort. © 2019 IEEE.

SciVal Topic Prominence

Topic: Electronic Word-Of-Mouth | Online Reviews | Brand Community

Prominence percentile: 99.941

Author keywords

Airlines | Customer satisfaction | Recommendation | Text mining

Indexed keywords

Engineering controlled terms: Air transportation | Computer networks | Customer satisfaction | Information systems | Information use | Text mining

Engineering uncontrolled terms: Airline services | Customer choice | Customer review | Different class | Online resources | Online reviews | Purchasing decisions | Recommendation

Engineering main heading: Sales

Metrics

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(2021) Studies in Computational Intelligence

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(2021) Wireless Personal Communications

Disentangling consumer recommendations: Explaining and predicting airline recommendations based on online reviews
Siering, M. , Deokar, A.V. , Janze, C.
(2018) Decision Support Systems

Document details

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November 2019, Article number 9036277, Pages 822-826
4th International Conference on Information Systems and Computer Networks, ISCON 2019; GLA University MathuraMathura; India; 21 November 2019 through 22 November 2019; Category numberCFP1962U-ART; Code 158562

Pre-Processing and Classification of Cough Sounds in Noisy Environment using SVM

(Conference Paper)

Bhateja, V.[a,b], Taquee, A.[a,c], Sharma, D.K.[d]

Save all to author list

[a]Department of Electronics &communication Engineering, Shri Ramswaroop Memorial Group of Professional Colleges (SRMGPC), Faizabad Road, Lucknow (U.P.), 226028, India
[b]Dr. A.P.J. Abdul Kalam Technical University, Lucknow Uttar Pradesh, India
[c]TATA Consultancy Services (TCS), Hyderabad Telangana, 500019, India

View additional affiliations

Abstract

View references (24)

This paper presents a methodology for automated analysis of cough sound signals using Support Vector Machines (SVM). Pre-Processing is necessary for suppression of noise from cough signals; and is the prime concern in accurate prediction of various respiratory disorders. Herein, a 'Fourth Order Butterworth High Pass Filter (FOBHPF) is therefore applied at the pre-processing stage followed by features extraction and classification using SVM. The performance evaluation during the simulations has carried out using Signal-to-Noise Ratio (SNR) parameter at output of the pre-processing stage and accuracy parameter at the end of classification stage. © 2019 IEEE.

SciVal Topic Prominence

Topic: Cough | Vocalization | Formants

Prominence percentile: 67.865

Author keywords

Accuracy | Cough Signals | FOBHPF | Respiratory Disorders | SNR

Indexed keywords

Engineering controlled terms: Butterworth filters | Computer networks | High pass filters | Information systems | Information use | Support vector machines

Engineering uncontrolled terms: Accuracy | Accuracy parameters | Accurate prediction | Butterworth high-pass filters | Features extraction | FOBHPF | Respiratory disorders | Suppression of noise

Engineering main heading: Signal to noise ratio

Document type	Source type	ISBN	DOI
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View more

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A Spatial Correlation Based Energy Transmission in Wireless Sensor Networks

Chaudhary P.[a] ✉, Mishra M.K.[b], Khan M.A.[c], Singh A.[d]

Save all to author list

[a] Athmin Technologies, India

[b] VIT, Bhopal, India

[c] GLA University, Mathura, India

[d] Mangalmay Institute of Engineering Technology, Grater Noida, India

Abstract

Modern pace in hardware technology such as low cost CMOS cameras and microphones has prompted the evolution of Wireless Multimedia Sensor Networks . This network of sensors is equipped with multimedia devices such as microphones and cameras to capture multimedia data such as images, videos and audios streams along with scalar data from the environment. High data rate and directional sensing range of video sensors demands a novel solution in order to reduce the amount of data and workload on individual node. So, in this reference, this paper proposed a rare approach by utilizing spatial correlation that exists in the visual information captured by captured by the video sensors having overlapped field of views. By estimating the overlapped region in the video frames, a binary mask has been calculated that has been resent to the video sensors in order to receive only desired portion of consecutive video frames by mutual cooperation of different video sensors. Energy analysis based on the number of bits needed to be transmitted from each video sensor node has also been studied. Experimental results shows that the proposed approach is capable of transmitting videos with low computational cost and without much affecting the video quality and that has been shown by calculating the PSNR values. And also proposed approach is compared with video stitching method. Further simulations shows that proposed method can increase network lifetime by using less energy levels and is an energy efficient approach. © 2019 IEEE.

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Independent verification and validation of FPGAbased design for airborne electronic applications

Srinivasan S.[a], Chauhan D.S.[b], Rekha R.[a]

Save all to author list

[a] Aeronautical Development Agency, Ministry of Defence, Bangalore, India

[b] GLA University, Mathura, India

Abstract

SciVal Topics

Abstract

Field programmable gate arrays (FPGAs) are finding increasing number of applications in high integrity safety critical systems of aerospace and defence industry. Though FPGA design goes through various development processes, it is widely observed that the critical errors are observed in the final stages of development, thereby impacting time and cost. The risk of failure in complex embedded systems is overcome by using the independent verification and validation (IV&V) technique. Independent verification and validation (IV&V) of FPGA-based design is essential for evaluating the correctness, quality, and safety of the airborne embedded systems throughout the development life cycle and provides early detection and identification of risk elements. The process of IV&V and its planning needs to be initiated early in the development life cycle. This chapter describes the IV&V methodology for FPGAbased design during the development life cycle along with the certification process. © 2020, IGI Global.

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Requirement-based test approach and traceability for high-integrity airborne embedded systems

Srinivasan S.[a], Chauhan D.S.[b]

Save all to author list

[a] Aeronautical Development Agency, Ministry of Defence, Bangalore, India

[b] GLA University Mathura, Mathura, India

Abstract

One of the biggest challenges in the development of airborne embedded systems is to ensure that the aircraft subsystem meets all its user specifications and ascertain that no important functionality is missing which leads to development of an incorrect product. This chapter proposes a methodology for achieving requirement traceability and thereby performing requirement-based testing for efficient test and evaluation of aircraft subsystems. This methodology integrates requirement traceability throughout the software development life cycle along with requirement-based testing for highintegrity software systems . The methodology has been found to be most effective in revealing errors and optimizes testing by preventing repetition of test cases across test platforms. This unique contribution has the potential to revolutionize the research world in software engineering. © 2020, IGI Global.

Security Challenges for Fog Computing enabled Internet of Things from Authentication perspective

Upendra Verma[a], *Dr. Diwakar Bhardwaj*[b]

[a]*Research Scholar, Dept. of Comp. Engg. & App., GLA University, Mathura , India*
[b]*Professor, Dept. of Comp. Engg. & App., GLA University, Mathura , India*

Abstract:

Fog-enabled IoT is a new paradigm that extends the Cloud computing platform by providing services and resources on the edge of network and also integrated with Internet of Things. Our paper proposed a Fog based Internet of Things platform where computing and storing services deployed on the edge of network to provide excellent services to users. For efficient IoT development, fog computing based IoT proposed which is the future IoT infrastructure. This paper first explores a comparison between Fog Computing and other technologies. Security issues are presented in Fog-enabled IoT system. Authentication plays important roles in realizing security issues. So this paper also investigates issues related to authentication and presented a security model for authentication between Intermediate storage (Fog Node) and Data centre (Cloud System). At the end of paper, AES is discussed which will be useful to implement our proposed system in resource constrained environment and finally discussed some open research issues and questions from the authentication point of view.

Keywords: Internet of Things, Fog Computing, Authentication, AES

I. Introduction

Internet has played vital role today. Everything around us connected to internet day by day with digital identity. With the development of Internet Technology, Internet of Things has become more important part of daily human life. Internet of Things are broader area as compared to Internet of computers. Now a day's things can be smart and digital. So all the things around us connected to internet to achieve high degree services for the useful life**.** There are many definitions of IoT proposed by many author. The most popular definition of IoT is "A dynamic global network infrastructure with self configuring capabilities based on standard and interoperable communication protocols where physical and virtual things have identities, physical attributes and virtual personalities and use intelligent interface and are seamlessly integrated into the information network, often communicate data associated with users and their environments (Ian G Smith,2012) and the definition has been published and This definition of IoT to put some of the terms into perspective: Dynamic & Self-Adapting, Interoperable Communication Protocols, Unique Identity, Integrated into Information Network, Self Configuring.

The terminology "Internet of Things" was coined by Ashton K. in 1999 in MIT lab (Ammar Rayes, Samer Salam, 2017). The first IOT infrastructure "Internet connected coke machine" realized in 1982 and was installed in Carnegie Mellon University. It is estimated by various research communities that around 50 billion physical devices will be connected to the internet by 2020 (. Evans. D.,2011). IoT has three issues. First, Heterogeneity is discussed in the aspects of different sensing, processing and storing component. Traditionally only computers are connected to the Internet. Now heterogeneous

Fake and Live Fingerprint Detection Using Local Diagonal Extrema Pattern and Local Phase Quantization

International Conference on Deep Learning, Artificial Intelligence and Robotics

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- Rohit Agarwal (1) Email author (rohit.agrwal@gla.ac.in)
- A. S. Jalal (1)
- Subhash Chand Agrawal (1)
- K. V. Arya (2)

1. GLA University, , Mathura, India
2. ABV-IIITM, , Gwalior, India

Conference paper
First Online: 09 February 2021

Part of the Lecture Notes in Networks and Systems book series (LNNS, volume 175)

Abstract

Fingerprint is widely used physical human trait for uniquely identification and verification of human but use of fingerprint is becoming very challenging due to spoofing attacks. In this paper, we present new combination of local diagonal extrema pattern and local phase quantization descriptors to extract the features to generate feature vector for training and testing fingerprint images. Local diagonal extrema pattern finds the relationship between center pixels with diagonal neighboring pixels and local phase quantization extracts the local phase information by using short-term Fourier transform. LDEP reduces the dimensionality problem and forms a good combination of feature descriptor with LPQ. Combined extracted features of training and testing images using both descriptors are passed to Support Vector Machine for discriminating live and fake fingerprints. Experiments have been performed on LivDet2009 dataset and results show the effective and efficient performance of the proposed system. The proposed system achieved good accuracy and very less error rate in comparison to the different descriptors.

Keywords

Biometric Fingerprint Liveness detection Descriptor

Automated Glaucoma Type Identification Using Machine Learning or Deep Learning Techniques

Advancement of Machine Intelligence in Interactive Medical Image Analysis pp 241-263 | Cite as

- Law Kumar Singh (1) (2) Email author (lawkumarcs@gmail.com)
- Hitendra Garg (3)
- Pooja (1)

1. Computer Science and Engineering, Sharda University, , Greater Noida, India
2. Computer Science and Engineering, Hindustan College of Science and Technology, , Mathura, India
3. Computer Engineering & Applications, GLA University, , Mathura, India

Chapter
First Online: 12 December 2019

Part of the Algorithms for Intelligent Systems book series (AIS)

Abstract

Glaucoma is a serious condition of the optic nerve, resulting in loss of eyesight. A sight-threatening disease, it causes impairment of the optic nerve. Glaucoma detection is an important field of medical image analysis. Nowadays, the scope of machine learning in medical image analysis as well as glaucoma detection is drawing attention from the clinical point of view. The ophthalmologist can avail the benefit of one more opinion through computer-aided diagnosis. The algorithm of machine learning can provide accuracy that is one step ahead for detection of glaucoma. Hence from the accuracy point of view, machine learning techniques can be a beneficial experience for the ophthalmologist. Identification of symptoms for glaucoma and glaucoma affected retinal images is a very important task. Machine learning algorithm works on the symptoms and based on the algorithm, it can classify glaucomatous eyes. Machine learning algorithm needs relevant features for identifying the symptom of glaucoma. For extracting accurate features, good quality image is important. Hence, here we mainly focus on the approach used by machine learning techniques for automatic detection of glaucoma. Retinal image acquisition, image preprocessing techniques, feature extraction, classification of

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Principal Valued Complex Spectrum Energy Ensembles for Palmprint Representation

Dubey P.[a], Kanumuri T.[a], Saraswat S.K.[b], Vyas R.[a]

Save all to author list

[a] National Institute of Technology Delhi, Department of Electronics and Communication, Delhi, India

[b] GLA University, Department of Electronics and Communication, Mathura, India

Abstract

The palmlines in palmprint exhibit different line widths. These linewidths are responsible for different kinds of spectral components. In this work, the energies of the principal valued complex spectrum are employed to characterize the various spectral components of the palmprint . The proposed work attains a discrimination by employing the energies of improved the spectral coefficients. From experimental results on polyU Ver. II database, it is evident that the proposed approach demonstrates significant improvement as compared to state-of-the-art approaches. © 2019 IEEE.

Author keywords

FFT; Palmprint recognition; Principal valued complex spectrum

Indexed keywords

Low Voltage Low Noise Figure Down-Conversion Mixer for Band 1 of WiMedia System

Abhay Chaturvedi
Dept. of ECE[1]/Electronics Engg.[2]
GLA University[1]/RTU[2]
Mathura[1]/Kota[2], India
abhay.chaturvedi@gla.ac.in

Mithilesh Kumar
Dept. of Electronics Engineering
Rajasthan Technical University
Kota, India
mith_kr@yahoo.com

R. S. Meena
Dept. of Electronics Engineering
Rajasthan Technical University
Kota, India
rssmeena@gmail.com

***Abstract*—A Low voltage and low noise figure double-balanced down-conversion mixer is proposed and implemented using ADS software in a 0.18µm CMOS process technology, at 1V DC supply voltage. The proposed mixer use DTMOS (Dynamic Threshold Voltage MOSFET) configuration at RF and LO stages for low voltage operation. LC ladder circuit is used for matching at RF port. Current injection technique is used to enhance the conversion gain. The proposed mixer is designed for a RF frequency of 3.432 GHz with an IF frequency of 264 MHz. Simulation of mixer shows maximum conversion gain of 9.212 dB, P1dB of -17.2 dBm, IIP3 of -4.828 dBm, S_{11} of -29.404 dB and a SSB noise figure of 6.720 dB.**

***Keywords*—Wimedia, Gilbert Cell; DTMOS; Current injection technique; LC ladder matching.**

I. INTRODUCTION

WiMedia system offers an for high-speed radio standard for wireless personal area network. This technology is accepted by industries for wireless USB and high-speed bluetooth applications. This standard uses 3.1–10.6 GHz unlicensed frequency spectrum. This spectrum spans into 14 bands. Each band covers a bandwidth of 528 MHz. Band 1 is centered at 3.432 GHz and ranges from 3.168 GHz to 3.696 GHz [14,15]. This paper proposes a down conversion mixer for band 1 of WiMedia System.

In the heterodyne receiver system, a Gilbert architecture is preferred as a core of mixer, due to low feed-through of RF and local oscillator (LO) signals, high conversion gain, better isolation and high linearity [1, 2] but the noise figure of the receiver degrades due to large noise figure of the mixer [3]. Mixer introduces high flicker noise during the transition in the LO stage, which works as a switch (i.e., on/off transition) for the mixing introduces and this noise is transferred to the load [4, 5].

II. PROPOSED CIRCUIT

The architecture of Gilbert cell mixer is shown in fig. 1. RF trans-conductance stage amplifies and convert RF signal from voltage to current form. LO stage switches RF signal and consequently mix signal is produced at IF stage.

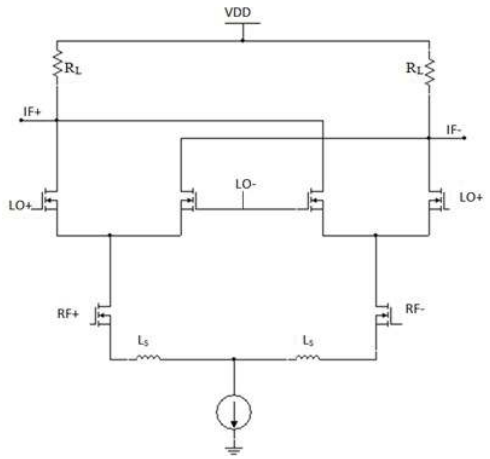

Fig. 1. The Gilbert cell architecture

The circuit of proposed mixer is shown in fig. 2. The threshold voltage the MOS can be control by applying the non-zero substrate (body) bias. The threshold voltage (V_{th}) for an NMOS is given by the equation 1.

$$V_{th} = V_{tho} + \gamma(\sqrt{2\phi_f - V_{bs}} - \sqrt{2\phi_f} \quad (1)$$

Where, V_{tho} is the value of V_{th} at zero body bias ie V_{bs} =0 , φ_f denotes the value of bulk Fermi-potential whose value ranges from 0.3-0.4 V and γ represents the value of the body-effect coefficient [6,7,8].In DTMOS transistors, threshold voltage is controlled by using the body bias by shorting the gate and body terminals together [8,13].In proposed mixer, DTMOS configuration is used both at RF (M1,M2) and LO (M3,M4,M5,M6) transistors for low voltage operation.

In the proposed mixer design, current injection resistors (R1, R2) are used to enhance the conversion gain without decreasing the headroom across the load. LC ladder matching network as shown in the fig .3 is used at RF port. [12]. IF voltage is taken across current source transistors M7 and M8 in shunt feedback configuration [10].

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An organic-inorganic solar cell with graphene as an electron transport layer: an approach to increase the carrier collection efficiency

Roushan Kumar
Departement of Electronics &Communication
GLA University, Mathura, India
roushan.kumar_mtec17@gla.ac.in

Anjan Kumar
Departement of Electronics & Communication
GLA University, Mathura, India
anjan.kumar@gla.ac.in

***Abstract*—Methyl-Ammonium lead halide based solar cell has shown a tremendous approach to fulfill the energy crisis on the earth for its high efficiency and low manufacturing cost. While there are some other materials which influence the execution of Perovskite sunlight based cell, these materials are nothing but the electron as well as hole transport materials. In this article the behavior and performances of electron transport materials are mostly focused which generally increase the proficiency of Perovskite solar cell by simultaneously increasing the open circuit voltage and short circuit current. The role of graphene as an electron transport material is mainly discussed and also compared with some other metal oxide electron transport material as well as organic-based electron transport material. As keeping graphene as an electron transport material the predicted results of Perovskite solar cell are as follows: - maximum power conversion efficiency (PCE) = 23.42%, short-circuit-current-densit=3.25A/m^2,open-circuit-voltage=0.86v,fill factor=0.83au. So graphene-based electron transport material can be the entry for the improvement of Perovskite solar cell.**

Keywords- *Perovskite solar cell, electron transport materials, graphene, efficiency, fill factor, open circuit voltage, short-circuit current density.*

I. Introduction

As the world population is increasing day by day in accordance to this the demand of energy is also increasing, so to full fill the energy demand we are still depend on non-renewable energy sources like petroleum, fossil fuels and some gases. On the other hand with increasing world-wide energy depletion and ecological effluence, out-dated non renewable energy sources cannot reach to the ecological improvement. There is also an environmental problem caused by using these non-renewable energy sources. So to overcome this problem we are moving towards renewable energy sources like wind energy, water energy, bio mass energy and sun based energy sources. But out of all above renewable energy sources sun based energy is the best energy source because it is more environmental friendly and also found in large quantity on earth surface. As sunlight falls more on earth surface so energy generation is very easy from this. Therefore to harvest the sun energy we required some material or devices which is nothing but the photovoltaic devices. The role of photovoltaic devices is to convert sunlight to electricity. The material which takes place in the conversion of sunlight to electricity is semiconductor material. Semiconductor material absorb sunlight and generate more number of electron – hole pair which is responsible for generation of electric current. Silicone is first material on earth surface which is used for the photovoltaic conversion. Presently, non-carbon based solar cells founded on materials such as silicon, cadmium telluride, or copper indium gallium selenide show reasonably high solar energy transformation Proficiencies above 20%, and take over commercially existing PV technologies [1]. However, inorganic solar cells present some limitations such as rigidity, weight and high manufacturing costs compared to those based on organic-inorganic materials, so many alternative materials are under investigation. Efficiency and also the technique of processing is very costly. After silicone the second generation solar cell i.e. GaAs, CdTe and CIGS solar cell came to the existence but all of them are failed due to their higher cost yet they gives good efficiency (~ 34%).later the third generation solar cell came which are quietly good as compared to first and second solar cell. But among third generation solar cell some of them could not satisfy market requirement due to their not stable. So Methyl ammonium lead halide based Perovskite solar cell has become an efficient energy harvesting solar cell.

1.1 Perovskite Structure Based Solar Cell: - The word "Perovskite" was recognised to the crystal arrangement of calcium titanate (CaTiO3), which was discovered by the German mineralogist Gustav Rose in 1839 and termed in respect of the Russian mineralogist Lev Perovski [2]. Perovskite are the crystal structure consist of the group of different materials having formula ABX_3, where A is an cation generally methyl ammonium or formadinium, B is also a cation but it contain divalent atom like Pb2+ or Sn2+ and X is a halide anion generally halogen group atom like I ,Br, Cl.

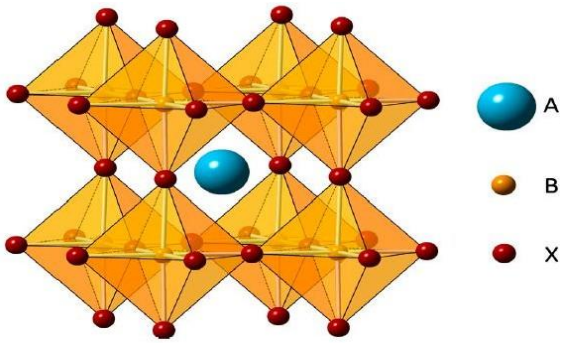

Fig 1. Crystal Structure of Perovskite [3].

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Blood Vessel Segmentation using SegNet

Mohini sharma
Dept. Electronic and communication
GLA University
Mathura, India
gaurisharma673@mail.com

P.C SAU
Dept. Electronic and communication
GLA University
Mathura, India
paresh.chandra@gla.ac.in

***Abstract*— Diabetic Retinopathy (DR) is spreading alarmingly in developing countries like India. If not treated early, it may leads to complete blindness. For early treatment, it must be diagnosed early which required complete automation in diagnostic process. The first step of such automatic diagnosis is the blood vessel segmentation. Though there are numerous algorithm mostly in classical methods, are available in litterers, deep neural networks are most promising developed by recent researchers. In this paper, the standard SegNet is used with some modification and simulated with standard publicly available fundus image databases. Simulated result achieves high performance with overall accuracy 0.9298 and precision is 0.80 and its result is much better than the manual way of a skilled ophthalmologist.**

***Keywords*— *Diabetic Retinopathy, fundus image, SegNet* .**

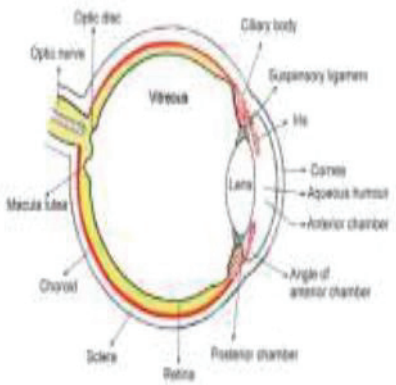
I. INTRODUCTION

Diabetes is long term disease. Origin of diabetic an abnormal increment of glucose amount in the blood. When the blood vessel that feeds the retina are damaged by the increased glucose level, the diabetic retinopathy occurs [1]. Diabetic retinopathy is a progressive disease which causes various clinical abnormalities including complete blindness. Hence it is necessary to early diagnose the diseases and starts treatment. To diagnose retinopathy, first step is to analyses the retinal vessel tree correctly. In the literature, numbers of techniques and algorithm are reported. All the algorithms are broadly classified as classical method and modern methods which use the power of deep neural networks. This paper deals with one of deep neural network to segment the vessel tree from fundus images. This segmentation can be done by using image processing techniques and data analysis method [2]. Handcrafted feature extraction by machine learning and classifiers is used for the segmented image. The main problem in these processes are arduous, costly and time-consuming process. To overcome these problem, the power of deep learning network can be used for possible solution of these problem [5]. In last few year numerous publications about deep learning and medical image segmentation have been published. So in this paper deep learning based approach on SegNet convolution network for segmentation of the fundus image has been used .

This paper is framed as given bellow. Part I is introduction to the background, part II present the related work of the blood vessel segmentation, the proposed approach has been presented in section III, flowed by the experimental result of this paper and analysis in section IV and finally conclusion and further work has been present.

A. Eye Structure And Fundus Images

The eye is an organ of sight and the human eye has usually three layers consists of the outer fibrous layer, the middle vascular layer, and the inner nervous tissues layer [6]. Show in fig most diseases like hypertensive retinopathy diabetic retinopathy, Glaucoma is diagnosed by size, shape and widen of vessels [7]



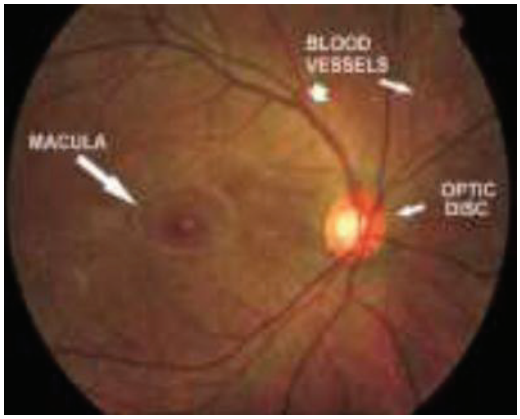


Fig. 1. Eye structure, B Fundus image

B. Deep neural network

The researcher has shown the computational power of deep neural network which can be used wide range of tasks like classification and regression tasks [8]. A simple architecture of neural network has an input layer, x, an output layer y, and multiple hidden layers, h, where each layer make of multiple cell or unit's as depicted in figure 2

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Design Analysis of CG-CS LNA for Wideband Applications Using Noise Cancelation Technique

Dheeraj Kalra, Devendra Kumar and Divesh Kumar

1 Introduction

Today's requirement for a communication device is to be compact, less power consumption, good performance, [1] etc. The first block in a super heterodyne receiver is low noise amplifier; amplify the signal with low inclusion of noise. LNA parameters such as the gain, NF, wideband matching, and power consumption are to be adjusted to get its good performance. Various techniques such as source degeneration, resistive feedback, and common gate–common source (CG-CS) topology [2] are employed to improve these parameters. Different topologies have their different advantages in improving the LNA parameters. Source degeneration, connecting the inductor at the source , provides the linearity by matching the parasitic capacitance of MOSFETs but increases the size of circuit. Common gate topology has high noise figure at moderate power consumption but has better impedance matching and linearity. CG-CS topology helps in improving the matching, gain, improving the SNR, and lowering the NF. Resistive feedback topology increases the bandwidth, better impedance matching, good linearity, low NF, and lowering the gain [3]. Cascode topology is advantageous in increasing the gain, lowering noise figure, good linearity and increaseing the power consumption. So trade-off among the LNA parameters make difficult to design the circuit. Various design topologies are merged to get good performance of LNA. LNA [4] uses the current reuse CG topology and helps in reducing the power consumption of the circuit [5]. Current reuse, transistors use the same DC current to reduce the circuit's power consumption. CG topology is used to provide the good impedance matching at the input. MOSFET gain is dependent on transconductance as $A_V = g_m r_d$ where g_m, r_d are the conductance and drain resistance [6–10]. In CG topology, g_m cannot be lowered to decrease the circuit's power consumption [11–14]. In [4], the proposed circuit has not good IIP and NF.

D. Kalra (✉) · D. Kumar · D. Kumar
GLA University, Mathura, India
e-mail: dheeraj.kalra@gla.ac.in

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Design and Analysis of a Multilevel DC–DC Boost Converter

Divesh Kumar, Dheeraj Kalra and Devendra Kumar

1 Introduction

Increasing demand in energy conservation leads world to use LED bulbs and in the coming years, BLDC motors are going to replace the existing induction motor of ceiling fans. BLDC motor is widely used in E-rickshaws. The conversion from DC to AC and then AC to DC makes the solar PV system less efficient. There are a lot of conversion losses which can be saved if DC supply is directly given to the appliance in place of AC supply. To cope up with the different operating voltage levels of different applications, there is the need for such a device that can provide multilevel DC voltage. DC–DC converters are more popular nowadays. These converters are generally used in applications like digital systems, renewable power applications, hybrid electric vehicle systems and regulators. The grid system requirement is high power converters at low-frequency operation. Boost converter finds its applications in X-ray, hybrid electric vehicle, and DC drive system, renewable applications such as PV system, fuel cell, micro-grid applications, and HVDC system.

In high-gain converters, transformers are not feasible as they produce non-linearities in the output. Transformers used in the resonant (isolated) converters are push-pull, flyback, half-bridge DC–DC converter, full-bridge DC–DC converter, etc. These converters preferably operate at high frequencies so it reduces the size of passive component, inductor current and capacitor voltage ripple.

DC–DC converters are of two types, isolated and non-isolated. Non-isolated converters are operated at a high frequency. These converters do not have transformers. To get a high output voltage, larger value of the passive component is needed [1]. In conventional DC–DC converter topologies, to reduce the size of the passive component, it is to be operated at high frequencies [2]. The basic DC–DC converter is not suitable for high-power applications. A new topology is derived from the basic

D. Kumar (✉) · D. Kalra · D. Kumar
GLA University, Mathura, India
e-mail: divesh.kumar@gla.ac.in

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Role of Chaos in Spread Spectrum Communication

Devendra Kumar, Divesh Kumar and Dheeraj Kalra

1 Introduction

In the fifth-generation communication, the spread spectrum technique is preferred for high data rate communication, in which the pseudo-noise codes are utilized to expand the bandwidth of information signal uniformly at the same transmitted power. Walsh codes, Gold Codes, and PN sequences are the famous spreading codes. PN codes are random sequences and hence nondeterministic in nature. On the other hand, the signal or codes generated on the basis of chaos theory (chaotic signals) are deterministic in nature. The chaotic signals are also limited and nonperiodic as well as highly sensitive to the initial condition [1, 8]. So the noise-like behavior of the chaotic signals makes them suitable for the generation of spreading codes.

Communication systems based on chaos are having a potential advantage over conventional pseudorandom-based systems in terms of security and synchronization [48]. Over the past few years, some more chaos-based spreading systems have been proposed such as chaotic masking, chaotic modulation, and chaos shift keying. More interestingly, the chaos-based SS techniques are well suited for analog and digital signals.

This paper meets the following objectives: first, it provides the introduction to chaos theory and its role in spread spectrum communication engineering and second, the synchronization issue [2, 3]. It will also explore the new area of developments on the basis of signal processing capability.

D. Kumar (✉) · D. Kumar · D. Kalra
Department of Electronics and Communication Engineering, GLA University, Mathura, UP, India
e-mail: devendrakumar.ec@gla.ac.in

D. Kumar
e-mail: divesh.kumar@gla.ac.in

D. Kalra
e-mail: dheeraj.kalra@gla.ac.in

G. Singh Tomar et al. (eds.), *International Conference on Intelligent Computing and Smart Communication 2019*, Algorithms for Intelligent Systems,
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Performance Comparison of Uncoded and ZigZag Coded IDMA

Shiva Kaushik and Aasheesh Shukla

Abstract Wireless communication should be band limited and have the ability to provide low complexity at the receiver side, have to remain springy by reverence in the direction of information level, and offer modification compared to fading. So the scheme that provides all these things is interleave division multiple access (IDMA). IDMA can be considered as fifth generation nonorthogonal multiple access scheme (NOMA) and almost inherits all the advantages of code division multiple access (CDMA) In this paper the new zigzag coded based IDMA is presented and simultaneously the performance improvement is verified by comparing it by uncoded IDMA. Simulation experiments have been performed at different data length and Spreadlength establish the better BER performance of zigzag-coded IDMA.

Keywords IDMA · Zigzag code · BER · Decoding complexity · Encoder

1 Introduction

Zigzag codes are introduced by Ping et al. [1]. It is from the family of one-dimensional error correcting code technique which can be popularly used to reduce error in wireless communication [2]. This zigzag code is basically constructed from a zigzag graph. The geometrical structure of the code made the easy implementation of soft in soft out (SISO) decoding algorithm, which was less complex too, for the receiver. Zigzag codes also have low error floor which means it has less probability of flattening of curves at high SNR [3]. This code can be considered competitive with turbo code due to the complexity of decoding algorithm at receiver side which results in high error floor problem and it's also relatively weak at low coding rate [4]. Zigzag coding takes less time for simulation to analyze the performance of the system [5]. On the

S. Kaushik (✉) · A. Shukla
Electronics and Communication Engineering Department, G.L.A University, Mathura, U.P, India
e-mail: shiva.kaushik_mtec17@gla.ac.in

A. Shukla
e-mail: aasheesh.shukla@gla.ac.in

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Spectrum Sensing in MIMO Cognitive Radio Networks Using Likelihood Ratio Tests with Unknown CSI

Juhi Singh and Aasheesh Shukla

Abstract Spectrum scarcity increases day by day due to underutilization of spectrum, Cognitive Radio Network (CRN) has been considered as a promising solution for in 5G communication system, as all of the available frequencies are not properly occupied in the spectrum. This is also very common to see that some of the frequencies in band are not utilized and some are overutilized. So the spectrum sensing is necessarily required to improve the accuracy of spectrum utilization and to protect the transmission of primary users. However, the dynamic nature of spectrum makes the sensing as a cumbersome task. In this paper, the problem of spectrum sensing in MIMO cognitive radio networks (CRN) has been considered in the existence of channel state information (CSI) uncertainty and various popular likelihood ratio test (LRT's)has been suggested and analyzed for spectrum sensing. The expressions for probability of false alarm and probability of detection are also obtained in closed form. Simulation experiments are performed in MATLAB to compare the performance of suggested LRT's and to identify the optimum LRT for CRN.

Keywords Cognitive radio · Spectrum sensing · Likelihood ratio tests (LRTs) · Energy detection · 5G communication

1 Introduction

Recently, it is observed that, to meet the requirements of advanced wireless applications of 5G communication, the demand for higher data rates and high-speed communication has been significantly increased. Simultaneously, the problem of scarcity of frequency spectrum is also increased due to the wide growth in advanced applications and congestion of network users. Also, there is wastage of frequency bands

J. Singh (✉) · A. Shukla
Department of Electronics and Communication, GLA University, Mathura, India
e-mail: juhisi.94@gmail.com

A. Shukla
e-mail: aasheesh.shukla@gla.ac.in

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Adaptive Control of a Nonlinear Surge Tank-Level System Using Neural Network-Based PID Controller

Alka Agrawal, Vishal Goyal and Puneet Mishra

Abstract A conventional Proportional–Integral–Derivative (PID) controller is not able to adapt to the changes in the system of a plant having nonlinear dynamics. In this paper, a Neural Network PID (NN-PID) controller is designed based on Multi-layer Neural Network (MLN) technique for controlling of the liquid level in a nonlinear surge tank system. A separate MLN identifier is implemented to approximate the plant's dynamics which operates in parallel to the controller with disturbance and parametric uncertainties in the system. The NN-PID controller works using backpropagation algorithm and weights are updated according to the gradient descent based learning rule. The simulation results show that as the variations occur in the plant, MLN identifier follows the plant's dynamics by adjusting its parameters and the controller reads just the plant's output to the desired level by adjusting its own parameters. In addition to this, NN-PID controller response is much accurate and faster than the conventional PID controller and an improvement of 97.35% was achieved in terms of ISE.

Keywords PID controller · Surge tank · Liquid level
Multilayered neural network · Gradient descent rule

A. Agrawal (✉) · V. Goyal · P. Mishra
Department of ECE, GLA University, 17km Stone, NH-2, Mathura, India
e-mail: alka.agrawal@gla.ac.in

V. Goyal
e-mail: vishal.glaitm@gmail.com

P. Mishra
e-mail: puneet.mishra@ymail.com

P. Mishra
Department of EEE, Birla Institute of Technology and Science, Pilani, Pilani, Rajasthan, India

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IDMA-Based on Chaotic Tent Map Interleaver

Divya Singh and Aasheesh Shukla

Abstract Interleave Division Multiple Access (IDMA) is a popular multiple access scheme and can be considered as one of the powerful NOMA (non-orthogonal multiple access) technique for 5G communication requirements. In IDMA, the interleaver plays a vital role as the means to distinguish the different users in the channel. An "efficient" Interleaver in IDMA scheme must be simple and non-colloidal in nature. So, in this paper, the analysis and designing of a new Tent map based Interleaver (TMI) matrix is proposed for IDMA system. Further, the simulation experiments have been performed among TMI and other famous interleaver designs to validate the bit error rate performance of "TMI". The simulation results explain that Tent map based chaotic (TMI) interleaver performs better in terms of bit error rate and computational complexity.

Keywords CDMA · IDMA · MAI · Chaos theory · TMI

1 Introduction

High speed, bandwidth efficient, and secure wireless communication are few among many, required features for 5G communication system. IDMA can be considered as a powerful code domain NOMA technique and a better candidate for 5G communication. IDMA scheme is also a better alternative for CDMA scheme as it inherits all the advantages of CDMA and also overcome the limitations such as: multiple access interference (MAI), and intersymbol interference (ISI). In IDMA systems the interleavers are used to distinguish the different users and bandwidth expansion is exploited with the help of low rate codes [1]. Further this scheme is also one of the popular multiuser detection techniques.

D. Singh (✉) · A. Shukla
Department of Electronics & Communication, GLA University, Mathura, India
e-mail: divya.rti@gmail.com

A. Shukla
e-mail: aasheesh.shukla@gla.ac.in

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Design of High-Gain CG–CS 3.1–10.6 GHz UWB CMOS Low-Noise Amplifier

Authors: Dheeraj Kalra, Manish Kumar, Abhay Chaturvedi

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Abstract

A high-gain low-power CMOS low-noise amplifier is simulated using TSMC 0.18-µm CMOS technology. The cascade topology is used to get the high-gain and low-noise figure value. The source degeneration technique is used for the wideband matching. The circuit is simulated for 3.1–10.6 GHz in ultawideband. The simulated results show the maximum gain of 21.574 dB at 6.378 GHz and positive gain maintained during the entire frequency range. The highest noise figure value is 4.311 dB at 7.662 GHz, and the lowest value is 2.477 dB at 3.1 GHz. The matching circuit at input and output terminals shows the input return loss of 22.262 dB at 10.38 GHz, while the output return loss of 30.936 dB at 4.1 GHz. The circuit is simultaed at 1.2 V which draws the power consumption of 17.734 mW. The designed circuit shows the optimum value of gain, noise figure, matching and power consumption.

Analysis of Photonic Crystal Fiber-Based Micro-Strain Sensor

Divesh Kumar, Dheeraj Kalra and Manish Kumar

Abstract Photonics crystal fiber-based sensors have small size, high sensitivity, flexibility, robustness, and ability of remote sensing. They can be used in unfavorable environmental conditions such as strong electromagnetic field, nuclear radiation, noise, and high voltages for explosive or corrosive media at high temperature. Fabrication of these sensors is so simple, and altogether makes them as a very efficient sensing solution for medical and industrial applications. A simple configuration of hollow-core photonic crystal fiber (HC-PCF) is presented for application as a micro-strain sensor to exhibit better sensitivity then the typical fiber Bragg grating (FBG)-based fiber optic strain sensors. Also, cross-sensitivity to changes in surrounding refractive index is avoided. The performance of the designed sensor is investigated for different strain levels ranging from 0 to 2000 με at the wavelength, 1550 nm. Additionally, due to the air-hole structure of HC-PCF, the sensitivity of strain measurement remains unaffected of the changes in surrounding refractive index (SRI). Sensitivity of HC-PCF also depends on the fiber parameters like pitch and air-filling fraction.

Keywords Photonic crystal · Fiber Bragg grating · Sensitivity
Strain measurement

1 Introduction

Sensing is a key technology for application areas like industrial, health, transport, and entertainment uses. Many such applications require the concept of remote sensing, where data is acquired from places which are not easily accessible. Such data is transmitted from the remote location to the monitoring and control station. While transmitting the electrical signal received from conventional sensors, these electrical signals suffer from the problem of external interference from electromagnetic fields.

D. Kumar (✉) · D. Kalra · M. Kumar
GLA University, Mathura, India
e-mail: divesh.kumar@gla.ac.in

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LVCMOS Based Energy Efficient D flip-flop Design

Tarun Agrawal, Anjan Kumar, Priyanka, Antra Bhardwaj, Pooja Aggarwal,
Abhishek Singh Sengar, Syed Saad Tirmizi
Student, Department of Electronics and Communication Engineering
GLA University
Mathura, India
priyanka.gla_cs15@gla.ac.in, antra.bhardwaj_ec15@gla.ac.in, pooja.aggarwal_ec15@gla.ac.in,
abhishek.sengar_ec15@gla.ac.in, syed.tirmizi_cs15@gla.ac.in

***Abstract*— In this paper, a d flip=flop is designed using Xilinx ISE design suite 14.2. The language used is Verilog. The flip flop designed is FPGA based and will be dissipating the minimum amount of power. The I/O standard used here is LVCMOS (Low Voltage Complementary Metal Oxide Semiconductor) which will help us in achieving the goal of minimum power dissipation. The analysis is done on different families like Artix-7, Spartan-3, Spartan-6, Virtex-6, and Virtex-5. The scaling is done on frequency and the frequencies used are 1 Ghz, 2 Ghz, 3 Ghz, 4 Ghz and 5 Ghz.**

Keywords*— D flip-flop, FPGA, LVCMOS, Energy efficient design.*

I. INTRODUCTION

The flip flop is a basic building block of sequential logic circuits. It is a circuit that has two stable states and can store one bit of state information. The output changes state by signals applied to one or more control inputs. The basic D Flip Flop has a D (data) input and a clock input and outputs Q and Q (the inverse of Q). Optionally it may also include the PR (Preset) and CLR (Clear) control inputs.

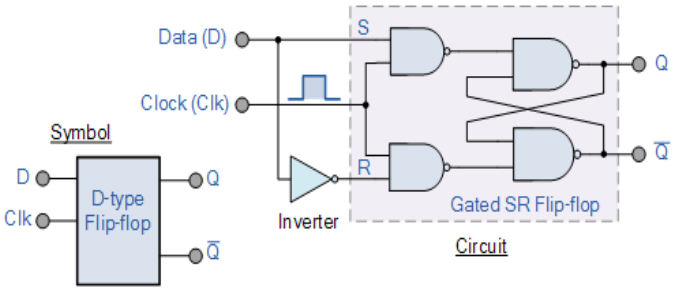

Figure 1 D Flip-flop Diagram

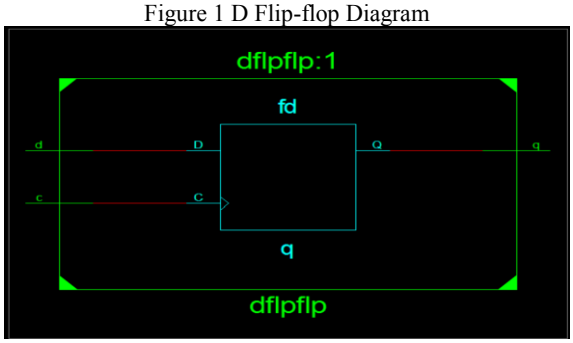

Figure 2 RTL Schematic of D Flip-flop

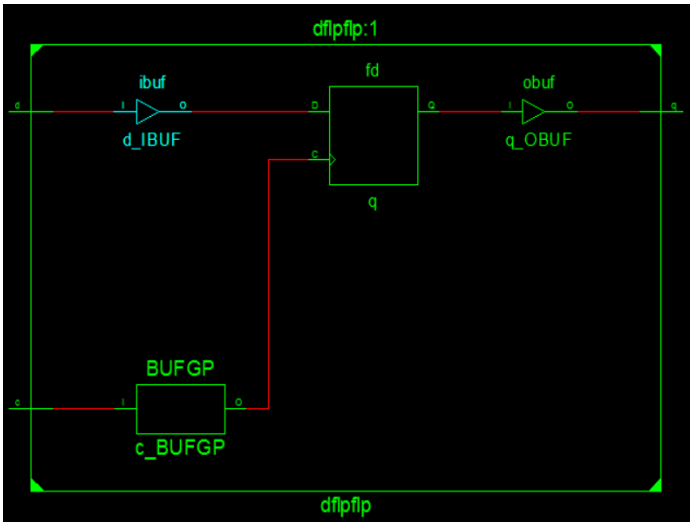

Figure 3 Technology Schematic of D Flip-flop

INPUTS				OUTPUTS	
$\overline{PR}$	$\overline{CLR}$	CLK	D	Q	$\overline{Q}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	X	X
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	0	X	Q_0	$\overline{Q}_0$

Figure 4 Truth Table of D Flip-flop

II. FPGA

FPGA stands for "Field Programming Gate Array". It is basically Integrated Circuit which is configurable i.e. programmable. The term "Field Programmable", Field means – Programming in the fields that means device function can be modified, configure, can be program in the Lab or at site where the device is installed. In most FPGAs, logic blocks also include memory elements, which may be simple flip-flops or more complete blocks of memory.

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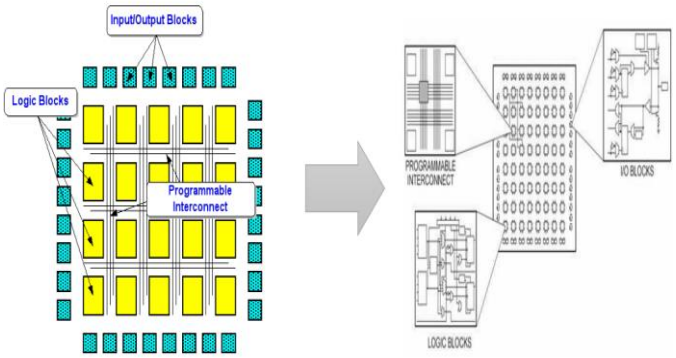

Figure 5 Architecture of FPGA

III. POWER ANALYSIS

We are going to analyze the power dissipation that occurs in a D flip flop when frequency scaling is done at different frequencies for different families.

1. Power Analysis Using Artix-7 FPGA-

POWER	1 GHz	2 GHz	3 GHz	4 GHz	5 GHz
CLOCK	0.005	0.01	0.015	0.019	0.024
SIGNAL	0	0	0	0	0
IOs	0.033	0.129	0.289	0.41	0.513
LEAKAGE	0.043	0.043	0.044	0.044	0.044
TOTAL	0.081	0.182	0.347	0.474	0.581

Table-1 Power Analysis Using Artix-7 FPGA

As is clear from the above, there is no change in signal power and very minor change in leakage power. In case of clock power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 50%, 66.67%, 73.68% and 79.16 % respectively. In case of IOs power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 74.41%, 88.58%, 91.95% and 93.56 % respectively. In case of total power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 55.49%, 76.65%, 82.91% and 86.05 % respectively.

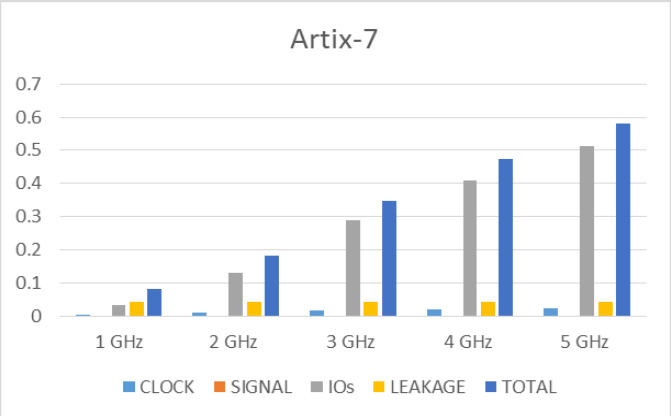

Figure 6 Power Analysis Using Artix-7 FPGA

2. Power Analysis Using Spartan-3 FPGA-

POWER	1 GHz	2 GHz	3 GHz	4 GHz	5 GHz
CLOCK	0.014	0.028	0.042	0.057	0.071
SIGNAL	0	0	0	0	0
IOs	0.044	0.088	0.132	0.175	0.219
LEAKAGE	0.028	0.028	0.028	0.028	0.028
TOTAL	0.086	0.144	0.202	0.261	0.319

Table-2 Power Analysis Using Spartan-3 FPGA

As is clear from the above, there is no change in signal power and leakage power. In case of clock power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 50%, 66.67%, 75.43% and 80.28 % respectively. In case of IOs power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 50.0%, 66.67%, 74.85% and 79.90% respectively. In case of total power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 40.27%, 57.42%, 67.04% and 73.04% respectively.

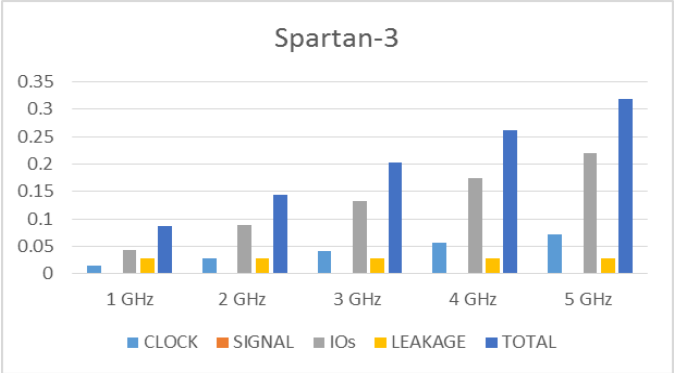

Figure 7 Power Analysis Using Spartan-3 FPGA

3. Power Analysis Using Spartan-6 FPGA-

POWER	1 GHz	2 GHz	3 GHz	4 GHz	5 GHz
CLOCK	0.011	0.022	0.033	0.044	0.056
SIGNAL	0	0	0	0	0
IOs	0.012	0.024	0.036	0.048	0.06
LEAKAGE	0.014	0.014	0.014	0.015	0.015
TOTAL	0.037	0.061	0.084	0.107	0.13

Table-3 Power Analysis Using Spartan-6 FPGA

As is clear from the above, there is no change in signal power and very minor change in leakage power. In case of clock power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 50%, 66.67%, 75.0% and 80.35 % respectively. In case of IOs power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 50.0%,

66.67%, 75.0% and 80.0 % respectively. In case of total power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 39.34%, 55.95%, 65.42% and 71.53% respectively.

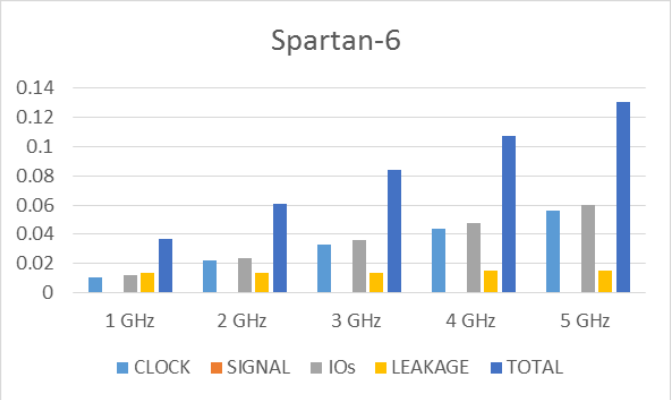

Figure 8 Power Analysis Using Spartan-6 FPGA

4. Power Analysis Using Virtex-5 FPGA-

POWER	1 GHz	2 GHz	3 GHz	4 GHz	5 GHz
CLOCK	0.01	0.025	0.298	0.298	0.673
SIGNAL	0	0	0	0	0
IOs	0.012	0.024	0.048	0.048	0.061
LEAKAGE	0.321	0.321	0.324	0.324	0.329
TOTAL	0.343	0.37	0.671	0.671	1.062

Table 4 Power Analysis Using Virtex-5 FPGA

As is clear from the above, there is no change in signal power and very minor change in leakage power. In case of clock power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 60%, 96.64%, 96.64% and 98.51 % respectively. In case of IOs power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 50.0%, 75.0%, 75.0% and 80.32 % respectively. In case of total power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is a change of 7.29%, 88.40%, 88.40% and 67.70% respectively.

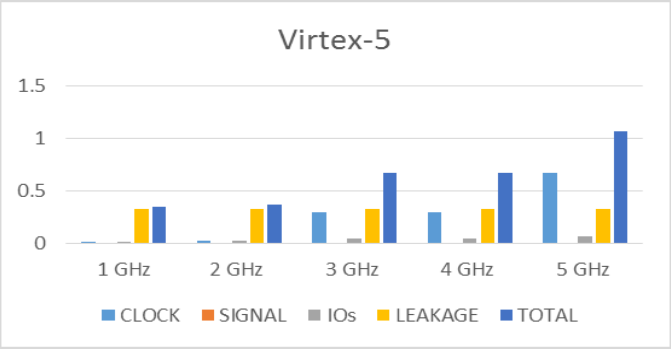

Figure 9 Power Analysis Using Virtex-5 FPGA

5. Power Analysis Using Virtex-6 FPGA-

POWER	1 GHz	2 GHz	3 GHz	4 GHz	5 GHz
CLOCK	0.03	0.061	0.091	0.122	0.152
SIGNAL	0.001	0.001	0.002	0.002	0.003
IOs	0.056	0.216	0.481	0.682	0.853
LEAKAGE	1.295	1.299	1.306	1.311	1.316
TOTAL	1.382	1.577	1.88	2.118	2.324

Table-5 Power Analysis Using Virtex-6 FPGA

As is clear from the above, there is very minor change in signal power and in leakage power there is very minor change. In case of clock power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 50.81%, 67.03%, 75.40% and 80.26 % respectively. In case of IOs power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 74.07%, 88.35%, 91.78% and 93.43 % respectively. In case of total power, as we scale from 1 GHz to 2 GHz, 3GHz, 4GHz and 5 Ghz, there is an increase of 12.36%, 26.48%, 34.74% and 40.53% respectively.

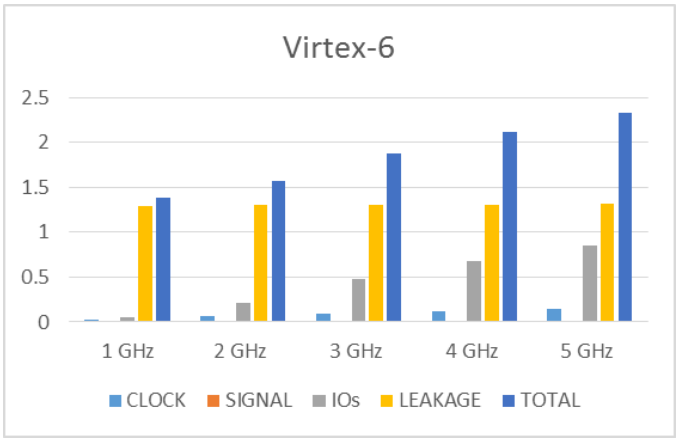

Figure 10 Power Analysis Using Virtex-6 FPGA

IV. COCLUSION

In the design of the D flip-flop we, therefore , infer that the power consumption in ARTIX-7 is reduced by 86.05 % when we use it at a frequency of 1 Ghz rather than 5 Ghz. For SPARTAN-3 this % is 73.04%. Similarly, this value is 71.53%, 67.70 % and 40.53% for SPARTAN-6, VIRTEX-5 and VIRTEX-6 respectively. Thus using the design at 1 GHz would require less power consumption than using it at 5 GHz. While working at 1 GHz, if SPARTAN-6 is used instead of VIRTEX-6, the reduction in power consumption is 97.32%. For 2 GHz, the power consumption is 96.13, if SPARTAN-6 is used instead of VIRTEX-6. Similarly, for 3 GHz, 4 GHz and 5 GHz this value is 95.53%, 94.94 % and 94.40 % respectively. Thus for this design, using SPARTAN-6 would have less power consumption than VIRTEX-6.

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An Optimized Fractional Order PID Controller for Integrated Power System

Devbrat Gupta, Vishal Goyal(✉), and Jitendra Kumar

Department of Electronics and Communication Engineering,
GLA University, Mathura 281406, UP, India
devbrat.guptal@gmail.com, vishal.glaitm@gmail.com,
jitendra.kumar@gla.ac.in

Abstract. A comparative study of fractional order proportional and integral (FOPI), proportional integral and derivative (PID) as well as fractional order PID (FOPID) is carried out in this paper for integrated power system (IPS) with subsystems consisting energy storage and generation block. Due to non-linear behavior of individual energy components like Diesel Energy Generator (DEG), Solar Thermal Power Generator (STPG), Battery Energy Storage System (BESS), Flywheel Energy Storage System (FESS), Wind Turbine Generator (WTG), Fuel Cells (FCs) and Ultra-Capacitor (UC) etc. or sudden change in generation and load, the output of an IPS system deviate from its nominal desired value. To control the IPS system properly these control techniques have been successfully implemented. Gains of the controllers are tuned with Genetic algorithm (GA). The simulation results of these control techniques demonstrate that FOPID controller has best robustness and lesser grid frequency deviation among them.

Keywords: IPS · PID · FOPI · FOPID · Genetic Algorithm

1 Introduction

In recent years the research studies show that, with the increasing consumptions of energy resources as well as the decreasing supplies of conventional energy resources tend people towards renewable alternatives. On the other side, to consume conventional energy resources in day to day life, a big concern of social welfare is to prevent carbon emission, global warming and environmental hazards. Renewable sources such as solar, wind, bio-fuels, sea, geothermal energies has their own advantages. As these renewable energy sources are nature dependent and prone to oscillations, combination of these sources is used because using any renewable source at a time, it is not sufficient for specific purpose [1]. Due to amplitude variations in their input side, the combined output of this integrated power system (IPS) shows the fluctuations. For continuous power supply to the loads, these oscillations and fluctuations must be diminished. To avoid these oscillations the idea of hybrid micro-grids has been employed. Due to this, carbon emission and grid disturbances get reduced. These micro-grids are also well equipped with specific advantages such as de-centralization and higher grid adaptability. The micro-grid is effectively used when a control technique is proposed whose objective is to

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Material and temperature dependent performance parameters of solar PV system in local climate conditions

Subhash Chandra [a], Arvind Yadav [a], Sanjay Agrawal [b], Durg Singh Chauhan [a]

[a] Department of Electrical Engineering, GLA University, Mathura, India
[b] School of Engineering & Tech., IGNOU, New Delhi, India

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Performance ratio

ABSTRACT

With the increasing interest of Indian government to generate 100 GW electricity from solar energy by 2022, it is the responsibility of researchers to analyze the true potential in actual conditions. Although this technology seems to be mature but due to different climate conditions in India, analysis of site dependent true performance is most important. In this paper an attempt is made to evaluate the performance in local climate and it is observed that experimental performance is better by generating 703 more units than theoretical generation. Also this compensation in terms of more modules, large area, increases the cost of the system. From experimental method 1.09% more modules and area, are required to compensate the losses while in theoretical method 2.14% more modules and area, are required. Experimental annual PR is 56% while theoretical PR is 55%. Therefore, material and temperature dependent losses cannot be estimated by same approach also the type of module technology to be utilized is highly site dependent.

Selection and of the scientific committee of the 10th International Conference of Materials Processing and Characterization.

1. Introduction

Renewable energy resources have enormous potential and it can fulfill partially the present world energy demand of the world. They can enhance diversity in energy supply markets, secure long-term sustainable energy supply and reduce local and global atmospheric emissions. In India, generation of 100 GW solar powers will be supported by producing 40 GW from solar rooftop systems. Progressive indications are visible as on December 2017 because in 2014 the total solar energy capacity was 2.63 GW which increased by 8 times and is 22 GW as on December 2017. Solar energy is contributing a significant amount to total renewable energy capacity i.e. 70 GW. India is currently at 5th position in renewable energy capacity worldwide [1].

A solar PV module is series and parallel connection of solar cells, whose efficiency is the ratio of output electrical power to the input solar power. The power balance equation is given by

$$P_i = P_o + P_L \tag{1}$$

where the P_i is input solar power, P_o is output electrical power, P_L is the lost power.

The efficiency $\eta_o = \frac{P_o}{P_i}$

or

$$\eta_o = \frac{V \times I}{G \times A} \tag{2}$$

where G is the solar radiation in W/m^2 and A is area in m^2.

Conventional generating systems suffer from various types of losses in transmission of power but generating systems based on renewable sources are situated near the load side hence negligible transmission losses occurs but various other types of losses are present in these systems as listed below [2–4].

- Temperature
- Low irradiance
- Low spectrum
- Tolerance
- Mismatch
- Dust
- Ohmic losses
- Shading

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2214-7853/
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Rural Electrification Using Microgrids and Its Performance Analysis with the Perspective of Single-Phase Inverter as Its Main Constituent

Apoorva Saxena and Durg S. Chauhan

Abstract This paper explores the various changes that have occurred in traditional electricity grid which have led to the emergence of microgrids as a possible solution for rural electrification. The single-phase inverters constitute a major component of microgrids and keeping in view the requirement of a traditional rural household, design aspects of a 400 W H bridge inverter is discussed in this paper. The open-loop analysis of single phase full bridge inverter is performed and selection of design parameters like filter inductance and capacitance, DC bus capacitor, switching frequency, etc., is done in detail. The effect of varying these parameters on the output voltage and current of the inverter is also done with the help of PSIM software. Finally, the performance of inverter is analyzed under rated load conditions.

Keywords Electricity market · Microinverter · Design parameters
Total harmonic distortion (THD) · Inverter performance

1 Introduction

Traditionally in earlier days, the electricity market was based on the principles of economies of scale, cost-plus pricing, and monopoly franchise with fossil fuel-based centralized generation as the most popular method of electricity generation. The electrification of remote areas was done through extension of the existing grid. But post 1970, with increased focus on environment and sustainable development, the electricity market has undergone a paradigm shift. Renewable integration, two-way power flow, and competitive pricing have shifted the focus towards a smart distribution network.

The rural electricity supply, especially in India, is suffering both in terms of availability for measured number of hours and penetration level. More than 25% of their rural households are yet to have an access to electricity [1]. A major bottleneck in

A. Saxena (✉) · D. S. Chauhan
GLA University, Mathura, India
e-mail: apoorvatu@gmail.com

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Chapter

Heat Exchange and Pressure Drop Enhancement Technique with Numerous Inserts in a Circular Tube Using ANSYS

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In book: Proceedings of International Conference in Mechanical and Energy Technology (pp.569-575)

Authors:

Mohan Gupta

Kamal Sharma
GLA University

Kuwar Mausam
GLA University

Abstract

The capability of a conventional heat exchanger in transferring heat requires improvement for conveying a considerable proportion of energy at cheaper rate and amount. For augmenting the heat transfer coefficient, dissimilar means have been employed. However, the use of inserts has become an assured method in enhancing heat transfer through endurable escalation of frictional losses. The objective of the study is the examination of a circular tube fitted with multiple inserts with regard to its characteristics related to heat transfer and fluid flow; these inserts are organized in clockwise and anticlockwise orientations.

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Application of Ag/H_2O nanofluid in flat plate solar collector (FPSC) for heat transport performance analysis.

Sujit Kumar Verma[a*], Arun Kumar Tiwari[b],

[a]Department of Mechanical Engineering, GLA University Mathura
[b]Department of Mechanical Engineering, IET Lucknow
*Corresponding author email:sujeetiitr09@gmail.com

ABSTRACT

Nanofluids are advanced innovative working fluids used for energy absorption, transport and exchange medium. In our experimental analysis we have chosen nanofluid Ag/H_2O for evaluating performance of flat plate solar collector for exergy efficiency, entropy generation and thermal efficiency. We have tested fluid for varying concentration from 0.25% to 1.0 %(wt %). Volume flow rate varied from 0.5lpm to 2.0 lpm).Experimental analysis established that for 0.75% volume concentration at the flow rate 1.5 l/min, thermal efficiency of FPSC for Ag/H_2O nanofluid is enhanced by 17.5%, observation in enhancement of exergy efficiency has been 22.5%. at the same time negligible entropy losses observed due to pressure drop and irreversibilities in flow. We can conclude that nanofluid based energy transporting systems are more efficient in terms of performance and energy saving.

KEY WORDS: Solar collector, nanofluid, exergy efficiency, optical absorptivity, extinction coefficient

NOMENCLATURE

Greek symbols:

η = collector efficiency
τ =transmission efficiency of glazing
α =absorption coefficient of plate
ψ =energy function per unit mass (kJ/kg)
φ: particle volume fraction (%)
ρ : Density of fluid (kg/m^3)

Subscripts:

m =mass flow rate, (kg/s)
f=fluid
i= inlet
a=ambient
u=useful

Ae: Area of edge surface
C_P: Specific heat (Joule/kg.k)
$\dot{E}_x$: Exergy rate (Joule/kg.s)
G_{tt}: Global solar radiation
h_a: heat transfer coefficient of air (J/kg.m^2K)
k_b: Thermal conductivity of back insulation(J/K.m)
k_θ: Angle modifier
k_B: Boltzman constant (J/K)
R_e: Reynolds number
$\dot{S}_{gen}$: Entropy generation rate (J/kg.K.s)
T_a: Ambient Temperature (K)
T_s: Light Source Temperature (K)
T_{fi} : Fluid inlet temperature
T_P: Plate temperature (K)
$T_{surr.}$: Surrounding temperature in Kelvin
U_b: Bottom loss coefficient (J/kg.Km^2)
U_e: Edge Loss coefficient (J/kg.Km^2)
U_L : Overall heat transfer loss coefficient (J/kg.Km^2)
U_t : Upper loss Coefficient(J/kg.Km^2)
x_b: Thickness of back insulation
ψ_{in}: Energy function at inlet (Joule/kg)
ψ_{out}: Energy function at outlet (Joule/kg)

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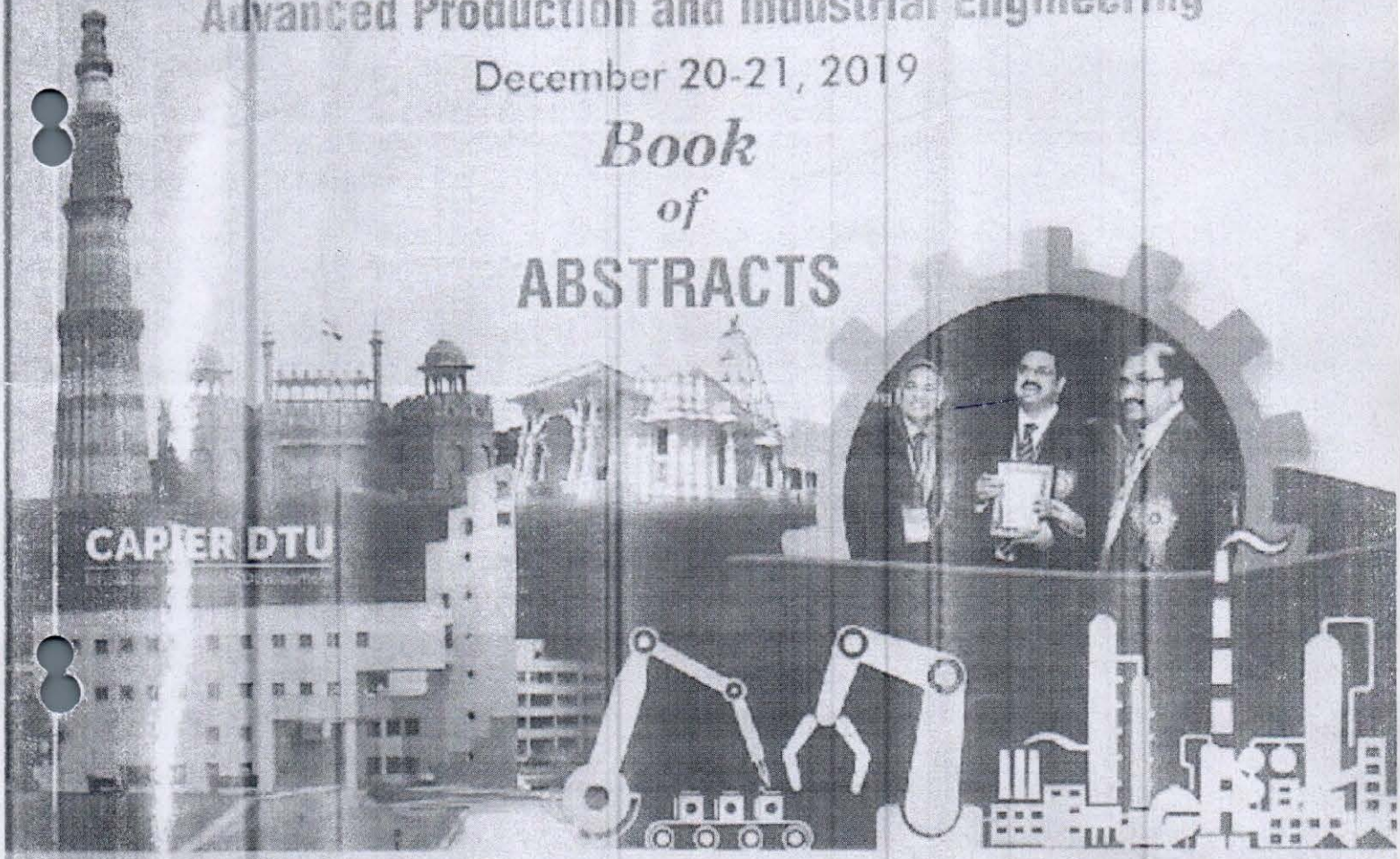

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Responsive Supply Chain Management in Healthcare Industry: An Overview

Shashank Srivastava[1*], Dxit Garg[2], Ashish Agrawal[3]
[1]GLA University, MAthura, U.P.
[2]National Institute of Technology , Kurukshetra, Haryana
[3]Indira Gandhi National Open University (IGNOU), Delhi
*Email: shashank.srivastava@gla.ac.in

Abstract: Responsiveness in supply chain management is an important tool and technique to be competitive in today's scenario. A lot of research has been done in the field of healthcare supply chain management but very less research has been focused on the responsive healthcare supply chain management. In developing countries like India it is very necessary to make responsive supply chain management in healthcare sector. Present paper focuses the different critical issues of responsive supply chain management and its effect. The purpose of this paper is t identify the critical issues of responsive supply chain anagement and expected performance outcomes hat can be obtained if the responsiveness has be achieved The paper also discussed the emerging challenges of healthcare supply chain management an their impact on society.

Keywords: Healthcare supply chain anagement, Responsiveness, Internet of things

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Solar Power Development: A Root for Sustainable Development of India

Kuwar Mausam[a,b], Subrata Kumar Ghosh[c], Arun kumar Tiwari[d] , Ravindra P. Singh[e]

a,e Department of Mechanical Engineering, Institute of Engineering &Technology, GLA University, Mathura 281406, India
b,c Department of Mechanical Engineering, Indian School of Mines, Dhanbad 826004, India
d Department of Mechanical Engineering, IET, Lucknow 226021, India

Corresponding author. Tel.: +919410662052
E-mail address: kuwar.mausam@gla.ac.in

Abstract: Sustainable development of second most populated country of world, India depends on the planning and utilization of conventional and non-conventional energy sources. Presently energy safety has top most prime concerned for sustainable development. Energy barriers/bottleneck, prospect of solar energy with consideration of cost, hot spot of solar energy, government policies, training and education of solar sector and data of solar radiation analyze in this article. Key aspect that helpful in barrier reduction and growth of solar sector suggested through paper. By this study it has been found that sustainable growth of India depend of utilization of solar energy. Full concentration by country over solar sector necessary for satisfying future demand of energy for country growth and development.

Keywords- Sustainable, Solar power, Energy barriers, Non-conventional.

1. INTRODUCTION

As second most populated country in the world India demanding more than 280GW energy for fulfill their existing demand.[1] Due to rise in population and increasing in the energy demand. Current installed capacity in India is in sufficient to meet current demand. By International Energy Agency report up to 2035 India demanding more than 800GW energy as installed capacity. [2] In India approximate 60% of power supply based on coal based thermal power, and market based on fossil fuel is continuously goes down and India needs to switch if power generation from conventional to non-conventional power generation [3]. Our conventional fossil fuel resource continuously deplete and touch the condition of running out. [4] Due to the production of large amount of greenhouse gases by the use of fossil fuel, it is mandatory to switch power production from conventional to non-conventional clean energy resource, but when we talk about solar energy potential in India, its contribution is only 5,000 trillion kilowatt-hours (kWh) approximately with presence of approximately 300 sunny days. [5] Seasonal and periodical variation is the biggest drawback of solar power supply system and this drawback can easily dumbed out by connecting the solar supply system by grid for regular power supply[6]. In India rural electrification can easily handle by PV system. India using centralized power supply system, which suffer with transmission losses (35% in rural and 25% in urban). These losses can reduced by decentralized supply system and PV system I one of the option for that decentralized power supply system. [7] In this manuscript author has shown the potential of solar energy and growth steps taken by Government of India. In this article author discuses regarding the main barrier of solar power growth market. Author also discussed regarding the key recommendation helpful for growth of solar sector in India.

2. METHODOLOGY

In article helpful in the finding of problem faced by solar power sector in India as well as opportunity for its growth. In this research qualitative approach like interview, case study and pilot study are used for the data collection from various sources and after that analysis of this data utilized in problem understanding and suggested best possible solution of the problem. [8]
In this research already published Government/private organization statistical report analyzed deeply, these organization are well known in the field of solar power sector and work on the solar energy development in India.

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Performance Index of Frugal Manufacturing System

Manoj Kumar Agrawal[1] and Surender Kumar[2]

[1] *Associate Professor, Mechanical Engineering Department, GLA University, Mathura (U.P)*
[2] *President, IURISD, Indo-US Research Institute for Sustainable Development, California 94536 USA*

manoj.agrawal@gla.ac.in

Abstract

Frugal excellence is a coordinated response to today's highly competitive environment. Frugal manufacturing philosophy asks for elimination of waste hidden in the manufacturing system by eliminating non value adding activities. Frugal manufacturing is a very successful strategy and can be applied to all type of organizations i.e. manufacturing or service organization etc. In this paper after giving a brief idea about frugal philosophy, different types of wastes, causes of wastes, a designed questionnaire for self test has been given along with evaluation criteria to identify the weakness and strength of an industry for successful implementation of frugal manufacturing strategy. It also gives a methodology for evaluation and improvement of performance index using the principle of continuous improvement. A case study of wastes elimination by computation of Frugal Manufacturing Index (FMI) has been discussed. Results obtained are quite encouraging. Idea presented in the paper will be useful for those who want to implement frugal manufacturing index in their organization.
Keywords: Wastes, FMI, Key Performance Areas, Sub-systems, Mile-stones.

Introduction

Markets all over the world are experiencing the change due to recent trends in industrial manufacturing. In view of these changes, old business models that worked well for several decades no longer work effectively. New systems of doing industrial business have evolved in recent decades such as frugal, lean, green, sustainable and agile manufacturing. Bringing down the cost of manufacturing by elimination of as many wastes as possible from the value stream has become a major long-term and short-term objective for all industries. The fundamental concept is to eliminate wastes and produce only the items needed at the required time and in the required quantities. Principles of Frugal are universal as they are broadly accepted during many manufacturing operations and have been applied successfully across many disciplines. A planned implementation of Frugal production system leads to improved quality, better cash flow, increased sales, better productivity, improved morale and higher profits. Many leading company have implemented frugal manufacturing programmes with increased efficiency, reduced costs, improve customer response time, and more [3].

As such many organizations are now a day's interested to adopt frugal philosophy so that they are in a position to deliver high quality and cost effective products quickly [9].

The main aim of this research paper is to provide a tool kit for computation of performance index of frugal manufacturing system and a methodology to improve the performance index along with implementation programme.

Concept and Definition

Frugal is a combination of:

F →FUNCTIONAL
R →ROBUST
U →USER-FRIENDLY
G →GROWING
A →AFFORDABLE

Frugal is a new way of thinking about manufacturing. It is more reliable and easy concept than any other. Frugal manufacturing has probably attracted more attention in a short time than any other manufacturing technique.

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Assessment & anthology of sustainable sources of energy using an approach of PROMETHEE

***Deepak Sharma*[1,*], *Atul Pandey*[2], *Chandan Kumar*[3], *R K Ranjan*[4]**
[1]*Department of Mechanical Engineering, IET ,GLA University Mathura 281406, UP, India*
[2]*Department of Mechanical Engineering, NIET ,Gr Noida GB Nagar 201310, UP, India*
[3] *Department of Mechanical Engineering, NIET, Gr Noida GB Nagar 201310, UP, India*
[4]*Director NIET ,Gr Noida GB Nagar 201310, UP, India*
E-mail[*]*: deepak.sharma@gla.ac.in*

Abstract. The energy mix in India relies heavily on the energy sources basically categorized as conventional. Renewable energy (RE) encouragements in India have to be seen from a long term and wider frame of reference, so that it contributes towards reliability and energy security. This paper vital motive is to assess and prioritize the sustainable energy sources in India which are accomplishing utmost factors like acceptability, space limits, availability, gestation period, safety considerations, localization and execution. Sources consider for analysis are solar, wind, hydro and nuclear energy. PROMETHEE (Preference Ranking Organization Method for Enrichment Evaluation) have been used to achieve the suitability among the sources of energy and to persuade different factors. This paper concluded solar energy as the most profitable and economical energy source for India, followed by wind energy, than hydro energy and in the last nuclear energy. Nuclear energy acceptability is low in view of the fact of public oppression and the corresponding dangers bound with unbinding power of atom. This paper may help the decision makers to formulate long-term energy policy aiming for sustainability.

Keywords:*Selection and Prioritization, Multiple criteria decision making, Energy case study, PROMETHEE.*

1. Introduction

Energy has been the backbone of human civilization since time immemorial & its desires is increasing gradually with increase in population, industrialization, economic growth all around the world. Business & trading is expanding readily, but our fossil fuel sources are diminishing, the rate of energy is increasing which slowly giving rise to the biggest threat to humanity & nature that is climate change [Sanjeev et al. 2017]. The point of concern is the high dependence on fossil-fuel based energy sources, which suffice the need of 85% of the world`s energy requirements. But, it is a known fact that if we keep on extracting this precious fuel at this alarming rate, which can`t be replenished quickly, we would be certainly out of energy stock. India is in a censorious spot, due to its high population growth, economic growth, civilization, industrialization, up gradation in per capita utilization of electricity, exhaustion of coal reservoirs, hike in the import of coal, crude oil & other energy sources. Population

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Influence on the Tensile Properties of AA7075-T6 under Different Conditions during friction stir welding process

Shahabuddin[1], V.K Dwivedi[2*], Akash Sharma[3]

[1]*Research Scholar, GLA University Mathura, India.*
[2]*Faculty member, GLA University Mathura, India.*
[3]*Research Scholar, GLA University Mathura, India.*
** Corresponding author, E-mail: vijay.dwivedi@gla.ac.in*

Abstract.
The main idea is to study the outcome parameters of FSW on finest quality of AA7075-T6. The welding of AA7075 is done by vertical milling machine with using different tools. Different welding parameters are studied on fluctuating tool rotational speed which varies 900 to 1750 (rpm), having tool shoulder diameter between 15 to 20 mm and transverse speed of the table which is under the range of 30 to 45 (mm/min). Taguchi technique is used for optimizing the welding parameters. In this present investigation three factorial and three level designed are used for optimization through the Taguchi Technique. The result which are detected defines that due to increase in rotational speed the tensile strength of welded joint increases and tensile strength decrease due to the frictional heat which is generated during the FSW process.

Keywords:*FSW, Aluminium Alloy, Tensile Strength, Taguchi technique, Microstructure, and Mode of fracture.*

1. Introduction

Friction stir welding (FSW) which is a solid state practice for amalgamation of different aluminium alloys. The friction stir welding (FSW) process is developed by the Welding Institute (TWI) of UK in 1991[1]. In FSW process, rotating tool moves with speed along the welding centre line so that plunge depth has a very important influence on the joint strength [2]. In recent years, aluminium alloy (AA 7075) is mostly used in automobile, aerospace and aircraft industries since of their brilliant strength to weight ratio, corrosion resistance, good ductility, and cracking resistance in hostile environment [3].The literature reviews reveals that many researchers have attempted to calculate the process parameters in friction stir welding. Rao et al. studied the effect of tool profile and rotational speed on mechanical properties of aluminium alloy. They revels that on increasing axial force, tensile strength of weldment decreases [4]. Radisavljevic et al. influenced on tensile strength quality and mechanical properties by using FSW process and find out the tensile strength of base material which is higher as compared to the weld joints, and the maximum competence in terms of UTS and elongation respectively [5]. Song studied on Mechanical Properties by using friction stir welding (FSW) process and found that the grain refinement which have an influence on increase of mechanical properties like that micro hardness and tensile strength considerably improved than the base material[6].

20 | OriginalPaper | Chapter

Application of Fuzzy Linguistic Modeling Aggregated with VIKOR for Optimal Selection of Solar Power Plant Site: An Empirical Study

Authors: Bhavin Shah, Harsh Lakhani, Kumar Abhishek, Soni Kumari

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Abstract

Fast development of the economies and technology leads a tremendous increase in the demand for electrical energy. The primary energy sources viz. coal, natural gas, petroleum, etc. replenished day by day as they require millions of years for their formation. To address this issue, utilization of renewable energy sources such as wind energy, solar energy, hydropower, marine energy, etc. have been considered as one of the vital solutions to meet the energy demand. But they require huge investment; hence, feasible studies are essentially needed for finding the large systems associated with aforesaid resources. Therefore, this work highlights the several suggestions for selection of site which is an important stage in the establishment of solar power plant. Moreover, a hierarchy multi-criteria decision-making (MCDM) approach based on fuzzy logic and VIKOR method has been adopted for the selection of site in the Gujarat state of India.

Performance And Analysis Of Phase Change Material By Using Hybrid Nano Fluid (Zink Cobalt Iron Oxide) On Thermal Energy Storage Device

Harish Kumar Sharma[1*], Satish Kumar[2], Mani Kant Paswan[3] and Piyush Singhal[4]
[1]GLA University, Department of Mechanical Engineering, Mathura, India
[2,3]NIT Jamshedpur, Department of Mechanical Engineering, Jamshedpur, India
[4]GLA University, Department of Mechanical Engineering, Mathura, India
Email: *harish.shrma@gla.ac.in

Abstract
This paper presents that the efficiency of thermal energy storage system is increased by reducing the charging time of Phase Change Material (PCM) by using the mixture of hybrid nanofluid (Zink Cobalt Iron Oxide) and water as Heat Transfer Fluid (HTF). By using nanofluids it is found that the charging time for paraffin wax is reduced to about 25% and discharging time is also reduced to about 20%. Discharge using nanofluid is not so beneficiary because it reduces the time of discharging which is generally not required therefore it is advised to use nanofluid for charging purpose and simple water for discharging purpose to obtain maximum efficiency of the system.

Keywords
Phase change material, Nanofluid, Thermal energy storage

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Numerical study of CeO_2 /H_2O nanofluid application on thermal performance of heat pipe

Naveen Kumar Gupta[1,2,*], Aman Barua[2], Shashwat Mishra[2], Shubham Kumar Singh[2], Arun Kr Tiwari[3], Subrata Kr Ghosh[1]

1- *Department of Mechanical Engineering, Indian Institute of Technology(ISM),Dhanbad-826004, India*

2- *Department of Mechanical Engineering, Institute of Engineering and Technology, GLA University, Mathura 281406, India*

3- *Department of Mechanical Engineering, Institute of Engineering and Technology, Lucknow- 226021, India*

Abstract

In this work, a two-dimensional analysis is used to investigate the thermal performance of heat pipe using water and CeO_2 /H_2O nanofluid as the working fluid. CFD simulation for the thermal performance of heat pipe using CeO_2 /H_2O nanofluid (0.5, 1.0, &1.5 vol. % concentration) and different heat flux i.e. 10, 15 and 20 kW/m^2 has been done. The numerical results show that CeO_2 /H_2O nanofluid application reduces the surface wall temperatures and thermal resistance of heat pipe as compared to that of water. Experimental and numerical results are in good agreements. Authors concluded that heat pipe using CeO_2 /H_2O nanofluid as working fluid has better heat transfer characteristics as compared to water. So there is a great future prospect of nanofluids application in heat pipes.

Selection and/or Peer-review under responsibility of International Conference on Nanotechnology: Ideas, Innovations & Initiatives-2017 (ICN:3i-2017).

Keywords: Heat pipe, Nanofluid, Thermal resistance, nanofluids, CFD simulation; etc.

* Corresponding author. Tel.: +91-955-770-5108.
E-mail address: naveen_glau@yahoo.in

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ICN3I-2017

A review of thermo physical properties of nanofluids

Naveen Kumar Gupta[1,2,*], Shashwat Mishra[2], Arun Kumar Tiwari[3], Subrata Kumar Ghosh[1]

[1]Department of Mechanical Engineering, Indian Institute of Technology(ISM), Dhanbad-826004, India

[2]Department of Mechanical Engineering, Institute of Engineering and Technology, GLA University, Mathura 281406, India
[3]Department of Mechanical Engineering, Institute of Engineering and Technology, Lucknow- 226021, India

Abstract

Nanofluids are the new class of thermo fluidics and also an emerging area for research. Due to their superior thermo physical properties, researchers were attracted towards their application in different thermal devices. Researchers claimed that the positive impact of the thenanofluid application on thermal performance is due to their enhanced thermal properties like thermal conductivity, specific heat, and viscosity etc. The goal of this review is to provide an overview of thermo physical properties of nanofluids. All parameters have individual or combined effects on thermo physical properties of nanofluids. Authors have drawn the attention of the research community to explore the dependency of all parameters on each other.

Keywords: Nanofluid, Thermal conductivity, Thermal performance, Specific heat, Viscosity;

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* Corresponding author. Tel.: +91-955-770-5108.
E-mail address: naveen_glau@yahoo.in

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Paper ID –91

Analysis of Properties of Polymer Nanocomposites on the Basis of Nature of Interphase Property Variation

Gaurav Pant

Department of Mechanical Engineering, GLA University, Mathura, U.P., India

Abstract

The effect of adding a nano inclusion (Alumina) to polypropylene polymer has been analyzed. On addition, interphase formation in between the inclusion and the polymer matrix occurs. The properties vary in this layered interphase. A solid model of the RVE of polymer nanocomposite was prepared and then calculations were done based on types of variations and these properties were entered into the solid model and mesh model was prepared. On imposing various boundary conditions, and displacement under small strain case, solutions were done. On comparing these obtained results with the reference values, huge improvements in the mechanical properties were observed.

Keywords: Polymer Nano composite; Interphase; RVE; Polymer Matrix, Inclusion

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Responsive Supply Chain Management in Healthcare Industry: An Overview

Shashank Srivastava[1*], Dxit Garg[2], Ashish Agrawal[3]

[1]GLA University, MAthura, U.P.

[2]National Institute of Technology , Kurukshetra, Haryana

[3]Indira Gandhi National Open University (IGNOU), Delhi

*Email: shashank.srivastava@gla.ac.in

Abstract: Responsiveness in supply chain management is an important tool and technique to be competitive in today's scenario. A lot of research has been done in the field of healthcare supply chain management but very less research has been focused on the responsive healthcare supply chain management. In developing countries like India, it is very necessary to make responsive supply chain management in healthcare sector .Present paper focuses the different critical issues of responsive supply chain management and its effect. The purpose of this paper is to identify the critical issues of responsive supply chain management and expected performance outcomes that can be obtained if the responsiveness has been achieved. The paper also discussed the emerging challenges of healthcare supply chain management and their impact on society.

Keywords: Healthcare supply chain management, Responsiveness, Internet of things

Paper ID – 50

Comparison of Micro Structural and Mechanical Properties of Aluminium Alloy AA6062 on FSW and TIGW Processes

Akash Sharma and V K Dwivedi

GLA University, Mathura 281406, Uttar Pradesh, India

Abstract

FSW (Friction Stir Welding) and TIGW (Tungsten Inert Gas Welding) are widely known welding processes, FSW and TIGW both are accepted throughout the industries worldwide in current age. In this paper a comparative study of Aluminum AlloyAA6062 properties on TIGW (Tungsten Inert Gas Welding) and FSW (friction stir welding) are obtained. The quality of the weld is determined through mechanical properties, bead geometry, and distortion. In this research paper AA6062 (Aluminum Alloy)similar metal is joined, appraised and compared in TIGW and FSW welding processes for studying the welding process parameters and there different configurations.

Keywords: FSW, Tungsten Inert Gas Welding, Mechanical properties, Aluminum Alloy, Microstructure

2nd International Conference on Computational & Experimental Methods in Mechanical Engineering (ICCEMME-2019)

Paper ID - 44

Effect of Milling Parameters on Surface Roughness: An Experimental Investigation

Akash Sharma and VK Dwivedi

GLA University, Mathura (U.P)

Abstract

Milling is the very well-known machining technique; Machining techniques (end milling) are widely adopted in industries in the current age. The machining of Aluminium Alloy AA6062 based on a high-speed milling machine is very essential because of its applications in various industries i.e. Automobile, Aviation, Shipbuilding etc. This paper deals with three main process parameters which affect the end milling process these are Feed rate, Depth of cut and spindle speed which influence the surface roughness of Aluminium Alloy AA6062 during end-milling operation. This paper is mainly focused on the above three main process parameters and through different combinations of these parameters obtaining the optimized surface roughness as well optimum cutting parameter for machining. Different levels of surface roughness are measured through the Stylus profile meter of a surface roughness measuring machine Surftest SJ-210; also the graphs of surface roughness are given as a result in this paper. This paper an attempt is made to find the optimum end milling parameters for optimized surface roughness for Aluminium Alloy AA6062.

Keywords: End Milling, Surface Roughness, Feed Rate, Spindle Speed, Depth of Cut, Taguchi Method

Paper ID –21

Influence on the Tensile Properties of AA7075-T6 Under Different Conditions During Friction Stir Welding Process

Shahabuddin and V.K Dwivedi

Department of Mechanical Engineering, GLA University Mathura, India

Abstract

The main idea is to investigate the outcome of friction stir welding parameters on best quality of AA7075-T6. The welding of AA7075 is done by vertical milling machine with using different tools. Different welding parameters are studied on fluctuating tool rotational speed which varies 900 to 1750 (rpm), having tool shoulder diameter between 15 to 20 mm and transverse speed of the table which is under the range of 30 to 45 (mm/min). Taguchi technique is used for optimizing the welding parameters. In this present investigation three factorial and three level designed are used for optimization through the Taguchi Technique. The result which are detected defines that the tensile strength of welded joint increases with increasing rotational speed and decreasing tensile strength due to the frictional heat which is generated during the FSW process.

Keywords: FSW, Aluminium Alloy, Tensile Strength, Taguchi technique, Microstructure, and Mode of fracture

PAPER • OPEN ACCESS

Solar Power Development: A Root for Sustainable Development of India

Kuwar Mausam[1,2], Subrata Kumar Ghosh[2], Arun kumar Tiwari[3] and Ravindra P. Singh[1]

IOP Conference Series: Materials Science and Engineering, Volume 691, 2nd International Conference on Computational & Experimental Methods in Mechanical Engineering 3–5 May 2019, GL Bajaj Institute of Technology and Management, Greater Noida, India

Citation Kuwar Mausam *et al* 2019 *IOP Conf. Ser.: Mater. Sci. Eng.* **691** 012084

kuwar.mausam@gla.ac.in

[1] Department of Mechanical Engineering, Institute of Engineering &Technology, GLA University, Mathura 281406, India

[2] Department of Mechanical Engineering, Indian School of Mines, Dhanbad 826004, India

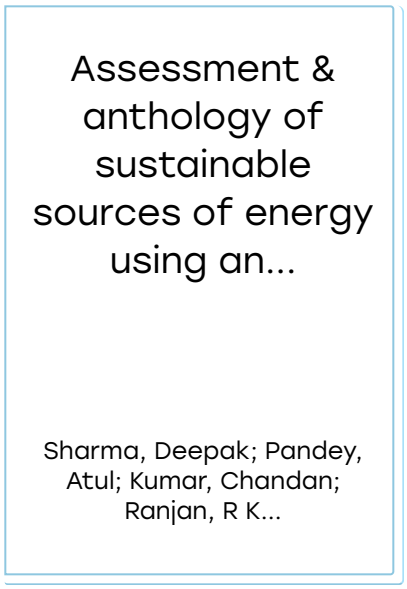
[3] Department of Mechanical Engineering, IET, Lucknow 226021, India

https://doi.org/10.1088/1757-899X/691/1/012084

Abstract

Sustainable development of second most populated country of world, India depends on the planning and utilization of conventional and non-conventional energy sources. Presently energy safety has top most prime concerned for sustainable development. Energy barriers/bottleneck, prospect of solar energy with consideration of cost, hot spot of solar energy, government policies, training and education of solar sector and data of solar radiation analyze in this article. Key aspect that helpful in barrier

IOP Conference Series Materials Science and Engineering (/journal/11530) 2019 / 12 Vol. 691 (/journal/11530/691)



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Assessment & anthology of sustainable sources of energy using an approach of PROMETHEE

Sharma, Deepak (/g/Sharma, Deepak), Pandey, Atul (/g/Pandey, Atul), Kumar, Chandan (/g/Kumar, Chandan), Ranjan, R K (/g/Ranjan, R K)

Volume: 691
Journal: IOP Conference Series: Materials Science and Engineering
DOI: 10.1088/1757-899X/691/1/012040
Date: December, 2019
File: PDF, 734 KB

Materials Today: Proceedings
Volume 18, Part 7, 2019, Pages 2731-2737

Welding Behaviour of Duplex Stainless Steel AISI 2205: AReview

Aditya N. Chaudhari, Kartikey Dixit, Gursimer S. Bhatia, Bharat Singh, Piyush Singhal, Kuldeep K. Saxena

https://doi.org/10.1016/j.matpr.2019.07.136

Abstract

The present work aims to review the welding behavior of welded AISI duplex stainless steel 2205(DSS). DSS has duel phase structure i.e. austenite and ferrite phases and therefore, combines the properties of both the phases. DSS is commonly used as high corrosion and pitting resistant material in aggressive environments. Welding process involves electrical, thermal, chemical, fluid and mechanical phenomenon. It also involves the melting of the faying surfaces of the DSS and subsequent solidification. These melting involves heating of base metal near to fusion zone which is coined as heat affected zone (HAZ). These region depends on the heat input, thermal field, melting of filler, the rate of cooling, process variables and technique used. The effect of different parameter of welding involved in various welding processes used for DSS welding such as gas tungsten arc welding (GTAW), gas metal arc welding (GMAW), submerged arc welding (SAW), plasma arc welding (PAW), Friction stir welding (FSW), laser and electron beam welding (LBW/EBW) are reviewed. Additionally, a compressive study is done on the effect of welding on corrosion, mechanical properties and subsequently on the microstructure of DSS.

Materials Today: Proceedings
Volume 18, Part 7, 2019, Pages 2308-2314

Demand Forecasting Of Engine Oil For Automotive And Industrial Lubricant Manufacturing Company Using Neural Network

Rajkumar Sharma, Piyush Singhal

Show more

https://doi.org/10.1016/j.matpr.2019.07.013

Abstract

In this paper, a case of demand forecasting for engine oil for automotive and industrial lubricant manufacturing company has been presented. It has been observed that the demand for engine oil mainly depends on three factors i.e. quality, cost, and delivery time. These factors are studied and compared with other competitors dealing in similar nature of products. The quality is associated with three sub-parameters viz. poor, same, and better. Similarly, the cost is mapped with three sub-parameters viz. more, equal & less. Delivery time is linked with two sub-parameters viz. long and short. An artificial neural network model is built on the basis of these causal factors. First, the raw data of demand for a period of past 36 months is collected from supply chain managers of the automotive company. The data for a period of 24 months is utilized to train, validate, and test the model. The next twelve month data is predicted by the trained neural network model. After that, the root mean square error is calculated by comparing the predicted data with the rest 12-month available data. The root mean square error is checked for many cases by m

Materials Today: Proceedings
Volume 18, Part 7, 2019, Pages 2672-2678

Optimization of process parameters on Combustor Material Using Taguchi & MCDM Method in Electro-Discharge Machining (EDM)

Vikas Sharma [a, b], Joy Prakash Misra [b], Piyush Singhal [a]

https://doi.org/10.1016/j.matpr.2019.07.128

Abstract

Inconel 718 is one of the widely used material for combustion chamber of jet engine, Purpose of the study is to obtain an optimal setting of process parameters for single and multi-optimisation resulting in an optimal value of the material removal rate and tool wear rate by varying input parameter current, pulse on time pulse off time and gap voltage while EDM for Inconel 718 using copper cadmium as electrode Taguchi L9 array has been used to design the experiments, the results are further analyzed using MINITAB for single optimisation and MCDM technique named Preference Ranking Organization Method for Enrichment of Evaluations (PROMETHEE) to investigate the multi-optimization of response characteristics for Inconel 718.

Article

Investigation of Thermal Efficiency and Depth of Penetration during GTAW Process

January 2019 · Materials Today: Proceedings 18:2962-2969
DOI:10.1016/j.matpr.2019.07.166
Project: Welding behaviour of Metals

Authors:


Bharat Singh
GLA University


Piyush Singhal
GLA University


Kuldeep K Saxena
GLA University

Citations (5) References (20)

Abstract

A numerical and experimental investigation of gas tungsten arc welding (GTAW) of AISI 304L was carried out to obtain the thermal field, depth of penetration with varying input process parameters. A three-dimensional finite element model is developed to simulate the GTAW welding process considering double ellipsoidal heat source with Gaussian heat flux distribution. A novel iso-volume approach is used to estimate the melting efficiency of the process and calculated maximum melting efficiency of the process is found 44 %. Calculated results in terms of thermal histories and depth of penetration have compared with measured results and are in good agreement.

No full-text available

Citations (5) References (20)

Materials Today: Proceedings
Volume 18, Part 7, 2019, Pages 4605-4612

Vibration Analysis of angle-ply Laminated Plates with RBF based Meshless Approach

Vivekanand Shukla [a], P.C. Vishwakarma [a], Jigyasa Singh [b], Jeeoot SIngh [a]

Show more

https://doi.org/10.1016/j.matpr.2019.07.444

Abstract

Present paper deals with free vibration analysis of angle-ply laminated plates with RBF based meshless approach. Eight layered symmetric and antisymmetric laminated plates have been considered for analysis. The governing differential equations (GDEs) of plates are obtained using energy approach and Higher Order Shear Deformation Theory (HSDT). After convergence and validation study the effect of lamination scheme, number of layers, span to thickness ratio is obtained for obtaining frequency parameter. Eigen value analysis have been considered in this paper. New results are also obtained for eight-layer laminates.

Materials Today: Proceedings
Volume 18, Part 7, 2019, Pages 3821-3826

Evaluation of Mechanical Properties of Orange Peel Reinforced Epoxy Composite

Ankita Awasthi [a, b], Kuldeep K Saxena [b]

Show more

https://doi.org/10.1016/j.matpr.2019.07.320

Abstract

The mechanical behaviour of orange peel reinforced with epoxy composites is investigated by increasing the percentage of the orange peel reinforcement mechanical properties in the developed composite. Composite having 10%, 20% and 30% weight fraction of orange peel was made using hand layup method. Samples for different mechanical testing were prepared according to ASTM standards to check the hardness, tensile strength and density. Experiments were conducted on prepared samples and orange peel epoxy composite with the finding that 20% fibre percentage is optimum.

Orange peel; Epoxy; Composite; Mechanical properties

Special issue articles Recommended articles Citing articles (2)

Materials Today: Proceedings
Volume 18, Part 7, 2019, Pages 4821-4825

Precipitation Behaviour of Microalloyed Steel During Hot Deformation

Ashutosh Pratap Singh [a], Bharat Singh [a], Kuldeep K Saxena [a]

https://doi.org/10.1016/j.matpr.2019.07.471

Abstract

Low carbon steels of varying vanadium nitrogen ratio are hot rolled at 800°C with varying percentage of deformation within 20% to 60% thickness reduction. A set of experimental steels are subjected to hot compression using Thermo-Mechanical Simulator (Gleeble3800®) and then cooled to room temperature. Microstructural characterization was done using optical and scanning electron microscope. It is found that the increasing deformation percentage leads to the formation of higher amount of precipitates of vanadium carbides/carbonitrides. Additionally, precipitation density increases as a function of vanadium to nitrogen ratio. Higher amount of deformation in thermo mechanical simulation has led to higher hardness due to increase in precipitate density.

Materials Today: Proceedings
Volume 18, Part 7, 2019, Pages 5158-5163

Experimental Investigation of Graphene-Paraffin Wax Nanocomposites for Thermal Energy Storage

Krishna Kumar [a], Kamal Sharma [a], Sujit Verma [a], Neeraj Upadhyay [a]

Show more

https://doi.org/10.1016/j.matpr.2019.07.513

Abstract

In this work, the thermal performance of graphene reinforced paraffin wax phase change material (GrPW-PCM) for thermal energy storage applications has been investigated. Though a stability test for the confirmation of uniform dispersion of graphene in paraffin wax environment is conducted but scanning electron microscopy (SEM), Fourier transform infrared spectra scope (FTIR) and thermal conductivity are also applied to characterize the microstructure, chemical structure and thermal properties. Four different samples of GrPW-NC phase change material (PCM) are prepared with a low mass fraction of graphene varied from 0.0 to 2.0 wt.%. However, the best performance with regards to thermal conductivity is given by 2.0 wt.% GrPW-PCM nanocomposites, which has been improved 66.15% when compared with pure paraffin PCM.

Article PDF Available

Multi-Optimization of Process parameters for Inconel 718 While Die-Sink EDM Using Multi-Criterion Decision Making Methods

July 2019 · Journal of Physics Conference Series 1240(1):012166
DOI:10.1088/1742-6596/1240/1/012166
Project: Non Convention Machining (Hybrid)

Authors:

Vikas Sharma
GLA University

Joy Prakash Misra

Piyush Singhal
GLA University

Abstract and Figures

The objective of the paper is to apply Multi-criterion Decision Making methods in manufacturing specially in machining using EDM and to obtain an optimal setting of process parameters resulting in an optimal value of the material removal rate and tool wear rate while EDM for Inconel 718 using copper cadmium as electrode Taguchi L9 array has been used to design the experiments, the results are further analyzed using Multi-criterion Decision Making techniques named Technique for order preference by similarity to ideal solution TOPSIS and Preference Ranking Organization Method for Enrichment of Evaluations (PROMETHEE) to investigate the multi-optimization of response characteristics for Inconel 718.

Experimental Details

Separation measures from…

Net Dominance Matrix

Journal of Physics: Conference Series

ICRESH
2019

4th INTERNATIONAL CONFERENCE ON RELIABILITY, SAFETY & HAZARD (ICRESH)-2019

(Advances in Risk based Technology)

CERTIFICATE

It is to certify that Dr./Ms./Mr. Akash Sharma participated in the conference held during January 11-13, 2019 in Chennai and presented a paper on "A Framework of Reliability Centered Maintenance" in the conference.

P.V. Varde
Conference,Convenor

N.S. Joshi
Conference, Secretary

A Comparative Study of Micro-structural and Mechanical properties of Aluminium Alloy AA6062 on FSW and TIGW Processes

Akash sharma, V k dwivedi

Abstract: ***FSW (Friction Stir Welding) and TIGW (Tungsten Inert Gas Welding) are broadly known welding processes, FSW and TIGW both are acknowledged throughout the industries globally in current age. The aluminum alloys are used widely in Aviation, Shipbuilding and also in general engineering because it is having many applications in these sectors. In this paper a comparative study of Aluminum Alloy AA6062 properties on TIGW (Tungsten Inert Gas Welding) and FSW (friction stir welding) are obtained. Mostly in all the welding processes the purpose is to get welded joint by having its desired weld bead parameters, higher mechanical properties with the low distortion. The quality of the weld is determined through mechanical properties, bead geometry, and distortion. In this paper AA6062 (Aluminum Alloy) similar metal is joined, appraised and compared in TIGW and FSW welding processes for studying the welding process parameters and there different configurations.***

Keywords: ***Friction Stir Welding, Tungsten Inert Gas Welding, Mechanical properties, Aluminum Alloy, Microstructure.***

I. INTRODUCTION

Welding is a fabrication process where the application of heat is used for joining two material pieces together. In current scenario there are different-different welding processes which are adopted by the industries in current age for joining the metal work piece with a superior weld quality having high strength. Nowadays aluminum and its alloy are very highly demanding in many of the industries because if there is a comparison in different metal then the aluminumstood next to steel. Welding process generally depends upon the various factors like physical and chemical properties of the metal on which welding process is to be performed, through aluminum various components are easily produced because it is very compatible and various manufacturing processes like Casing, Forging, Extrusion and Machining etc. can be easily performed and by doing all these process easily a components are manufactured but for building a complete structured product a vital role is playedby welding process through which the components are joined together which makes a complete structures product assembly. Welding is a process which is mainly used for creating a complete product by joining different components of that product together with a very high strength joint.

Revised Manuscript Received on March 04, 2019.
Akash sharma, Mechanical Engineering Department GLA UNIVERSITY Mathura, india.
Dr. V k dwivedi, Mechanical Engineering Department GLA UNIVERSITY Mathura, india.

Welding process is widely adopted throughout the industries in current scenario and through this process components are manufactured and are widely used in many sectors like Automotive, Aviation etc.

II. LITERATURE REVIEW

Tungsten Inert Gas Welding (TIGW) also known as Gas Tungsten Arc Welding (GTAW) is a process where the heat is generated through the high temperature are produced using the electrical energy during the welding process. TIGW (Tungsten Inert Gas Welding) process can be can be done by using the filler material and also it can be easily done without using filler material. In TIGW process a Non-Consumable electrode is used through which the weld is produced. In this welding process Inert Gas is used for safeguarding the weld region from atmospheric contamination because Inert gas acts as a shield in TIGW welding process. TIGW process requires a Non-Fluctuating continuous current so that the required arc is generated [1,2]. Mostly this TIGW process of welding is used for Non-Ferrous thin plates of Magnesium, Aluminium, Stainless Steel and Copper [3]. TIGW process is complex as compared to other welding process like GMAW (Gas Metal Arc Welding), SMAW (Shielded Metal Arc Welding) etc. The figure of TIGW (Tungsten Inert Gas Welding) is shown below in figure 1.

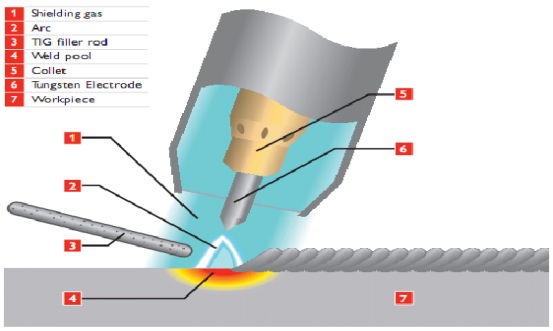

Fig.1 Tungsten Inert Gas Welding Process

FSW (Friction Stir Welding) is a process of joining two metal work piecesby the heat generated through the stirring of the non-consumable tool. In FSW the tool stir and due to stirring of the tool friction is generated and heat at very high temperature is obtained which brings the metal to its plastic stage it forms a strong bond with each other and the high

ISME–120

The Numerical Design of Earth-to-Air Heat Exchanger: An Extensive Study

A. Kundu[1*] and S. Ray[2]

[1,2] Department of Mechanical Engineering, Jalpaiguri Government Engineering College, West Bengal 735102, India

*Corresponding author: arijit.kundu@me.jgec.ac.in

Abstract

Renewable energy policy and techniques are implemented with a thriving interest in natural heating, ventilation and air-conditioning towards ecological sustainability in recent times. In-house air preconditioning with earth-to-air heat exchangers (EAHE) is an efficient and eco-friendly approach for dipping ventilation heat annihilation and humanizing usual comfort in buildings. This paper shows the basic physics behind EAHE, its brief history and the numerical and analytical study steps with the simulation tools utilized around the world in order to explore the design and attributes of EAHEs

Keywords: renewable, EAHE, numerical, simulation.

ISME–122

Non-Conventional Energy Scenario in India

Akash Sharma[1*] and Dr. V K Dwivedi[2]

[1]M.tech Student, Mechanical Engineering Department, GLA University, Mathura- 281406, Uttar Pradesh, India.

[2]Associate Professor, Mechanical Engineering Department, GLA University, Mathura-281406, Uttar Pradesh, India.

*Corresponding author: akashsharmacb@gmail.com

Abstract

Energy is necessary for continued existence. The major source of energy is oil, gas, coal and nuclear power b they are decreases gradually moving towards renewable energy source is an alternative to accumulate th conventional energy sources, India has rich availability of renewable energy resource with a huge land figu which receives the utmost solar irradiation throughout worldwide. Also because of High wind velocities as well long coastline which offers adequate chances for wind farms. Renewable energy foremost contributes to th identical challenges of retorting to upward worldwide claim for energy solution, while reduction in undesirab influences allied with existing production and use. Renewable energy can support in advanced energy security worldwide, national and local levels. Mostly the forthcoming augmentation in energy need is usual to take pla in developing countries and in contradiction of a contextual of mounting prices of fossil fuel and resour constrictions; This increase thoughtful anxieties about energy security. The attraction of renewable energy because of the inferior charge of manpower as well good quality production. This paper gives an overview of r renewable energies scenario in India and current status of renewable energy in India.

Keywords: Wind energy, Solar Energy, Bio-Mass Energy, Small Hydropower.

Energy
Volume 194, 1 March 2020, 116853

"Performance comparison of innovative spiral shaped solar collector design with conventional flat plate solar collector"

Sujit Kumar Verma, Kamal Sharma, Naveen Kumar Gupta, Pawan Soni, Neeraj Upadhyay

https://doi.org/10.1016/j.energy.2019.116853

Highlights

- Progress of civilization is driven by energy.
- Material and maintenance cost can be further reduced.
- Entropy generation for spiral collector is moderately lesser.
- Thermal efficiency for spiral tube collector is higher.
- Exergy efficiency is reciprocal to growth in entropy.

Abstract

Demand Forecasting of Dairy Products for Amul Warehouses using Neural Network

Vimal Kumar[1*], Rajkumar Sharma[2], Dr. Piyush Singhal[3]

[1*]GLA University, Department of Mechanical Engineering
Mathura (U.P.) India
Vimal.kumar_mtme17[at]gla.ac.in

[2]GLA University, Department of Mechanical Engineering
Mathura (U.P.) India
raj.sharma[at]gla.ac.in

[3]GLA University, Department of Mechanical Engineering
Mathura (U.P.) India
piyush.singhal[at]gla.ac.in

Abstract: ***Demand forecasting is very intensive research area now a day as it significantly affects the revenue growth of industries. In this paper, demand forecasting of amul butter for "Aman warehouse private limited Agra" of different cities has been presented using artificial neural network technology. Supply chain consists of manufacture, warehouse and customer. Model of network has been build up with last three years historical data. First input variable is associated with population. Second and third input variables are associated with no of restaurant, hotels, colleges and types of places (sub parameter tourist, religious, historical, industrials) respectively. Output variable is linked with demand. Result shows that demand prediction using neural network in tunewise. He provided by Aman warehouse supply chain managers.***

Keywords: Network, forecasting, supply chain management, population.

1. Introduction

Seasonal changes are related to butters demand festival, government policy, types of place many types. These factors have effective on short term butter demand. These seasonal changes index used in this paper butter demand forecasting together with multi methodology. The projection technique was test and compared to actual data distributor situated at Agra up in India. Butter demand is demand by costumer because huge recruitment of urban, rural, hotels, restaurant and types of places. The developed forecasting accurately fatly and shortly. Neural network (NN) has been used for butter demand to correlate non-linear, multiple and complex application. The distributor of amul products such as butter, cheese, gee, milk, chokolate, spray are affected by factors such as the season, area, delay transport. These factors make it difficult to accurate forecasting the sales and demand of dairy products.

There are three input factors that following to butter forecasting.

- Population factors
- No of restaurant, hotels, college
- Types of places

The demand forecasting and neural network of literature reviews is show on section 2. Methodology is analysis in section 3. Section 4 presented the result are discussion. Section 5 presented the conclusion at future scope.

2. Literature reviews

The researcher has developed many direction of demand forecasting with that neural network approaches. Zhan-Li Sun et al.[1] Presented an artificial neural network application based on multivariate backprapogation analysis, which can accurately predict too many factors (shells, price, deigns and colures) in retailer fashion industries. Tug˘ba Efendigil et al. [2] proposed a CNN and ANFIS techniques based on many factors time series analysis, Which evaluated predict to real world historic data in goods consumer industries Istanbul (turkey). Kenji Tanaka [3] proposed sales forecasting model for improving the accuracy of demand prediction based on japans books in electronic media released. They indicated input factors electronic media sales demand and that the compare to total demand to these sales forecasting will improve the demand prediction accuracy. They used neural network application to evaluated of this indicator and improved prediction demand. In a study carried out of Yanrong Ni et al. [4], the future demand for a study of dairy industry and technology services was predicted with two factors (influence and impact) indentified as demand used nonlinear forecasting model input. The prediction of this study were made by ART and error forecasting model to the short term and long term method data family, and ultimately the results were compared. Vinutha H.D [5] used a short term load forecasting (STLF) neural technique to predict the demand of electric load at a city. This neural network was deigned to receive demand on days week and years. This study examined the effect of no of neurons in input factors to prediction electric load data. The study by Prasanna Kumar et al. [6], they collected the three years data valve manufacturing industries in

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Forecasting of Demand for Small Medium Enterprises Using Fuzzy Logic

Shubham Garg[1*], Rajkumar Sharma[2], Dr. Piyush Singhal[3]

[1*]Department of Mechanical Engineering, GLA University, Mathura (U.P.) India
Shubham.garg_mtme17[at]gla.ac.in
[2]Department of Mechanical Engineering, GLA University, Mathura (U.P.) India
raj.sharma[at]gla.ac.in
[3]Department of Mechanical Engineering, GLA University, Mathura (U.P.) India
piyush.singhal[at]gla.ac.in

Abstract: ***Demand prediction is very important research area now days as it significantly affects the revenue growth of industries specifically SMEs. In this paper, a framework is proposed using fuzzy logic and tested with a case of demand forecasting of generator (7.5 KVA) for Prakash Diesels Private Limited, Agra. The supply networks consist of suppliers, manufacturers, distributors and customers. Models for demand prediction has been prepared using last one year historical data and configured into fuzzy background by building different membership functions. The membership functions for input variables (Month, Area, & Cost) and output variables (Demand) are plotted. The first input variable 'month' is associated with twelve sub parameters (January, February, march, April, May, June, July, August, September, October, November & December). The second and third input variables 'area' and 'cost' are associated with three sub parameters (rural, urban & mix) and (high, low & equal) respectively. The output variable is mapped to demand of generator. Results show that demand prediction using fuzzy logic are in tune with demands collected from supply chain managers of Prakash Generators.***

Keywords: Fuzzy, Membership function, prediction, forecasting, Inference, Mamdani

1. Introduction

The supply chain management (SCM) is a network of facilities, information, transportation, distribution and customers. A supply chain starts with the delivery of raw material from the supplier to the end customer. J. A. Momoh SM and K.Tomsovic [1] told that fuzzy set theory is a useful supplement to the mathematical methods in solving the power system problem. Anbuky et al. [2] used fuzzy logic in providing the data and information of the demand prediction to the power generator. Petrovic et al. [3] applied the fuzzy logic when the supply chain is under uncertain demand of the generator .Uncertain demand is associated with customer demand. Tah and Carr [4] informed the different methods and techniques for dealing with risk analysis, risk management and different results. Carr and Tah [5] describe a method for risk assessment based on fuzzy logic. It uses linguistic term for mapping of the membership function. Rodriguez et al. [6] suggested that mamdani inferences are the main types of inference model of the fuzzy. The mamdani inferences combine fuzzy rules into a mapping from fuzzy input to fuzzy output. Chen and Lee [7] explained the membership function is used in fuzzy decision, fuzzification, defuzzification and fuzzy product prices of the overall decision. Pandian et al. [8] has studied the load forecasting for generator dispatch, etc. Arshinder et al. [9] told that the different coordination are information sharing, information technology. Kim et al. [10] applied the demand analysis method are average of 50% of accuracy with fuzzification and 50% of accuracy with defuzzification. Mamlook et al.

[11] informed the load forecasting in providing the generator cost of the capacity. Demand forecasting is the most important of the electric, dispatch and loading of the generator used in the demand forecasting. Peidro et al. [12] informed fuzzy logic model for supply chain which considers the demand , supply and process uncertainties. Ko et al. [13] informed the fuzzy logic operates (such as if, and, or, not and then) and defuzzification (transformation of fuzzy set into a fuzzy crisp value). Tah and Carr [14] has studied the risk management of the considers is time, cost, delivery and customer satisfaction. Morote and Vila [15] presented the use of fuzzy inference system (FIS) with compare the fuzzification and defuzzification with the help of membership function of the fuzzy logic. Shaw et al. [16] applied the considers of multi factors is fuzzy multi – objective linear programming for the supplier selection of the demand forecasting. Chen et al. [17] informed the proposed fuzzy controller is dealing with uncertainties in data collection to provide the product of the demand prediction of the fuzzy logic. Wang et al. [18] commonly used in triangular fuzzy number shapes. This paper presents the case study of Prakash Diesels Private Limited. The demand of generator has been predicted using fuzzy logic. Introduction of fuzzy logic is provided in section 2. Data collection is shown in section 3. Section 4 determines the design of membership function for input and output variables. Section 5 presented the result and discussion. The conclusion and future scope in Section 6.

2 Fuzzy Logic

Fuzzy Logic was developed by Lofti A. Zadeh in 1965. Fuzzy logic is based on many-valued logic rather than binary logic .The binary logic is considers either zero or one. Whereas fuzzy logic can accept any value between zero and one a fuzzy logic membership function of each input and output variable are decided using the linguistic term. Structure of fuzzy logic is shown in figure 1.

Features of Membership functions –

Article

Nano-microstructural characterization of INCONEL-718 with thermal-barrier coatings after thermal shock tests

January 2019

Authors:

Vibha

Vijay Dwivedi
GLA University

Dipak Kumar
Raj Kumar Goel Institute of Technology

Citations (2)

Abstract

The immovability and permanence of thermal barrier coatings is very significant parameter for turbo machinery used at high atmospheric temperature such as turbine, compressor used in power generation and space industry. In this paper nano-structured ceramic pinnacle coating of 8YSZ (8wt%Y 2 O 3 ZrO 2) and NiCoCrAlY atomic bond is deposit on Ni based super alloy INCONEL718 by air plasma spray (APS). Thermal shock test of INCONEL718 has been performed as a function of temperature at 1100°C. This thermal shock testing is performed with 45 min heating and 15 min cooling in water and air separately. Delamination is observed due to thermal fatigue damage on 8YSZ coating. Damage of work piece is originated at the corner due to thermal fatigue and is sustained upto 20 cycles, 8 cycles for air and water cooling respectively. Nano-Microstructure characterization was done by high resolution scanning electron microscopy-energy dispersive x-ray (HRSEM-EDX). Result from HRSEM-EDX is co-related to nano and Micro structural development of thermal barrier coatings. After conducting of water and air cooling, lots of non-regular shaped nano size agglomerated clusters were observed in the 8YSZ coating. These non-regular structured leads to the formation of weak in the bond which cause delamination of coatings.

No full-text available

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Performance enhancement analysis of triangular solar air heater coated with nanomaterial embedded in black paint

Rahul Kumar, Sujit Kumar Verma, Vikas Kumar Sharma

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Abstract

Solar energy plays a very essential role in the drying purpose and for heating the buildings. In an experimental setup, the heat transfer takes place from the glazing plate to two absorber plate of a triangular solar air heater. The complete inner wall of the two absorber plate was heated consistently, while their external surface is thermally insulated, therefore absorber plate coating is fabricated by 1% graphene nanomaterial into the black paint. To enhance performance, the solar selective coating should be used. The work focus on an analytical and numerical investigation related to the efficiency of a triangular solar air heater during day hours and a comparison of efficiency with or without new solar selective coating. The parameters which are calculated in this investigation glass temperature, absorber plate mean temperature and efficiency. The maximum rise in efficiency is 43.15% for black paint coating and 48.23% for 1% graphene nanomaterial in black paint coating at the time of 12 h for the air velocity 1 m/s. TSAH with new material coating on the absorber plate shows higher thermal efficiency.

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Plastic deformation of a metallic pre form

Vikas Kumar Sharma [a], Manoj Kumar Agrawal [a], Surender Kumar [b]

[a] Dept. of Mechanical Engineering, GLA University, Mathura, U.P., India
[b] IURISD, CA 94536, USA

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ABSTRACT

At work die interface investigators have used stationary die to analyze and predict the pressure and die load distribution. In this paper high speed forging with vibrating die tribological problems during forging operation have been examined. The process is influenced by several process parameters. Mathematical modeling and experimental results of the process parameters can be a useful tool for new product or process development to ascertain the load requirements, velocity fields and interfacial friction conditions, compacted at various load conditions.

Selection and peer-review under responsibility of the scientific committee of the 10th International Conference of Materials Processing and Characterization.

1. Introduction

Sinter forging is a recent technology which is capable of producing near-net shape components with very close tolerance and high precision. The inherent techno-economic advantages of the process have led to rapid adoption of sinter forging technology by most of the industrial units engaged in material processing of the materials. As such, sintered forging has become an area of interest for economic production of components of high engineering properties from metal powder. The deformation behavior during metal powder compression is entirely different from the compression of wrought metals, as it is characterized by change in volume due to change in porosity. A number of investigators have used the appropriate yield criteria and compatibility conditions to theoretically analyze and predict the pressure and die load distribution at work die interface using stationary die. At high speed experiments have been conducted for cold forging of iron powder preforms using stationary and vibrating dies to ascertain the load requirements, velocity fields and interfacial friction conditions, compacted at various load conditions. During the analysis of die load, an appropriate inter-facial friction law, yield criterion and inertial forces for porous metal preforms have been considered which were established from experimental results. Equilibrium energy methods have been used for predicting the deformation patterns and die load for sinter-forging process (Fig. 1).

2. Experimental work

The purity of iron powder used in the experiments is about 97%. The physical and chemical properties are given below (Tables 1 and 2).

2.1. Preparation of specimens

Specimens have been prepared by compacting iron powder with the help of die with lubricated walls, using a 80 Ton press at different pressure and sintered at different temperature from 900 to 1250 °C. The iron powder preforms with relative density 0.75 is forced between flat dies. For evaluating the forgedability, the sintered iron powder preforms of different relative densities are deformed using flat dies at room temperature and load is applied till crack appears. Different measurements were made like forging load with % reduction in height, relative density with respect to load and amount of barreling (Table 3).

Fig. 2 shows that the relative density increases rapidly initially and then remain almost same as load increases. The preform starts yielding when $\rho \approx 1$. The pattern varies from center to the edge in the inner region, no relative movement between the preform and die whereas in outer region sliding takes place (Fig. 3).

Fig. 4 shows the percentage reduction in height of the specimen during forging at various forging loads under axisymetric conditions with static and vibrating dies.

It has been observed that for the same percentage reduction in height of specimen the die load during cold forging of sintered iron

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Numerical Solution of Load-Bearing Capacity of Journal Bearing Using Shape Function

Authors | Authors and affiliations

Pooja Pathak, Vijay Kumar Dwivedi, Adarsh Sharma

Conference paper
First Online: 13 December 2018

Part of the Lecture Notes in Mechanical Engineering book series (LNME)

Abstract

The increasing demand of high speed with high reliability for longer life and noiseless operation requires a compact size bearing. For the exact calculation of load-bearing capacity requires mathematical expertise to solve two-dimensional fluid flow Reynolds equation. In this chapter, Gauss–Legendre numerical integration is used to calculate the load-carrying capacity of bearing.

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Human Dynamic Analysis and Inference system on Health problems and Stress in IT Industry by using Soft Computing Techniques

Pooja Pathak
Associate Professor
GLA University
Mathura, India
pooja.pathak@gla.ac.in

Sandeep Rathor
Assistant Professor
GLA University
Mathura, India
sandeep.rathor@gla.ac.in

***Abstract*—IT business is known all inclusive for its quick paced nature where innovation is changing the face for business consistently. The sheer idea of industry is with the end goal that they require high accessibility and duty from everybody utilized in IT. The activity requires IT experts invest tremendous measures of energy before the PC screen while observing systems, designing applications and organizing technology projects. Our paper accentuation upon the investigation of human changing angles as: preconditions for employment stress, personal satisfaction and administrative impacts. A modified human dynamic analysis and inference system (HDAIS) was adopted and a risk predictive fuzzy reasoning approach (RPRA) based system is proposed to predict the likelihood of health and stress issues by using soft computing techniques. The used parameters in our paper are: age, involvement of IT proficient, no. of hours spend on PC, stretch out of impact on body parts, machine utilized at working environment or at home.**

Keywords— Risk predictive fuzzy reasoning approach(RPRA), Human dynamic analysis and inference system (HDAIS), Stress prediction.

I. INTRODUCTION

The IT industry exists with the well-recognized fact of having the most demanding working environment, in which rests and health of the professional are part and parcel of the package. The declining health condition and increasing stress levels at workplace has always drawn the attention of researchers working in the field of health, stress and safety. The IT business of India has recorded a most grounded development in the ongoing past, with the desire that India IT fare will outperform $225Bn by 2020. Toward the finish of financial year 2019, the industry had income of $181 billion, including income from the domestic market.

Information Technology (IT) business in India has got a wonderful increase due to development of Indian economy and promising government strategies. IT and IT related professionals are at a constant pressure due to deadlines for projects and other assignments [1][2]. It is a fact that in this scenario where globalization and privatization demands network relationships, job insecurity with future working condition and fast obsolescence of skills leads to stress [3]. Common health problems that are induced due to stress are insomnia, skin diseases acid gestural disease diabetes asthma, fatigue, hypertension, alcoholism, irritable bowel syndrome, tension headache, pruritus, neurodermatitis etc. IT industries are the fastest growing business in India. IT and ITES employees face the higher level of stress as compare to other industry.

The objective of the proposed work is to frame the level of stress with IT and ITES service provider's employees in India using soft computing techniques.

The rest of this paper is organized as follows: Section 2 represents related work proposed by various researchers with this context. The proposed methodology is explained in Section 3. The results and discussions are shown in Section 4 and finally, Section 5 presents conclusions.

II. RELATED WORK

This section contains the related work proposed by various researchers in this context.

According to Margit Koller [4] each organization should plan for consistent health management and periodic measures for night shift and lateral shift workers .These should be proactive measures to reduce the health risks and hazardous work conditions. Not only it is important for all enterprises to adhere to ILO Night Work Convention 1990 but various government agencies, departments should give permissions in accordance with the ILO Night Work Convention 1990 and include: (a) there should be an adequately equipped health service facility for night and shift workers, including psychotherapy; (b) Availability of first aid facilities with proper equipments in all shifts; (c) When employee is unfit for night work for health reasons should have the option of transfer from night to day work; and (d) special maternity protection as a safety measures for women on night shifts. Employers should have provision of compulsory periodic health assessments for staff or workforce coming in night shifts, additional rest gaps, supplementary free time and early retirement subject to the years of experience.

Preben H. Lindoe et. al., [5] had given an idea on antecedents of computer anxiety in their research. Paul et. al., [6] provided insights on ergonomics of workstations covering desktop design, seating postures, desk space and quality, Occupational health and safety. Ashraf et. al., [7] worked on issues that affected employees productivity, efficiency and comfort of the working environment. In this paper author has highlighted how ergonomics can lead to poor health conditions and eventually the productivity of employees in the organization.

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Study of melting curves for some transition metals

K. Sheelendra [a,b], A.Vijay [a,*]

[a] Department of Physics, GLA University, Mathura 281406, India
[b] Department of Physics, C.C.S. (P.G.) College Heonra, Saifai, Etawah 206130, India

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ABSTRACT

The volume dependence of the Grüneisen parameter has been used to calculate the pressure dependence of melting temperature using Lindemann law. The volume dependence of the Grüneisen parameter for some transition metals viz, Cu, Ni, Pd, and Pt has been determined using Shanker reciprocal relationship between γ and the ratio of pressure and bulk modulus. In this study, volume dependence of the Grüneisen parameter for some transition metals using the Stacey and Davis formulations for infinite pressure. The results for γ have been found similar from both the formulations given by Shanker and Stacey-Davis. The values of melting temperature are calculated and different pressures and Equation of state compared with the available data reported in the literature.

Selection and Peer-review under responsibility of the scientific committee of the Recent Trends in Environment and Sustainable Development (RTESD-2019): Materials Science.

1. Introduction

Melting is an important phenomenon while referring to the domain of condensed matter physics. The Lindemann law gives the most popular theory for predicting melting temperature of a material under changing pressure. The derivative of melting temperature $T_m$with respect to pressure is directly related to the Grüneisen parameter. Thus for determining T_m at different pressures we need to know the values of gamma as a function of pressure. Thus the values of γ obtained in the present study using the reciprocal gamma relationship have been used for calculating T_m of different materials under the effect of pressure.

Anderson et al. [1] have presented an analysis of the high-pressure melting temperature of hcp iron using three different approaches viz. the Lindemann-Gilvarry law [2,3] taking into account the volume dependence of Grüneisen parameter γ the Clausius-Clapeyron equation accounting for the liquid state of melting, and the Poirier dislocation – mediated melting [4,5]. The Lindemann-Gilvarry law, most frequently used in the recent literature, is written as follows.

$$\frac{d\ln T_m}{d\ln V} = -2\left(\gamma - \frac{1}{3}\right) \quad (1)$$

In order to determine values of melting temperature T_m at different compressions or pressures by integrating Eq. (1), we need to know γ as a function of volume V. There have been various attempts [1,6–9] to develop formulations for γ(V). A physically acceptable expression for γ(V) must satisfy the following thermodynamic constraints: (1) γ decreases continuously with the increase in pressure and tends to γ_{∞}, a positive and finite value greater than 2/3 for a given material in the limit V → 0 and P→∞. (2) q = dlnγ/dlnV also decreases with the increase in pressure and becomes zero in the limit of extreme compression. (3) λ = dlnq/dlnV, the third order Grüneisen parameter, also decreases with the increase in pressure, but approaches a positive and finite value equal to λ_{∞} in the limit of infinite pressure [10–13]. In the present study we use a formula for γ(V) which satisfies all the three constraints.

2. Volume of dependence of Grüneisen parameter

Anderson et al. [1] have investigated an empirical relationship between γ and V for hcp iron using the laboratory data. This relationship is written as follows.

$$\gamma = 1.0505\ln V - 0.2799 \quad (2)$$

Anderson et al. [1] reported Eq. (2) as a new result based on the experimental data for hcp iron, and used it in the Gilvarry law to determine values of T_m at different pressures. It should be emphasized here that Eq. (2) is not physically acceptable. In the limit of

* Corresponding author.
E-mail address: anujvijay@gmail.com (A.Vijay).

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Higher order thermoelastic properties of some transition metals at high pressures

K. Sheelendra [a,b], A. Vijay [a,*]

[a] Department of Physics, GLA University, Mathura 281406, India
[b] Department of Physics, C.C.S. (P.G.) College Heonra, Saifai, Etawah 206130, India

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Grüneisen parameters
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ABSTRACT

The infinite pressure theory due to Stacey has been used to calculate the higher-order Grüneisen parameters for some transition metals at high pressures [2,3]. The results have been obtained using the Shanker reciprocal gamma relationship. The results have also been determined using the Stacey- Davis formulations for the third-order Grüneisen parameters [1–3]. The calculations have been performed in the case of transition metals viz. Fe, Co, Ni, Cu, Zn, Mo, Pd, Ag, Cd, Pt, Au, and the Ti for the wide range of compressions. It has been found that both the models yield close agreement with each other. The results obtained in the present study satisfy the thermodynamic constraints in the limit of infinite pressure.

Selection and Peer-review under responsibility of the scientific committee of the Recent Trends in Environment and Sustainable Development (RTESD-2019): Materials Science.

1. Introduction

The Grüneisen parameter γ is an important physical parameter directly related to thermo-elastic properties of materials [1–5] as follows

$$\gamma = \frac{\alpha K_T V}{C_V} = \frac{\alpha K_S V}{C_P} \tag{1}$$

where α is the thermal expansivity, K_T and K_s are isothermal and adiabatic bulk moduli, C_v and C_p are specific heats at constant volume and constant pressure, respectively. γ decreases with the increasing pressure *P* or decreasing volume V.

There have been various attempts [6–10] to formulate expressions for γ(V) as well as γ(P). The most critical examination of these formulations can be made by applying the thermodynamic constraints for the higher–order Grüneisen parameters [3,11–13] at extreme compression in the limit of infinite pressure. To study the thermodynamic properties of materials it is necessary to have appreciable information about the Grüneisen parameter and its higher derivatives [5]. The higher order derivatives for thermoelastic properties such as pressure derivatives of bulk modulus, higher order Grüneisen parameters γ, q, λ, and ξ are based on pressure derivatives of bulk modulus viz. KK'' , K^2K''' etc. In the presented study, we have been determined the higher–order Grüneisen parameters in the case of transition metals viz. Fe, Co, Ni, Cu, Zn, Mo, Pd, Ag, Cd, Pt, Au and Ti for the wide range of compressions.

2. Formulation for γ(V)

According to the Stacey- Davis model, we can write

$$\lambda = \lambda_\infty + (\lambda_0 - \lambda_\infty)\frac{q}{q_0} \tag{2}$$

On integrating Eq. (2), we get

$$q = q_0\left[1 + \frac{\lambda_0}{\lambda_\infty}\left(\frac{V_0}{V}\right)^{\lambda_\infty} - \frac{\lambda_0}{\lambda_\infty}\right]^{-1} \tag{3}$$

and further integration gives

$$\gamma = \gamma_0\left[\frac{\lambda_0}{\lambda_\infty} - \left(\frac{\lambda_0}{\lambda_\infty} - 1\right)\left(\frac{V}{V_0}\right)^{\lambda_\infty}\right]^{-\frac{q_0}{\lambda_0 - \lambda_\infty}} \tag{4}$$

It has been found [7,10] that if we assume

$$\lambda_0 - \lambda_\infty = q_0 \tag{5}$$

Eq. (2) on differentiation yields

* Corresponding author.
E-mail address: anujvijay@gmail.com (A. Vijay).

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Chapter 13
Spiritual Preaching in India: English as a Tool for Religious Propagation

Pinak Sankar Bhattacharya

Abstract From the very beginning of its introduction in India, English, though a language of colonial masters, functioned as an effective instrument of resistance. Many political activists, religious leaders, and social reformers used English to counter the British agenda of colonisation of minds and lands of people. The English-educated elite of colonial Bengal, for example, transformed the 'master's language' into an instrument that helped revive the crumbling Hindu religion. However, as access to English language was confined to a handful of people, it created its own kind of binaries in the Indian social and religious system. In the post-colonial era, English has been transformed into a phenomenon of mass expression as per the market requirement of 'demand and supply'. Hence, what served as a medium of upliftment for the preachers of colonial era has shrunk into a mere TRP tool for the tele-evangelists in the postcolonial era. The paper attempts to explore the ideas of 'religion' and 'religiosity' focusing on the usage of English by the Indian preachers from different eras.

Keywords Religion · Religiosity · Preachers · Tele-evangelists · Consumerism · Hinduism · Brahmo Samaj

> I have no knowledge of either Sanskrit or Arabic. But I have done what I could to form a correct estimate of their value. I have read translations of the most celebrated Arabic and Sanskrit works. I have conversed, both here and at home, with men distinguished by their proficiency in the Eastern tongues. I am quite ready to take the oriental learning at the valuation of the orientalists themselves. I have never found one among them who could deny that a single shelf of a good European library was worth the whole native literature of India and Arabia. The intrinsic superiority of the Western literature is indeed fully admitted by those members of the committee who support the oriental plan of education. (Macaulay 1965, p. 109)

In 1835, the implementation of the English Education Act passed by the British Parliament paved the way for English education in the Indian subcontinent. Moving

P. S. Bhattacharya (✉)
Department of English, GLA University, Mathura, Uttar Pradesh, India
e-mail: pinak.bhattacharya@gla.ac.in

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namely, *M. tuberculosis*, *M. marinum* and *M. ulcerans*. Phenotypically, *M. leprae* shows different infection and replication capacity with pathogenic bacilli in macrophage. The strain activated NF-kappa B, Cytokine and Chemokine of host innate immune-related signaling pathways, similar gene expression profiles and shared common early-response with pathogenic bacilli. *M. leprae* upregulated specific host response genes, such as CCL4, DSCAM and CD11.

Conclusion: In this study, we exploited *M. leprae* as a unique resource, to conduct the most comprehensive study of differential gene features in *Mycobacterium species*. We provided insights into the genome characteristics of *M. leprae* and mechanisms of host-pathogen interaction mechanisms by comprehensive comparative analysis of its genome and host response transcriptome. These data will help to elucidate how increased variability of gene expression and effective adaptability potentially affect the pathogenicity of the mycobacteria and the immune processes of the host.

P-359

DIVERSITY OF NONTUBERCULOUS MYCOBACTERIA FROM DIFFERENT BLOCKS OF PURULIA DISTRICT WEST BENGAL OF INDIA

Presenter: Vikram Singh

V. Singh[1], S. P. Turankar[1], M. Lavania[1], I. Singh[1], V. K. Pathak[1], M. Ahuja[1], J. Darlong[2], A. Goel[3] and U. Sengupta[1].

[1]Stanley Browne Laboratory, The Leprosy Mission Trust India, Delhi, India; [2]TLM Purulia Leprosy Home & Hospital, Purulia, West Bengal, India; [3]DLA University, Mathura, Uttar Pradesh, India

Objectives: Nontuberculous mycobacteria (NTM) are ubiquitous environmental opportunistic pathogen found in soil and water which includes more than 198 different mycobacterial species (http://www.bacterio.net/mycobacterium.html). The aim of the present study is to isolate the NTM species from leprosy patient inhabitant area soil and water samples and its association with viable *M. leprae* from the leprosy endemic pockets of Purulia, West Bengal.

Methods: Total 268 and 160 samples were collected from residing environment of leprosy patients from 19 different blocks of Purulia district West Bengal. The environmental samples were processed for decontamination followed by culture on the Lowenstein Jensen(LJ) media for isolation of NTMs. Identification of NTM species was done by PCR using universal primer *16S rRNA* gene target of mycobacteria and Sanger sequencing method. PCR and RT-PCR were performed for the detection of viable *M. leprae* from environmental samples. The Phylogenetic tree was constructed by using 'Mega X' software to find out the Phylogenetic association between *M. leprae* and NTMs.

Results: *M. leprae* DNA was noted in 80(30%) soil samples and 29(18%) water samples. Further, viable *M. leprae* was detected using RT-PCR from 40(15%) soil and 20(13%) water samples. Out of 52 NTM isolates from soil, 29(56%) were SGM confirmed by PCR sequencing method such as *M. simiae(4)*, *M. holsaticum(1)*, *M. europaeum(3)*, *M. chimaera(1)*, *M. scrofulaceum(5)*, *M. parascrofulaceum(5)*, *M. intracellulare(10)*. Twenty three (44%) were RGM confirmed by PCR sequencing method, such as *M. fortuitum(15)*, *M. smegmatis(3)*, *M. timonense(3)* and *M. vaccae(2)*. Thirty six NTM isolates were obtained from water samples, out of which 15(42%) were SGM confirmed by sequencing method such as *M. simiae(1)*, *M. europaeum(4)* *M. scrofulaceum(5)*, *M. parascrofulaceum(5)* and *21(58%) were* RGM including *M. fortuitum(15)* and *M. smegmatis(6)*. Out of all RGM group, *M. timonense* was isolated for the first time from environmental soil sample in recorded literature, out of all SGM group, *M. holsaticum*, *M. europaeum*, *M. simiae* and *M. chimaera* was isolated first time from environmental samples. It was observed that *M. fortuitum* and *M. intracellulare* was recorded as the most prevalent RGM and SGM species respectively from this region. The Phylogenetic tree reveals that *M. leprae* is closely related to *M. simiae* and distantly related to *M. vaccae*.

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THE NATIONAL ACADEMY OF SCIENCES, INDIA

5, Lajpatrai Road, Prayagraj - 211002, India

very important and share equal status for many medicinal attributes.

24. Pharmacological evaluation of ficus religiosa for their in- vitro hypoglycemic activity

Poonam Pandey, Geeta Patel and I.P.Tripathi

M.G.C.G.V Chitrakoot, Satna, M.P., E.mail:poonammp0@gmail.com

Diabetes mellitus is a metabolic disorder and the management is an important criterion for pharmacotherapy. The medicinal plants play very important role in preventing the progress of the disease. The present study deals with screening of polyherbal extracts using in-vitro techniques for its antidiabetic activity. The plants used in the present study are *Ficus religiosa*. *Ficus religiosa* are plants from *Ficus* species used traditionally for the treatment of various ailments.

25. Genetic variation and genotyping of HSPA6 gene by high resolution melting analysis in Indian goat breed

Rakesh Kaushik[1,2], Anjana Goel[1], P.K.Rout[2]and M.S.Dige[2]

[1]Department of Biotechnology, GLA University, Mathura, Chaumuhan, U.P.; [2]Genetics and Breeding Division, ICAR Central Institute for Research on goats, Mathura, U.P.E.mail:rakeshbiotech0121@gmail.com

Heat stress affects production efficiency of animals and cause significant economic loss in the country. Expression of heat shock proteins (HSP) is affected by heat stress. Goat is a significant source for evaluating the physiological adaptation, due to their anatomical features. The present study was carried out to analyse the genetic variation of HSPA6 gene in different goat breed in semi-arid region. The genotyping of HSPA6 gene was performed by PCR-High Resolution Melting (HRM) analysis. Blood samples were collected from Barbari (n=33), Jamunapari (n=33), Jakharna (n=34) and Sirohi (n=33) goat breeds, respectively. HSPA6 exhibited 197bp amplified fragment. Out of the 133 samples, the distribution percentages of different genotypes were 60.15% (TT), 35.34% (CT) and 4.51 % (CC). The HSPA6 variation revealed a single nucleotide polymorphism at g.T204C position with comparison reference gene. Genotypes were distributed in two major groups i.e. Blue (TT) and Red

Electrochemical Studies of Barium Molybdate Model Membrane

Afren Ansari, A.K. Shukla & M.A. Ansari
Department of Chemistry, S.M.S. Govt. Model Science College, Gwalior (M.P.)
Department of Chemistry, Bipin Bihari College, Jhansi (U.P.)
E-mail ID: afreenansari011@gmail.com

Abstract:

The parchment supported inorganic precipitate Barium Molybdate model membrane was prepared by the ion interaction method. The membrane was characterized by using Fourier transform infrared (FTIR) spectroscopy, thermogravimetry analysis (TGA), x-ray diffraction (XRD) and scanning electron microscopy (SEM). The order of charge effectiveness was found to be Li+<Na+<K+. This model membrane showed potential application in the area of separation of heavy metal ion from wastewater because of good stability. Long lifetime and cost effectiveness.

Keywords: Membrane Potential, Fixed Charge Density, Parchment Supported Model Membrane

Vermiremediation: A Key for Sustainable Environment

Alok Bharadwaj
Dept. of Biotechnology, GLA University, Mathura
E-mail ID: alok.bhardwaj@gla.ac.in

Abstract:

Earthworms are also called as 'farmer's friend' as their cast (end product) is very fertile for agricultural purpose. In addition to it, they are also used in the remediation of soil contaminated with various organic pollutants such as crude oil, heavy metals, PAHs, PCBs and pesticides etc. As we know that crude oil is used everywhere and due to its complex chemical structure, its remediation becomes very costly and complicated. Crude oil persists in soil for long period of time due to the presence of complex hydrocarbons.

This paper is focused on the vermiremediation technology i.e. a recently used technique for the remediation of organic contaminants (crude oil, heavy metals, PAHs, PCBs and pesticides) from soil with the help of earthworms. Moreover, earthworms ingest soil and due to the presence of combined microbial consortium in the digestive tract of earthworms, these can be an efficient tool for the remediation of crude oil from soil.

Keywords: Vermiremediation, Earthworms and Organic pollutants.

Novel Drug Delivery Systems for Phytoconstituents

EDITED BY
Madhu Gupta
Durgesh Nandini Chauhan
Vikas Sharma
Nagendra Singh Chauhan

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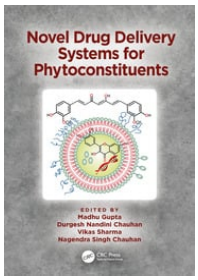
Chapter



Nanotechnological-Based Drug Delivery System for Magical Molecule Curcumin: Delivery, Possibilities and Challenges

By Madhu Gupta, Vikas Sharma, Durgesh Nandini Chauhan, Nagendra Singh Chauhan, Kamal Shah, Ramesh K. Goyal

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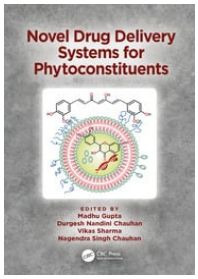

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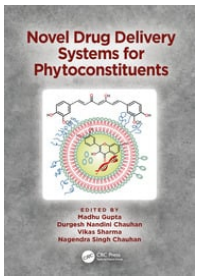

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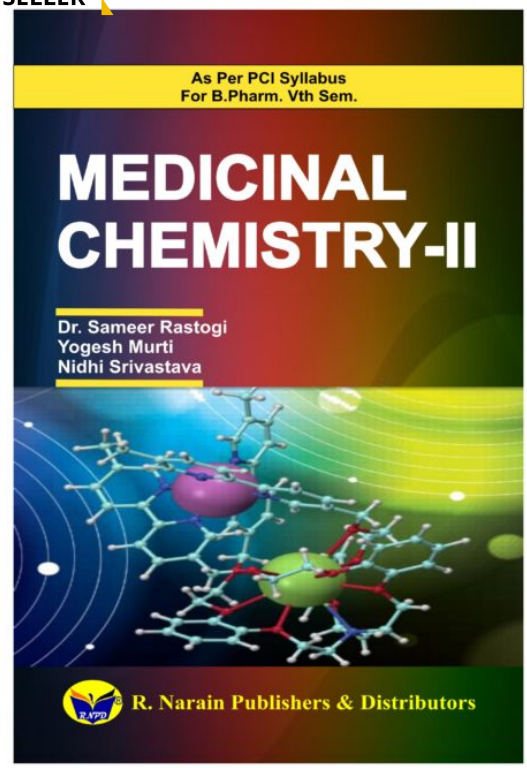

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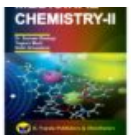

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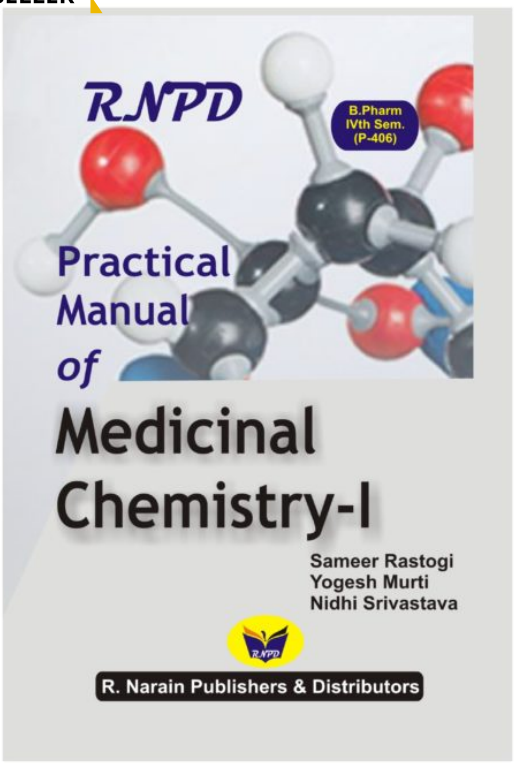

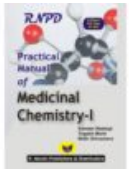

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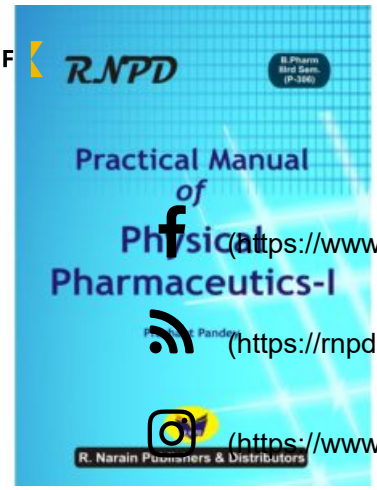

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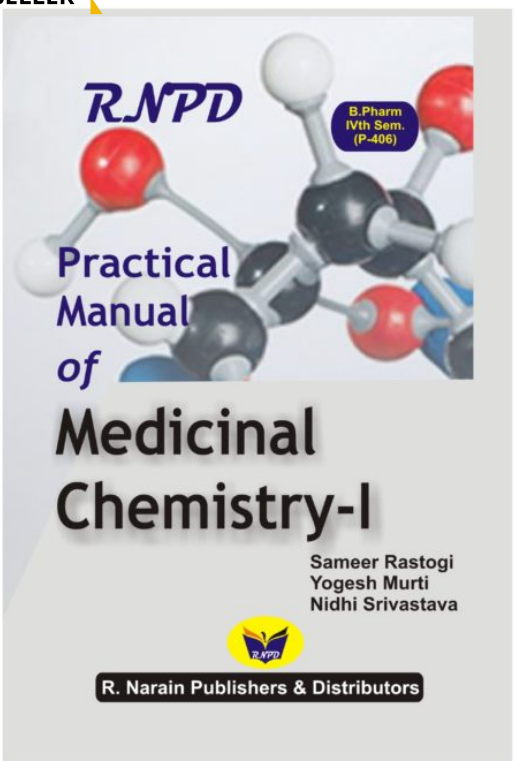

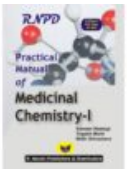

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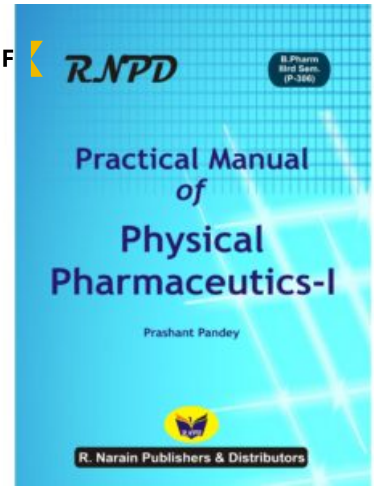

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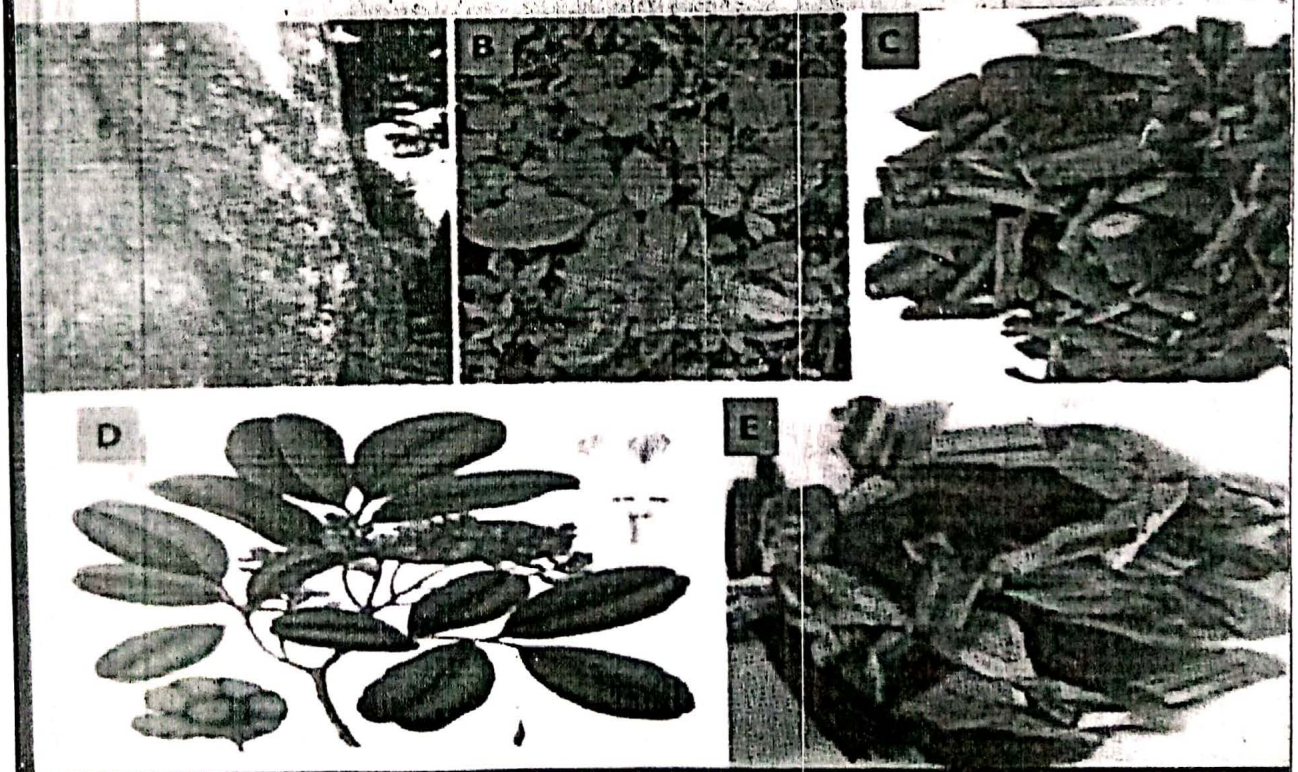

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About the Author

Dr. Reena Gupta is Gold Medallist, awarded by "Shishak Bri Award" from "First Vice President" of Nepal Government and now serving as Assistant Professor in Institute of Pharmaceutical Research, GLA University, Mathura, U.P., India. She completed her Doctor of Philosophy (Ph.D) in Pharmaceutical Sciences form JNU, Jodhpur, Rajasthan. She completed B.Pharm. (Honours) and M.Pharm. (Honours) in Pharmacognosy from BRNCP, Mandsaur, which is affiliated to Rajiv Gandhi Proudyogiki Vishwavidyalaya (R.G.P.V.), Bhopal, M.P., India. She was University topper of B.Pharm. and M.Pharm. She has fellowship of FRSH, FICPHS. She also has been awarded by Young Scientist, Best Students Ph.D, Eminent Teacher, Best paper publication, Best paper presentation and Best poster presentation awards. She has more than 14 years of teaching and research experience She has published more than 24 papers in various reputed SCI/SCOPUS index International/National journals with good impact factors. Till yet she guided 03 students of M.Pharm. (PostGraduate) for their research work and more than sixty students at B.Pharm. (Under Graduate) level in project work. She is guiding one Ph.D student. She has also worked as Head of department of Pharmacognosy in M.I.P., Mandsaur. Her core area of research is Pharmacognosy and Phytochemistry, Standardization, herbal formulation for antitussive, anti-diarrhoeal, wound healing activity etc. The author has membership of editorial board, reviewer board, advisory board of various reputed SCI/SCOPUS index International/National journals.

Dr. Daksh Bhatia, Associate Professor and Head of the Department (Pharmacognosy) at KIET School of Pharmacy, Ghaziabad, Uttar Pradesh. He has 13 years of teaching experience to his credit. Together with teaching, he has a keen interest in research in ethanopharmacology and development of new extraction methodologies. He has bagged 15 international publications and 6 patents are under process of publication, out of which mostly are at final stage of grant. Dr. Daksh has won many prizes in various national level technical presentations and competitions. He is also a life member of IHPA.

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ABOUT THE AUTHORS

Prof. SAMEER RASTOGI Vice Principal, Metro college of Health sciences and Research Greater Noida. He has over 11 years of experience in teaching. He has excellent track record in various academic institutes of high repute and is actively engaged in teaching, administration and service to the profession. His credentials include more than 38 papers in national and international publications of repute, several presentations of scientific papers in national conferences and seminars. He is a life member of professional bodies like Indian Pharmacy Graduate Association (IPGA), Association of Pharmaceutical Teacher in India (APTI).He is also credited as Reviewer of 2 International Research Journals. He has contributed to social awareness programmes by counseling and motivating the students regarding the career opportunities in pharmacy professions.

Dr. VIJAY BHALLA Director, college of Pharmacy, SGT University. Gurugaon Haryana. He did Diploma in Pharmacy in the year 1980 and graduated from Delhi University in year 1983 obtaining degree in Bachelor of Pharmacy from College of Pharmacy now known as Delhi Institute of Pharmaceutical Sciences and Research (DIPSAR). Having obtained the Masters degree in Pharmacy from Delhi University in the year 1985.. His contribution in the field of Education is worth noticing by initiating various career oriented activities in the NCR region of Delhi. He has credited several National and International publications and has spearheaded organizing various events in the interest of Profession of Pharmacy. His interest to contribute for the society and for a social cause has taken to the developmental sector. He joined Hindustan Latex Family Planning Promotion Trust (HLFPPT), a trust promoted by HLL Life care Limited as Capacity Building Manager and is presently associated with TCSMP as Manager Operations with National Aids Control Organization (NACO) Delhi. He is in process of initiating a forum wherein the skills of Pharmacists would be utilized in generating awareness in the masses about the dreaded disease like HIV-AIDS and its prevention.

YOGESH MURTI Presently working as Assistant Professor at Institute of Pharmaceutical Research, GLA University, Mathura (U.P.). He has published 26 Research Articles and 21 Review Articles in National and International repute journals. He has co-supervised 10 M Pharm students. He is also life member of various professional bodies like IPA, APTI, IPGA, ISTE, CSI,

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Sameer Rastogi
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Yogesh Murti

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Sameer Rastogi, Vijay Bhalla and Yogesh Murti

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Contents

Anti-sickling Herbs

Shweta Jain, Ankur Vaidya, Kamal Shah, Durgesh Nandini Chauhan, and Nagendra Singh Chauhan

Introduction

AUT

Millions of people worldwide suffer from sickle cell disease. About 100,000 people in the United States and several million in Africa are suffering from sickle cell disease (SCD). Many of them die before they reach adulthood. SCD is a genetic blood disorder due to the presence of an abnormal form of haemoglobin, called haemoglobin S or sickle haemoglobin. Usually β-globin gene is mutated which causes the sixth amino acid to be changed from glutamic acid to valine. These haemoglobin molecules tend to aggregate after unloading oxygen forming long, rodlike structures that force the red cells to assume a sickle shape, as in sickle cell anaemia. The sickle cells block small blood vessels and thus the organs are deprived of blood and oxygen, which leads to periodic episodes of pain and damages to the vital organs. The gene for sickle cell disorder must be inherited from both parents for the illness to occur in children. A child with only one copy of the gene may have sickle cell traits, but no symptoms of illness (Booth et al. 2010).

Instead of 120 days, the average lifespan of a red blood cell, sickle red cells have lifespan of only about 10–20 days and thus the blood is chronically short of red cells

S. Jain
Pharmacy College, Sir Madanlal Group of Institute, Etawah, Uttar Pradesh, India

A. Vaidya
Pharmacy College, Uttar Pradesh University of Medical Sciences, Etawah, Uttar Pradesh, India

K. Shah
Institute of Pharmaceutical Research, GLA University, Mathura, Uttar Pradesh, India

D. N. Chauhan
Columbia Institute of Pharmacy, Raipur, Chhattisgarh, India

N. S. Chauhan (✉)
Drugs Testing Laboratory Avam Anusandhan Kendra, Raipur, Chhattisgarh, India

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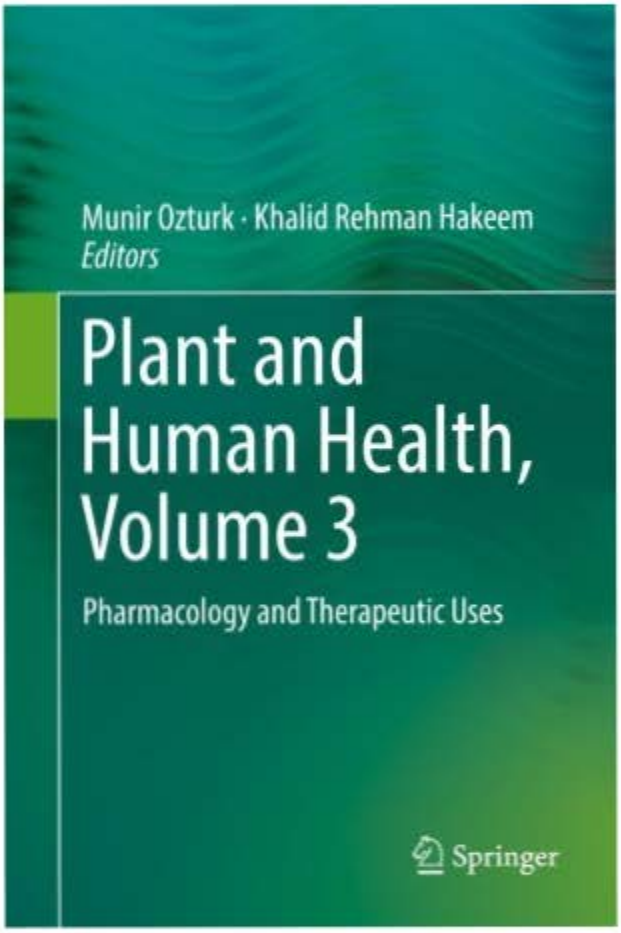
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- Contributions from leading scientists worldwide

- Explores the history and relationship of medicinal plants usages of fertilizer in improving crop yield, disease resistance, and nitrogen absorption

- An all-in-one reference of research studies on plant-based therapeutics

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About this book

Introduction

Early anthropological evidence for plant use as medicine is 60,000 years old as reported from the Neanderthal grave in Iraq. The importance of plants as medicine is further supported by archeological evidence from Asia and the Middle East. Today, around 1.4 billion people in South Asia alone have no access to modern health care, and rely instead on traditional medicine to alleviate various symptoms. On a global basis, approximately 50 to 80 thousand plant species are used either natively or as pharmaceutical derivatives for life-threatening conditions that include diabetes, hypertension and cancers. As the demand for plant-based medicine rises, there is an unmet need to investigate the quality, safety and efficacy of these herbals by the “scientific methods”. Current research on drug discovery from medicinal plants involves a multifaceted approach combining botanical, phytochemical, analytical, and molecular techniques. For instance, high throughput robotic screens have been developed by industry; it is now possible to carry out 50,000 tests per day in the search for compounds which act on a key enzyme or a subset of receptors. This and other bioassays thus offer hope that one may eventually identify compounds for treating a variety of diseases or conditions. However, drug development from natural products is not without its problems. Frequent challenges encountered include the procurement of raw materials, the selection and implementation of appropriate high-throughput bioassays, and the scaling-up of preparative procedures.

Research scientists should therefore arm themselves with the right tools and knowledge in order to harness the vast potentials of plant-based therapeutics. The main objective of *Plant and Human Health* is to serve as a comprehensive guide for this endeavor. Volume 1 highlights how humans from specific areas or cultures use indigenous plants. Despite technological developments, herbal drugs still occupy a preferential place in a majority of the population in the third world and have slowly taken roots as alternative medicine in the West. The integration of modern science with traditional uses of herbal drugs is important for our understanding of this ethnobotanical relationship. Volume 2 deals with the phytochemical and molecular characterization of herbal medicine. Specifically, it will focus on the secondary metabolic compounds which afford protection against diseases. Lastly, Volume 3 focuses on the physiological mechanisms by which the active ingredients of medicinal plants serve to improve human health. Together this three-volume collection intends to bridge the gap for herbalists, traditional and modern medical practitioners, and students and researchers in botany and horticulture.

Keywords

plant-based medicine secondary metabolites alternative medicine molecular pharming medicinal and aromatic plants genetic engineering

Editors and affiliations

- Munir Ozturk (1)
- Khalid Rehman Hakeem (2)

1. Vice President of the Islamic World Academy of Sciences, , Amann, Jordan
2. Department of Biological Sciences, Faculty of Science, King Abdulaziz University, , Jeddah, Saudi Arabia

About the editors

Dr. Khalid Rehman Hakeem (PhD) is an Associate Professor at King Abdulaziz University, Jeddah, Saudi Arabia. He has completed his Ph.D. (Botany) from Jamia Hamdard, New Delhi, India in 2011. Dr. Hakeem has worked as Post Doctorate Fellow in 2012 and Fellow Researcher (Associate Prof.) from 2013-2016 at Universiti Putra Malaysia, Selangor, Malaysia. His speciality is in Plant Eco-Physiology, Molecular biology, Plant-Microbe-soil interactions, Medicinal plant research and Environmental Sciences and so far has edited and authored more than 25 books with Springer International, Academic Press (Elsevier) etc. He has also to his credit more than 110 research publications in peer reviewed international journals, including 40 book chapters in edited volumes with international publishers. Dr Hakeem is the recipient of many national and international awards and fellowships.

Prof. (Dr.) Münir Öztürk (PhD) has served at the Ege University Izmir, Turkey for 50 years in different positions. He has been elected as the “Vice President of the Islamic World Academy of Sciences”; has received the fellowships from Alexander von Humboldt, Japanese Society for Promotion of Science and National Science Foundation of USA. Dr. Ozturk has served as Chairman Botany Department and Founding Director Centre for Environmental Sudies, Ege University, Izmir, Turkey, as Consultant Fellow, Faculty of Forestry, Universiti Putra Malaysia, Malaysia and as Distinguished Visiting Scientist, ICCBS, Karachi University, Pakistan. His fields of scientific interest are Plant Eco-Physiology; Conservation of Plant Diversity; Biosaline Agriculture and Crops; Pollution, Biomonitoring, Medicinal and Aromatic Plants. He has published 40 books, 50 book chapters and 175 papers in journal with impact factor.

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acquainted with the intricacies of the knowledge base as well as its application. A four/five year integrated teacher education programme with due emphasis of building subject knowledge as well as pedagogical skills stands a better chance of enabling the bright minds to articulate their choices towards teaching as a profession. However a word of cautions needs to be exercised even in this direction. Government or regulatory bodies should take proactive steps in creating the required infrastructure first, both, human and physical, before going ahead with such programmes. Also there is need to thoroughly screen the intentions and the capacities of the private sector before roping them in to compliment government's effort for greater access.

- A systemic collaboration among the school system, teacher education institutes and affiliating universities is the need of the hour rather than a hierarchical relation. A well researched new knowledge that has been systematically been documented and used for personal growth in the close confine of so called 'temples of learning' under serves the purpose for which it was generated. A symbiotic relation among the practitioners rather than of being perceived superiority promotes ease of sharing of ideas for working towards the common goal of 'quality education'.
- A strong focus on internship, that exposed the 'student-teachers' to build upon their theoretical knowledge, can go a long way in can go a long way in fine tuning the skills as practitioners in the field. This is not possible without bring into the loop the school education system. School internship guidelines of NCTE list out the criticality of collaboration of central, state, university, TEI's and school education department. However in practice things are very different. Since the implementation of NCTE regulation 2014, the author as a practitioner, has been confronted with steady flow of challenges while attempting to systematize this collaboration. Looking at these as 'teething problems' at the initial stage it is hoped that informed academic interactions and sharing of ideas shall lead us to discover implementable strategies.

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Education of Children with Disabilities in India: Concern and Policy Perspective

—*Dr. Kavita Varma*

Introduction

According to the Ministry of Social Justice and Empowerment, 1.67per cent of India's population between the age of 1 and 19 suffer from at least some form of a disability. There are 12 million children living with disabilities in India and 35.39per cent of all people with disabilities in the country are children.

That's why one cannot emphasize the importance of schools for children with special needs strongly enough. Dyslexia, attention deficit hyperactivity disorder, cognitive disabilities and attention deficit disorder are some of the learning disabilities that children with special needs have. United Nations observes that 10per cent of the population has disability and there are about 120 million people with disabilities in India. Disability is difficult to define since it varies in type, form and intensity. Understanding disability will require understanding of these differences. As per the World Health Organization, Disability is an umbrella term, covering impairments, activity limitations, and participation restrictions, impairment is a problem in body function or structure; an activity limitation is difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations. Thus disability is a complex phenomenon reflecting an interaction between features of a person's body and features of the society in which he or she lives. The Convention on the Rights of Persons with Disabilities (2006), the first legally binding disability specific human rights convention, adopted by the United Nations gives two descriptions of disability. The Preamble to the Convention states that "Disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinder their full and effective participation in society on an equal basis with others". Again it emphasizes that "Persons with disabilities include those who have long term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others". Both the expressions reflect a shift from medical model to social model of disability. In the medical model, individuals with certain physical, intellectual, psychological and mental impairments are taken as disabled. According to this, disability lies in the individual as it is equated with

CHAPTER – 20

Teacher Education in India: An Overview

Dr. Kavita Varma

Preamble

The expectations from the teacher are manifold and multifaceted. As the Delors Commission (Learning: The Treasure Within", UNESCO 1996) suggests "The importance of the role of the teacher as an agent of change, promoting understanding and tolerance, has never been more critical in the Twenty- first Century. The need for change from narrow nationalism to universalism, from ethnic and cultural prejudice to tolerance, understanding and pluralism, from autocracy to democracy in its various manifestations, and from a technologically divided world where high technology is the privilege of the few to a technologically united world, places enormous responsibilities on teachers who participate in the moulding of the minds and characters of the new generation. The stakes are high and the moral values formed in childhood and throughout life become of particular importance"

Teachers are the kingpins of any educational system. It is said that teachers affect eternity; nobody can tell where their influence stops. Our new National Policy on Education (NPE) 1986/1992 says that no nation can rise above the level of its teachers. Therefore, teacher education to produce teachers of high quality is of utmost importance. Detailed and in-depth studies undertaken in recent years have shown that the quality of pre-service and in-service teacher education programs in our country is deteriorating and that the professional commitment and overall competence of teachers leave much to be desired. Therefore, everything necessary has to be done to ensure that our teacher education institutions produce teachers of high quality and calibre. Conscious initiatives are necessary to influence the quality of teacher education at various levels.

Teacher Education has increased extraordinary significance nowadays as Teacher' capacities and characteristics are recognised as decisive to