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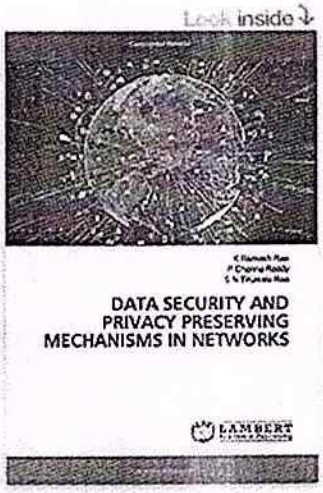

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DATA SECURITY AND PRIVACY PRESERVING MECHANISMS IN NETWORKS Paperback – July 18, 2020

by K Ramesh Rao (Author), P Chenna Reddy (Author), S N Tirumala Rao (Author)

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Security is one of the most critical areas of research and plays a key role in decisive the success of any network. The Emergence of wireless communications and the development of mobile devices has brought revolutionary changes in the communication world. The ease of use of mobile devices without additional infrastructure and the scope of expansion of their communications outside the wireless radio resulted in the development of MANETs.To obtain reliable intermediary nodes for safe connections to different

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Lecture Notes in Electrical Engineering 698

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ISSN 1876-1100 ISSN 1876-1119 (electronic)
Lecture Notes in Electrical Engineering
ISBN 978-981-15-7960-8 ISBN 978-981-15-7961-5 (eBook)
https://doi.org/10.1007/978-981-15-7961-5

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A Multi-tier Architecture for Soft and Hard Real-Time Systems Involving Multiple Data Sources for Efficient Data Processing

Suman De and Vinod Vijayakumaran

Abstract The advancement of technology has seen the growth of IoT based devices all around the globe. With the introduction of wearable devices, smart appliances, the amount of accumulated data has increased exponentially. For soft real time systems, it is a major issue when it comes to analytics and providing the accurate results for future strategies leading to profitability aspects of an organization to the estimation of life expectancy of an individual. Soft real-time systems, where huge amount of data processing is equally important to context awareness, pervasive computing systems can use another layer for its data flow and this paper looks at an idea which benefits such systems. The proposed paper introduces an intermediate layer between User interfaces and the databases along with the traditional application layer and context or networking layer that already exists. The proposed paper also explains at how this architecture will be implemented and can be used as a generic architecture model.

Keywords Pervasive computing · Architecture · Data processing · Soft real-time system · Hard real-time system

1 Introduction

Pervasive Computing is expanding as one of the latest computing technologies that covers communication scenarios where any device can be accessed from anywhere by the user. The user interacts with various sources using laptops, tablets, terminals, mobile phones and smart phones. Pervasive Computing uses internet, advanced middleware, operating systems, actuators/sensors [4], microprocessors, and mobile protocols to facilitate such interactions.

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A. Kumar and S. Mozar (eds.), *ICCCE 2020*, Lecture Notes in Electrical Engineering 698, https://doi.org/10.1007/978-981-15-7961-5_1

Sequence Alignment By Modified Teaching Learning Based Optimization Algorithm (M-TLBO)

ICCCE 2020 pp 1441-1454 | Cite as

- Lakshmi Naga Jayaprada Gavarraju (1) Email author (gjayaprada74@gmail.com)
- Kanadam Karteeka Pavan (2)

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Conference paper
First Online: 12 October 2020

Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 698)

Abstract

Sequence alignment is a most important first step to a wide variety of analyses that can be performed on the biological sequences like DNA, RNA or protein. Sequence alignment is a daily practice of many biologists to determine the similarity among biological sequences. It is considered as an optimization problem. Researchers developed many meta-heuristic optimization algorithms inspired by nature to produce optimal alignment. In all these heuristic algorithms mutation and crossover are the most prominent steps. Every algorithm is having different criterion for mutation and crossover operations. Recently in 2011, R.V. Rao and et al. proposed a new algorithm called Teaching Learning Based Optimization algorithm (TLBO) to deal with constrained and unconstrained optimization problems. This paper uses TLBO to solve the sequence alignment problem and also proposes a new optimization algorithm called Modified-TLBO (M-TLBO). Both the algorithms, TLBO & M-TLBO are analysed by conducting experiments with bench mark data sets from "prefab4ref" & "oxbench" and observed that the newly proposed algorithm M-TLBO outperformed TLBO in solving the sequence alignment problem by producing the best fitness scores in reduced computational time.

Keywords

PSA MSA TLBO DE

An Adaptive and Opportunistic Based Routing Protocol in Flying Ad Hoc Networks (FANETs): A Survey

O. Aruna[1(✉)] and Amit Sharma[2]

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Abstract. FANET is a special form of ad hoc networks in which UAVs are mobile nodes they can fly in the air autonomously and can be operated remotely. FANETs has many advantages as well as disadvantages compared with MANET and VANET. The existing routing protocols of traditional adhoc networks can't satisfy all the requirements of FANETs. In Multi-UAV systems, during mission operation changes can occur dynamically. Due to unique characteristics of FANETs communication is a big challenging issue. So that it is necessary to develop a new routing protocol that must be able to update routing table dynamically. In this paper, describes functionality of FANETs and collected information from different existing routing protocols for FANETs and used effective routing techniques to increase the efficiency of routing protocol. Communication protocols are also discussed.

Keywords: FANETs · Routing protocol · Communication · UAVs · GCS

1 Introduction

FANET extends from MANET and VANET. It consists of the collection of UAVs that can fly in the air autonomously and can be operated remotely. Compared with Single-UAV System, Multi-UAV system is more advantageous. FANET is only applicable for Multi-UAV Systems. At the same time, all Multi-UAV System do not form a FANET. Recently, FANETs are used in different applications, mostly in military and civilian applications [1]. Compared with ground based networks like MANETs and VANETs, FANETs are more efficient to deliver data communication. But, within the usage of FANETs, Communication between UAVs is a crucial task due to some unique challenges of FANET like the mobility nature of UAVs is very high, continuous changes in network topology, etc.

1.1 Advantages of Multi-UAV Systems

- The cost of small UAVs is very low and more efficient than the large UAVs
- Multi-UAV systems extend scalability of operation using FANET easily compared with large UAVs; it covers limited range of operation.

A. P. Pandian et al. (Eds.): ICCBI 2019, LNDECT 49, pp. 119–127, 2020.
https://doi.org/10.1007/978-3-030-43192-1_13

Advances in Intelligent Systems and Computing 1280

Debnath Bhattacharyya
N. Thirupathi Rao *Editors*

Machine Intelligence and Soft Computing

Proceedings of ICMISC 2020

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Advances in Intelligent Systems and Computing

Volume 1280

Debnath Bhattacharyya · N. Thirupathi Rao
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Machine Intelligence and Soft Computing

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ISSN 2194-5357 ISSN 2194-5365 (electronic)
Advances in Intelligent Systems and Computing
ISBN 978-981-15-9515-8 ISBN 978-981-15-9516-5 (eBook)
https://doi.org/10.1007/978-981-15-9516-5

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Usage of KNN, Decision Tree and Random Forest Algorithms in Machine Learning and Performance Analysis with a Comparative Measure

K. Uma Pavan Kumar, Ongole Gandhi, M. Venkata Reddy, and S. V. N. Srinivasu

Abstract In The current article, the process of data science projects and the various statistical and applications of machine learning algorithms were mentioned. The usage of various parameters in the machine learning along with the suitable cases of the study was mentioned in the article. The study mainly focuses on various algorithms like KNN, Naïve Bayes, support vector machine (SVM), decision trees and random forest. The discussion mainly focused on the statistical and mathematical aspects of each algorithm, and suitability of the algorithms to certain use cases and the main drawbacks of the corresponding algorithms were mentioned in the study. The attempt we are making for the sake of summarizing the various algorithms mentioned above, and many articles and research papers were there, but we believe that our work surely give a simple and effective narration of the mentioned algorithms and will help the upcoming researchers as a base to start the research in the machine learning and data science areas. The outcome of the work is explanation of the algorithms in the extensive by covering the pros and cons of each and every aspect along with the suitable use cases. The results we are going to project are a comparison of the same dataset with all these mentioned algorithms and projecting the best performer in that use case.

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D. Bhattacharyya and N. Thirupathi Rao (eds.), *Machine Intelligence and Soft Computing*, Advances in Intelligent Systems and Computing 1280,
https://doi.org/10.1007/978-981-15-9516-5_39

Advances in Intelligent Systems and Computing 1280

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N. Thirupathi Rao *Editors*

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Advances in Intelligent Systems and Computing

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ISSN 2194-5357 ISSN 2194-5365 (electronic)
Advances in Intelligent Systems and Computing
ISBN 978-981-15-9515-8 ISBN 978-981-15-9516-5 (eBook)
https://doi.org/10.1007/978-981-15-9516-5

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Machine Intelligence and Soft Computing pp 473-479 | Cite as

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Conference paper
First Online: 21 January 2021

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 1280)

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Advances in Intelligent Systems and Computing

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ISSN 2194-5357 ISSN 2194-5365 (electronic)
Advances in Intelligent Systems and Computing
ISBN 978-981-15-9515-8 ISBN 978-981-15-9516-5 (eBook)
https://doi.org/10.1007/978-981-15-9516-5

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Risk Prediction based Breast Cancer Diagnosis using Personal Health Records and Machine Learning Models

Sireesha Moturi [1], Dr. S. N. Tirumala Rao[2], Dr. Srikanth Vemuru [3]
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Abstract. Breast cancer is most common in middle aged female population. It is the fourth most dangerous cancer compared to remaining cancers. In recent years breast cancer patients are significantly increasing so, the early diagnosis of cancer has become a necessary task in the cancer research, to facilitate subsequent clinical management of patients. The prevention of the breast cancer tumor is early detection of the tumor. Early detection of cancer can stop increase in tumor and saves lives. In the field of Machine Learning classification cancer patients are classified in to two types as benign or malignant. Different preprocessing techniques like filling missing values, applying correlation coefficient, Synthetic Minority Oversampling Technique (SMOTE) and 10-fold cross validations are implemented and aptly used to obtain the accuracy. The main context of this study is to identify key features from the dataset and analyze the performance evaluation of different machine learning algorithms like Random Forest Classifier, Logistic Regression, Support Vector Machine, Decision Tree, Gaussian Naive Bayes and k Nearest Neighbors. Based on the results of classification model which gives highest accuracy will be used as the best model for cancer prediction.

Keywords: Breast Cancer, Diagnosis, Prediction.

1 INTRODUCTION

Breast cancer tumor is uncontrolled development of the cells and increases the tumor. This causes because of unusual changes or transformations, in the qualities answerable for directing development of cells and keep them healthy [1]. The qualities goes about as control room of every cell which are available in every cell's core. The cells in our body supplant themselves in a routinely procedure of cell development: new cells are supplanted over as old one kick the bucket. Yet, at some point transformations turn on specific qualities and mood killer other cells. At the point the changed cell has capacity to continue isolating without control or request, creating more cells and framing tumor. A tumor might be kind or dangerous tumor. Considerate tumor isn't perilous to well-being and harmlful tumor hazardous and considered as malignant. Breast cancer disease alludes to threating tumor that is created from cells in the breast.

Now a days data is also generating more and more[10] so, Content extraction from the biological datasets is a challenging task in the today's world [7]. Information on the web is also of different types like structured and unstructured kind of records, homogeneous, heterogeneous and mixed varieties of data and current websites present a larger

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Volume 1280

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https://doi.org/10.1007/978-981-15-9516-5

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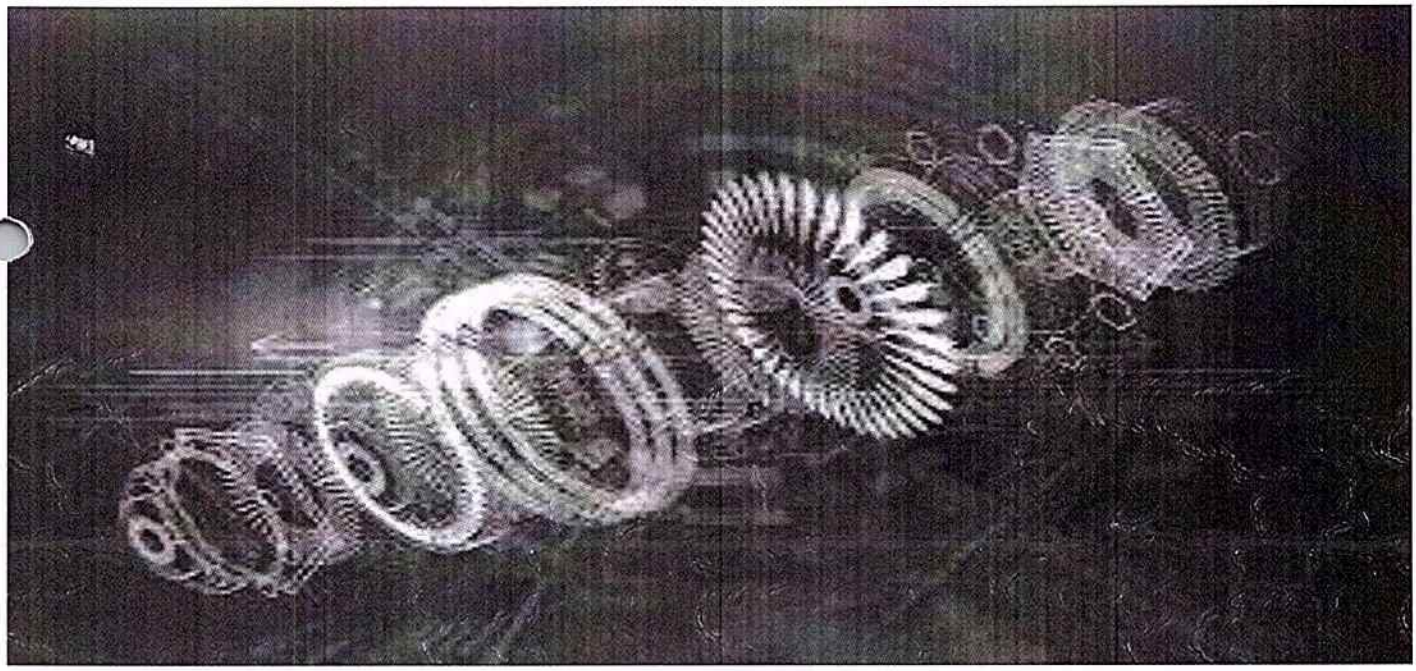

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ISBN: 97881-936274-0-2

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Performance studies of variable compression ratio S.I. engine fueled with LPG

Donepudi Jagadish, Ch. Sekhar, Sk.Bajaan, and K.Sreenivasulu and P.Srinivasa Rao

Dept of Mechanical Engineering, Narasaraopet Engineering College, Narasaraopet, A.P., India.

Abstract

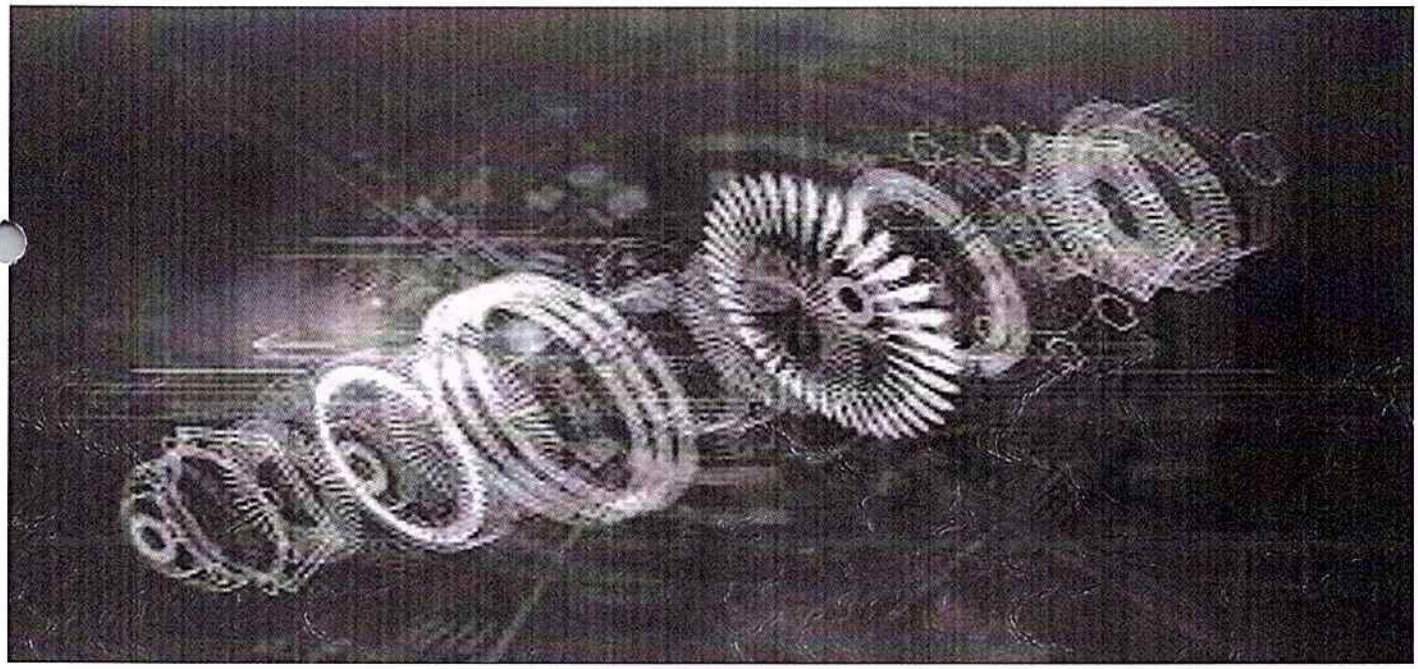
In the view of lower emissions and improved thermal efficiency the petrol/gasoline engines are fueled with LPG and other suitable fuels. The exploration of LPG and related gases has been the topic of interest by many countries. In the view of these trends it has been widely experimented to use the LPG in present engines around the globe. In present work an effort was made to use LPG in a constant speed variable compression ratio petrol engine. The engine is modified to work for LPG by arranging some accessories. The experimental results showed the fuel consumption seems to be lower usage of LPG when compared with gasoline. Thermal efficiency also improved with LPG for both compression ratios of 4.67 and 8.0. The pollution emissions of HC are significantly low for LPG compared with Gasoline at both compression ratios. The important other observation is the engine suffers with lower operating torque when run on LPG, this can be overcome by slight modifications.

Introduction

Oil reserve all over the world is depleting at an alarming rate. In addition, the deteriorating quality of air we breathe is becoming another great public concern. Emissions of Sulphur dioxide, hydrocarbons, carbon monoxide, nitrogen oxides, lead, etc. have stimulated scientists to find ways to reduce these emissions because of their impact on human health and ecological imbalance. These factors along with the oil crisis in the 1970s have led scientists and researchers to search for clean and environmentally friendly alternatives to the conventional fuels used to power internal combustion engines. Various alternative fuels suited for spark ignition (SI) engines can be classified as synthetic gasoline, alcohols, and gaseous fuels according to the studies conducted by many researchers [1].

ISBN: 978-93-5254-042

2nd National Conference in Recent Trends in Mechanical Engineering



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2nd National Conference on Recent Trends in Mechanical Engineering

ISBN: 97881-936274-0-2

Conference proceedings available online at
American Journal of Mechanical Engineering and Technology
www.hruangscience.org/mechanical
ISSN:2689-0097

Published by

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Performance studies of variable compression ratio S.I. engine fueled with LPG

Donepudi Jagadish, Ch. Sekhar, Sk.Bajaan, and K.Sreenivasulu and P.Srinivasa Rao

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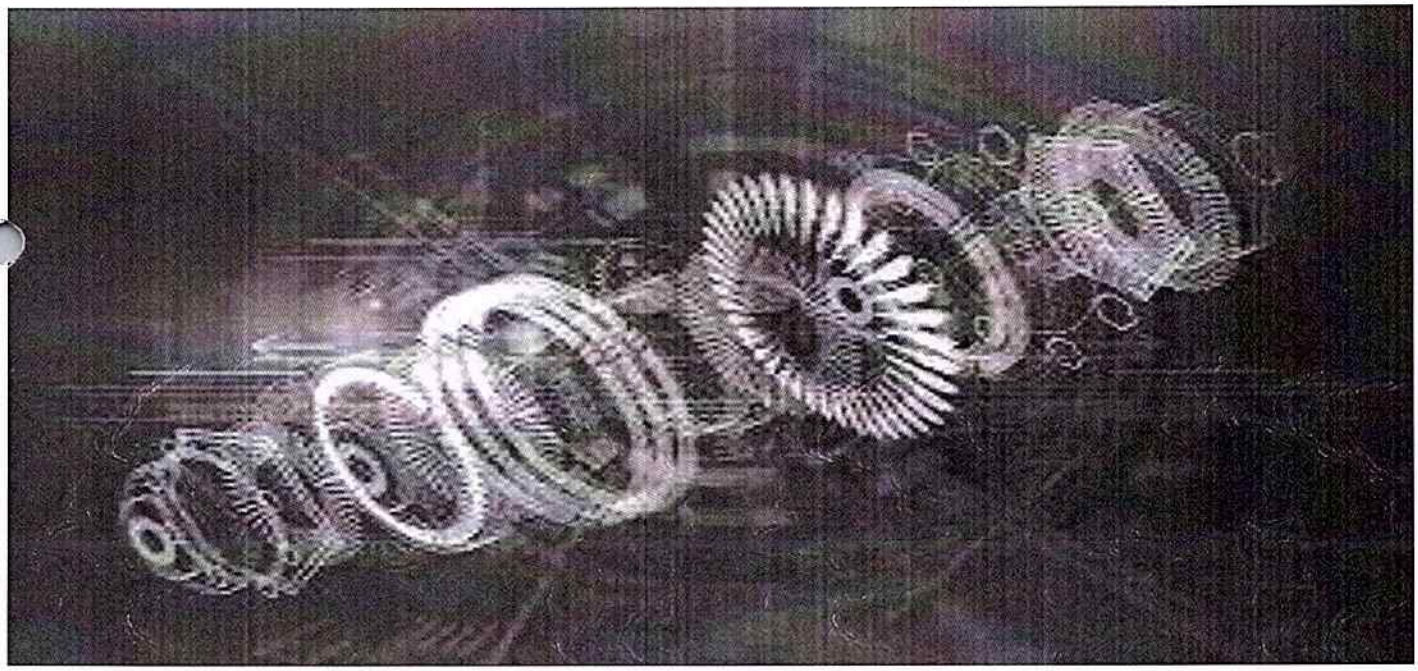

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Performance studies of variable compression ratio S.I. engine fueled with LPG

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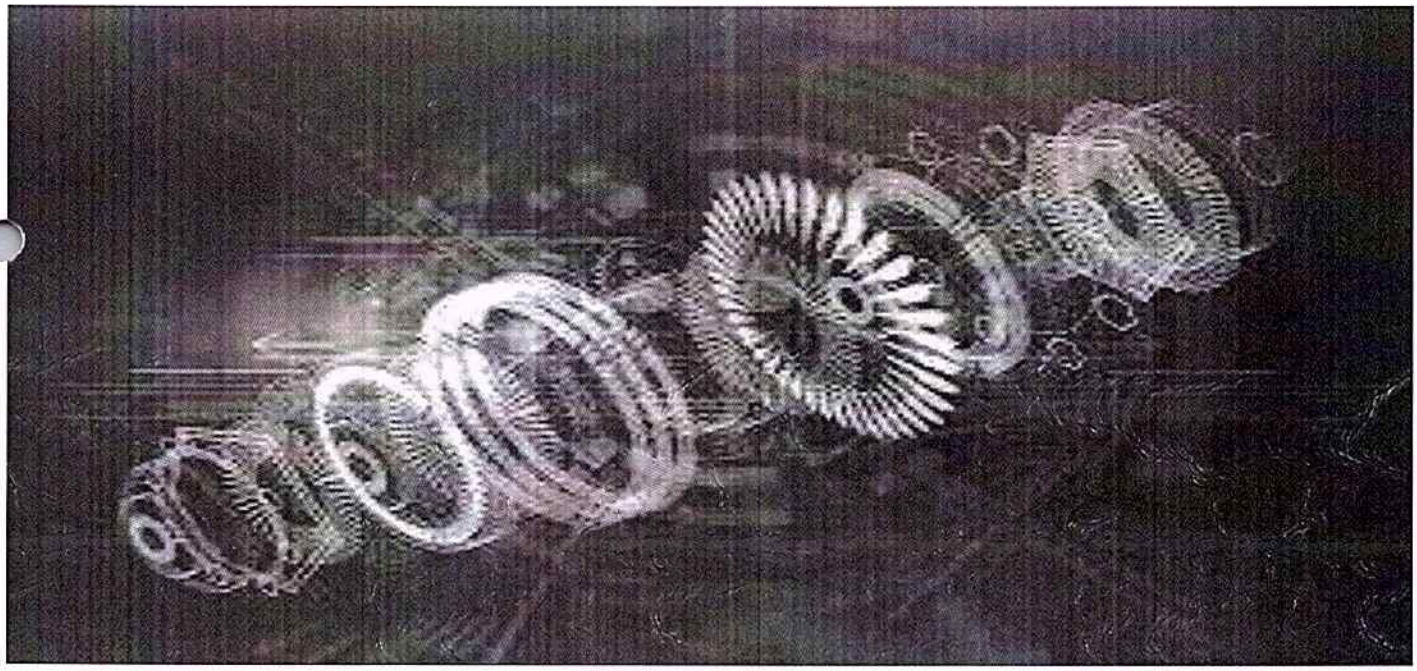

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https://doi.org/10.1007/978-981-33-4443-3

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The MMNCs are capable materials to be utilized in numerous areas like car, aviation, and so on. Because of the little (nano) measured fortifications, mixing with the phase interface gets improved due to the increased surface region which prompts to boost properties of materials, at a little volume part of the fortification too.

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A. N. R. Reddy et al. (eds.), *Intelligent Manufacturing and Energy Sustainability*,
Smart Innovation, Systems and Technologies 213,
https://doi.org/10.1007/978-981-33-4443-3_12

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ISSN 2190-3018 ISSN 2190-3026 (electronic)
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ISBN 978-981-33-4442-6 ISBN 978-981-33-4443-3 (eBook)
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A. N. R. Reddy et al. (eds.), *Intelligent Manufacturing and Energy Sustainability*, Smart Innovation, Systems and Technologies 213,
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Studies on Machining Characteristics and Microbiological Growth over Stir Casted A356-Graphite Metal Matrix Composites (A Comparison between Pure Metals and Composite)

Suneel Donthamsetty1,* and Penugonda Suresh Babu2

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The need of Metal Matrix Composites (MMCs) are increasing day by day due to their good properties like light weight, high strength, durability, corrosion resistance etc. In the present work A356 is taken as main base material due to its excellent mechanical properties and graphite as fortifying material because of high conductive property to form MMC. Machining is done with and without cutting oil by using automatic feed lathe machine by varying the speed and depth of cuts to find out the cutting forces, cutting tool temperatures and surface roughness and found that these values are gradually increased in many cases. Also done microbiological check and found that the colony count is gradually increased from fresh oil usage to used cutting oil after machining. These tests also done on MMCs, pure brass and pure aluminum and compared the results with MMCs. Novelty focused in present research work is regarding Microbial Organism Growth and its pattern over a period of time since these organisms are cancerogenic for the operator and in health and hygiene point of view, lot of research work is going on over this organism growth on combination of several cutting fluids and materials. With the evolvement of composite materials, effect of cutting fluids on the above phenomenon is focused in present work. As a routine work, effect of cutting forces also established by changing machining parameters and presented.

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Keywords: A356; Graphite; Composites; Machining; Bacterial Count

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JOURNAL OF MECHANICS OF CONTINUA AND MATHEMATICAL SCIENCES
www.journalimcms.org

ISSN (Online) : 2454 -7190 Vol.-15, No.-2, February (2020) pp 191-199 ISSN (Print) 0973-8975

PREDICTIVE ANALYTICS FOR E-LEARNING SYSTEM USING MACHINE LEARNING APPROACH

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https://doi.org/10.26782/jmcms.2020.02.00017

Abstract

Soft-learning courses are sought-after as well as late. The need to examine understudy's presentation and anticipating their exhibition is expanding alongside it. With the developing notoriety of instructive innovation, different information digging calculations appropriate for anticipating understudy execution have been surveyed. The best calculation is based on the idea of the forecast that the staff needs to make. As the measurement of understudy information broadens the need to address and manage the complexities of the information connection, it is a test for the discovery of the understudy at risk of being short-lived. In this paper covers the ID3 and C4.5 algorithms used for Predictive Analytics on understudy's presentation and Big Data with cloud.

Keywords: Soft-Learning Techniques, Machine Learning Approach, Basics of Predictive Analytics, Decision Tree Techniques (C4.5 and ID3), Big Data

I. Introduction

Soft-Learning Systems is associating a number of educational organizations to under-studies that defeat minor area confinement and study time. Such frameworks are intended to serve people in learning subjects from distant fields separated from ordinary courses. It turned out to be workable for an educator to be linked with post-school under-study through such a framework[I, II]. The emergence of Student Data Mining (SDM) technology, distinct calculations has been updated in the examination of soft-learning Systems. The aim of SDM is to prepare predictive models with high accuracy, reliability and simplicity of elucidation. Data relapse and Data classification are the two common data techniques for distinguishing under-studies are the risk of being short-lived[IV]. The document examines the distinct calculations envisaged by analysts in anticipation of an understudy exhibition. In addition to the need to address the development of understudy information and its complexities[III, V]. Big Data is included in the soft-learning framework using the data mining system [VI].

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Proceedings of the 3rd International Conference on Communications and Cyber Physical Engineering

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ISSN 1876-1100 ISSN 1876-1119 (electronic)
Lecture Notes in Electrical Engineering
ISBN 978-981-15-7960-8 ISBN 978-981-15-7961-5 (eBook)
https://doi.org/10.1007/978-981-15-7961-5

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An Adaptive and Opportunistic Based Routing Protocol in Flying Ad Hoc Networks (FANETs): A Survey

O. Aruna[1(✉)] and Amit Sharma[2]

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Abstract. FANET is a special form of ad hoc networks in which UAVs are mobile nodes they can fly in the air autonomously and can be operated remotely. FANETs has many advantages as well as disadvantages compared with MANET and VANET. The existing routing protocols of traditional adhoc networks can't satisfy all the requirements of FANETs. In Multi-UAV systems, during mission operation changes can occur dynamically. Due to unique characteristics of FANETs communication is a big challenging issue. So that it is necessary to develop a new routing protocol that must be able to update routing table dynamically. In this paper, describes functionality of FANETs and collected information from different existing routing protocols for FANETs and used effective routing techniques to increase the efficiency of routing protocol. Communication protocols are also discussed.

Keywords: FANETs · Routing protocol · Communication · UAVs · GCS

1 Introduction

FANET extends from MANET and VANET. It consists of the collection of UAVs that can fly in the air autonomously and can be operated remotely. Compared with Single-UAV System, Multi-UAV system is more advantageous. FANET is only applicable for Multi-UAV Systems. At the same time, all Multi-UAV System do not form a FANET. Recently, FANETs are used in different applications, mostly in military and civilian applications [1]. Compared with ground based networks like MANETs and VANETs, FANETs are more efficient to deliver data communication. But, within the usage of FANETs, Communication between UAVs is a crucial task due to some unique challenges of FANET like the mobility nature of UAVs is very high, continuous changes in network topology, etc.

1.1 Advantages of Multi-UAV Systems

- The cost of small UAVs is very low and more efficient than the large UAVs
- Multi-UAV systems extend scalability of operation using FANET easily compared with large UAVs: it covers limited range of operation.

A. P. Pandian et al. (Eds.): ICCBI 2019, LNDECT 49, pp. 119–127, 2020.
https://doi.org/10.1007/978-3-030-43192-1_13

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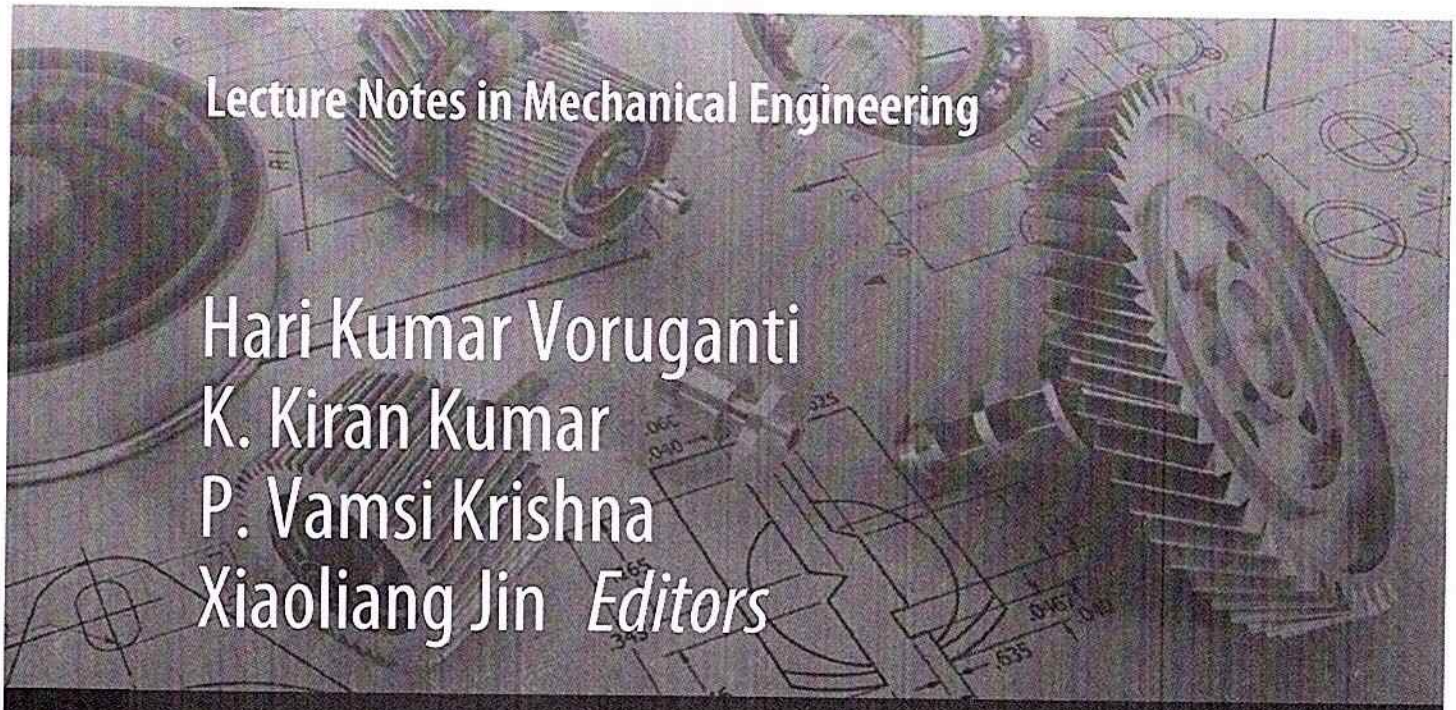

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ISSN 2195-4356 ISSN 2195-4364 (electronic)
Lecture Notes in Mechanical Engineering
ISBN 978-981-15-1200-1 ISBN 978-981-15-1201-8 (eBook)
https://doi.org/10.1007/978-981-15-1201-8

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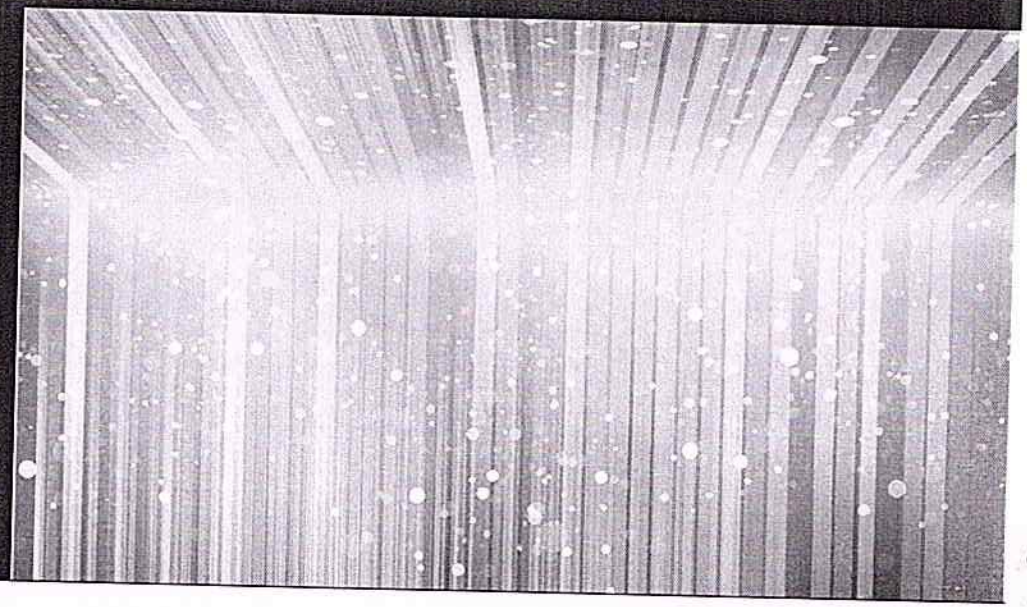
2019

CONTENTS

Stress relaxation is a phenomenon which occurs for components subjected to stress and temperature and natural creep is some how arrested. That the natural creep gets arrested due to prevailing constraints is a common experience and stress relaxation is almost always present. This subject of stress relaxation which is of concern in design of high temperature components is the theme of this dissertation. Relaxation is studied next using these creep laws and a relaxation model. Five different relaxation models are considered and uniaxial (pure) relaxation is studied. A typical bolt material (x 22 crMo V 121) is used for analysis. The experimentally observed relaxation is used to evaluate various relaxation models. Larsen Miller parameter (LMP) which is quite commonly used in creep calculations is advantageously used to evaluate self-consistency of various creep laws and the relaxations derived there from. Practical cases of stress relaxation like relaxation under stress gradient and temperature gradient & pre tensioned bolt are studied. Some programs in the form of spread-sheet, Fortran, and ANSYS macros are also developed.

STRESS RELAXATION



Suneel Donthamsetty

Analytical Investigations on Stress Relaxation at Elevated Temperature

Prof.D.Suneel, a distinguished academician and a seasoned Mechanical Engg Professor is the Head of the Mechanical Department and Dean Academics in Narasaraopeta Engineering College, Narasaraopet. He received his Masters Degree from Sri Venkateswara University, Tirupati & Doctorate Degree from Andhra University, Visakhapatnam, India in the year 2010

978-613-9-98711-5

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Donthamsetty

2019

MCA-2019

Stock-Market Data Inspection and Future-Stock Prediction using NN

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Abstract— Share market is one in every of the foremost unpredictable and place of high interest within the world. There aren't any vital ways exist to predict the share value. Principally individuals use 3 ways like elementary analysis, applied math analysis and machine learning to predict the share value of share market however none of those ways are proved as a systematically acceptable prediction tool. Therefore developing a prediction tool is one in every of the difficult tasks as share value depends on several important issue and options. during this paper, we have a tendency to propose a sturdy technique to predict the share rate victimization Neural Network (NN) primarily based model and compare however it disagree with the particular value. For that we have a tendency to collect the share market information of last half dozen months of ten firms of various classes, cut back their high spatiality victimization Principal Component Analysis (PCA) in order that the Back-propagation Neural Network (NN) are able to train quicker and with efficiency and create a comparative analysis between Hyderabad exchange (HSE) algorithmic program and our technique for prediction of next day share value. so as to justify the effectiveness of the system, totally different check information of firms stock are wont to verify the system. we have a tendency to introduce a sturdy technique . which may cut backtheinformationspatialityandpredictttheworthsupported artificial neuralnetwork.

Keywords—Artificial Neural Network, PCA, Stock Market, Stock Market Prediction, DSE

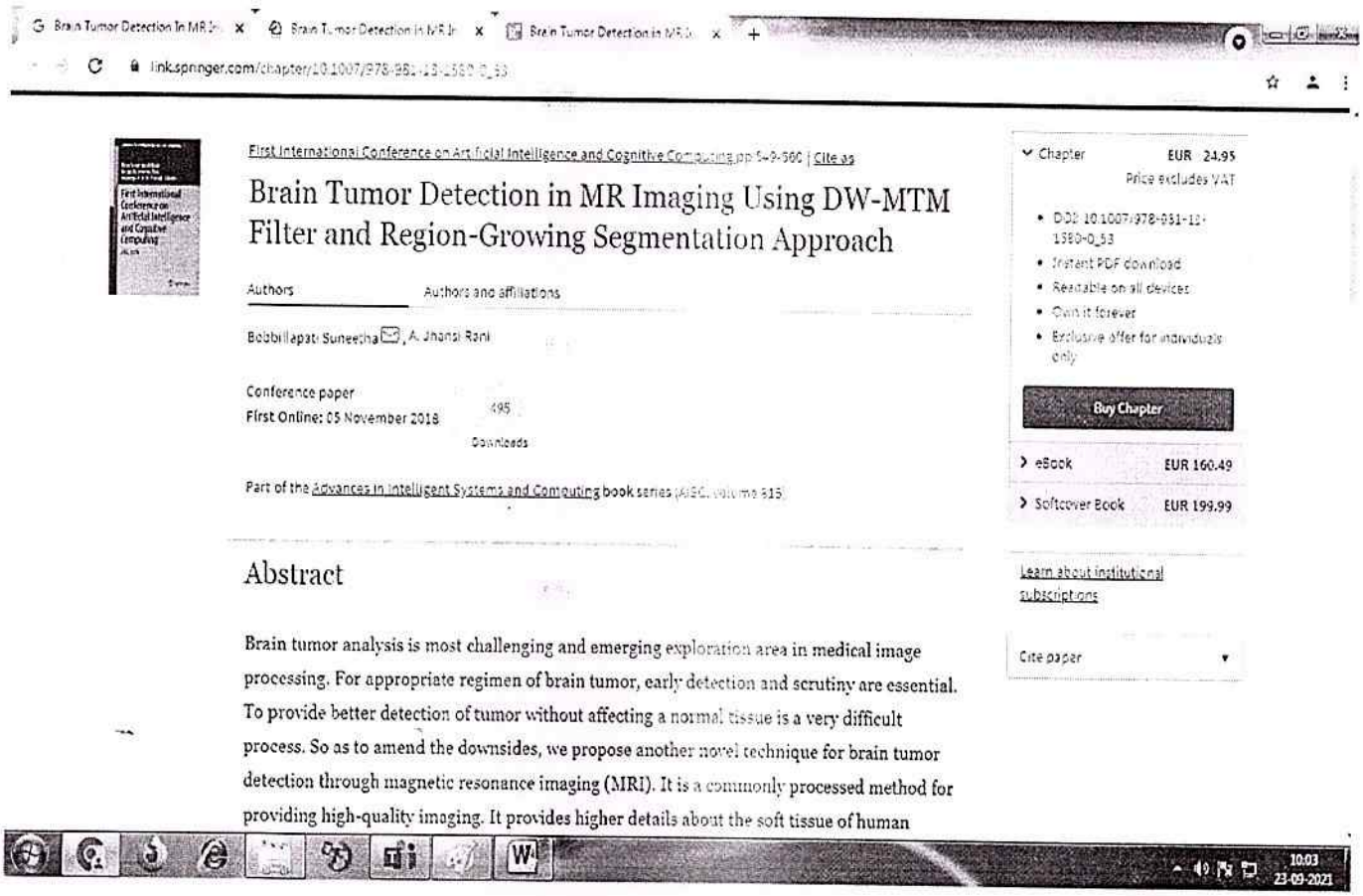
I. INTRODUCTION

Predicting something is that the most mysterious and toughest task in our world. sensible prediction makes things sensible and unhealthy prediction makes a large loss. stockexchange prediction is one in every of the toughest tasks for everybody United Nations agency deals with it. Prediction with onethousandthaccuracyiskindofnotpossible.sensible prediction suggests that prediction with thenhe shemaybeasensibleanalyst.Fromthestartof world it's been our common goal to form our life easier and comfy. The prevailing notion in society is that wealth brings comfort and luxury, there has been such a lot work done on waysthat to predict the stock markets. Varied ways, techniques and ways that are projected and used with variable results.stock exchange prediction is to predict the longer term stock victimizationthemarket statistics of past years. However, no technique or combination of techniques has been productive enough to systematically "beat the market". In my analysis work I havegot used neural network, because it is that the most powerful tool to predict and analyze knowledge. The conception of the neural network comes from the conception ofour biological brain. it'sexcellent at recognizing complicated pattern and discover

the unknown relation amongcompletely different variables of knowledge.

In this paper, we have a tendency to studied heap concerning the stock exchange statistics. we have a tendency to use Hyderabad stock market, People's Republic of Andhra Pradesh as our knowledge supply. we have a tendency to choose ten firms from completely different class and collect their last six months knowledge. This knowledge archive contains Brobdingnagian quantity of knowledge with multiple dimensions. As a research worker we have a tendency to apply a applied mathematicstool Principal part Analysis referred to as PCA to scale back the information dimension. Reducing knowledge dimension is critical as a result of massive dataset needed longer to coach in Neural Network(NN). when reducing knowledge dimension we have a tendency to implement neural network to coach the information set and neural network notice the relation between completely

(2)



First International Conference on Artificial Intelligence and Cognitive Computing pp 549-560 | Cite as

Brain Tumor Detection in MR Imaging Using DW-MTM Filter and Region-Growing Segmentation Approach

Authors | Authors and affiliations

Bobbillapati Suneetha ✉, A. Jhansi Rani

Conference paper
First Online: 05 November 2018

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 615)

Abstract

Brain tumor analysis is most challenging and emerging exploration area in medical image processing. For appropriate regimen of brain tumor, early detection and scrutiny are essential. To provide better detection of tumor without affecting a normal tissue is a very difficult process. So as to amend the downsides, we propose another novel technique for brain tumor detection through magnetic resonance imaging (MRI). It is a commonly processed method for providing high-quality imaging. It provides higher details about the soft tissue of human

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A356 as matrix and nano SiC as reinforcement material nanocomposites are fabricated in this work. Since nanoparticles tend to agglomerate into large clusters during composite processing, effect of ultrasonic cavitation to avoid agglomeration and clustering of nanoparticles in melts is studied. Cavitation pressure required to be developed by the ultrasonic transducer to disperse reinforcements is evaluated. Uniform distribution of nanoparticles is ascertained by SEM test. EDS analysis reveals that there is no contamination of the fabricated composite. Fabricated nanocomposites are then machined into tensile, wear test specimens of dimensions according to ASTM standards. Mechanical properties like tensile strength, hardness, ductility, sliding wear resistance are evaluated and compared with pure aluminum alloy. Machinability and electrical conductivity also evaluated. In the present work, an attempt has been made to confirm the applicability of ANN techniques for prediction of wear of MMNCs by comparing the results of ANN with the experimental results. In addition to the above prediction model, yield strength results are validated using an analytical model.

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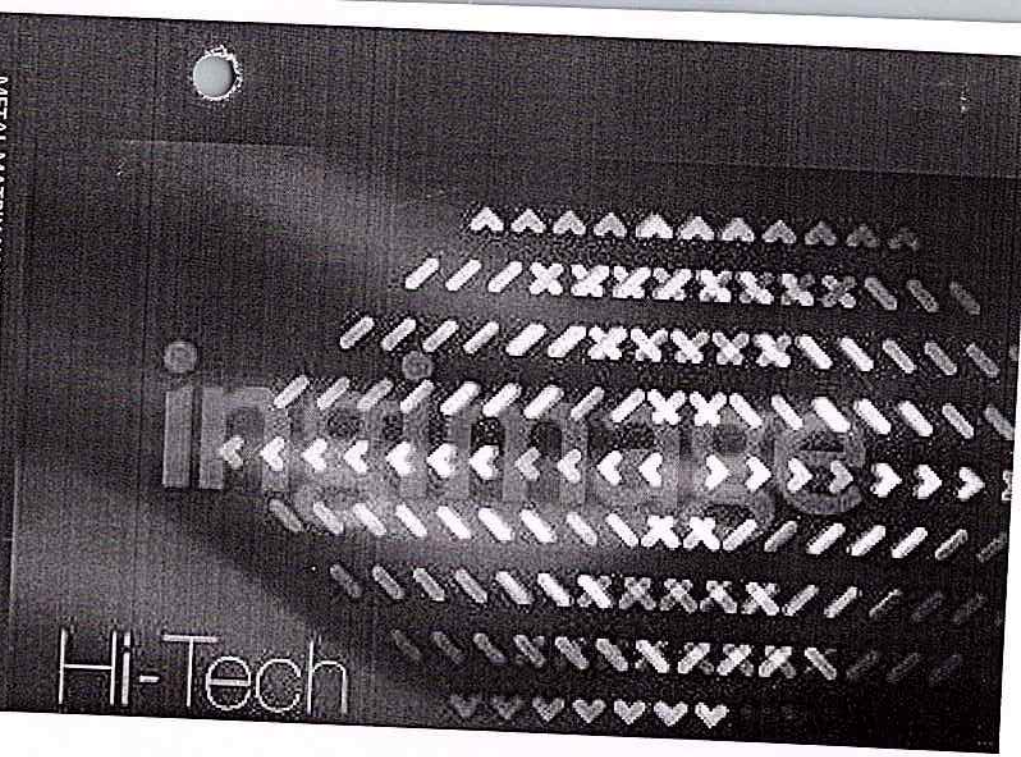
METAL MATRIX NANOCOMPOSITES

Donthamsetty



Suneel Donthamsetty

Synthesis & Characterization of Metal Matrix Nanocompoites

With Ultrasonic Cavitation Assisted Dispersion of SiC Nanoparticles in A356 alloy.

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2018

CONTENTS

MCA - 2018

MULTI INTERFACE TCP FOR HANDOVER IN NEXT GENERATION WIRELESS NETWORKS

Dr.K.LakshmiNadh[1], Dr.S.Siva Nageswara Rao[2], G. Sambasiva Rao[3]

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Abstract

Multi interface network environment provides a TCP session between two hosts connected with wired or wireless channel. If the two mobile hosts are connected to the core network through homogeneous access networks, the speed will be maintained uniformly, otherwise the difference in bandwidth of two end channels leads to asynchronous service environment.

This paper describes various approaches of TCP handover in asynchronous manner and connected design issues. Further these design issues are addressed using the concept of dynamic buffer. At the end of this paper performance evaluation mechanism for dynamic buffer approach is also addressed.

1. Introduction

Mobility is the most important aspect of today's wireless environment. Mobility can be attained by handover mechanisms in wireless networks. Handover is the process of changing the channel associated with the current connection while a call is in progress [1]. In wireless environment, the handovers are classified into two main streams

1.1 Horizontal Handover

Horizontal handover involves a device to change their point of attachment with Access Point (AP) within the same type of network to maintain connectivity [2]. It can be further classified into Link-layer handover and Intra-system handover. Horizontal handover between two AP, under same foreign agent (FA) is known as Link-layer handover. In Intra-system handoff, the horizontal handover occurs between two BSs that belong to two different FAs and both FAs belongs to the same system and hence to same gateway foreign agent (GFA).

1.2 Vertical Handover

Vertical handover (VHO) refer to the spontaneous handover from one technology to another in order to maintain the connectivity among the nodes [3]. The vertical handover allows a terminal device to change networks between different types of networks (e.g., between 3G and 4G networks) [2]. There are three important phases [4], [5] in vertical handover, those are system discovery, vertical handover decision, and vertical handover execution. In the system discovery phase, the mobile terminal regulates which networks can be used. These networks can announce its parameters such as supported data rates and Quality of Service (QoS). In VHO decision phase, the mobile terminal determines whether the connections should continue using the current network or be switched to another network. The decision may depend on various parameters or metrics including the type of the application, bandwidth and delay required by the application, access cost, transmit power, and the user's preferences. During the VHO execution phase, the connections in the mobile terminal are re-routed from the current network to the new network in a seamless manner. This phase includes the authentication, authorization, and transfer of a user's context information [6].

ISSN : 0950-0707

HIGH-SPEED AND AREA EFFICIENT CONFIGURABLE PARALLEL ADDER FOR APPROXIMATE COMPUTING

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ABSTRACT: In this paper the implementation of high speed and area efficient configurable parallel adder for approximate computing is done. Basically, adders plays very important role in DSP and micro processor applications. The entire configurable parallel adder structure is divided into three stage, they are pre processing stage, carry generation stage and post processing stage. The array generation stage plays very important role in entire system. From results it can observe the RTL schematic, Technology schematic of configurable parallel adder. Hence the configurable parallel adder gives effective results.

KEY WORDS: Approximate computing, carry mask able adder, parallel adder, RTL (Register Transfer Level), CMHA (Carry Mask able Half Adder).

I. INTRODUCTION

Basically, in VLSI chip design signal processing is implemented for effective integration in the system. In present generation, integration plays major role to get effective output. In signal processing applications the capacity of signal is computed [1]. In VLSI design mainly energy and area plays important role in the entire system. Two main forces are required to reduce the energy consumption. The operating frequency and chip capacity is operated in the system for the purpose of growth. By using cooling techniques the energy consumption is determined.

In electronic devices the battery life plays important role in the system. There will be a limitation for battery life and the operation time is also prolonged in the entire system.

In signal processing algorithms, multiplication operation plays important role in entire system. By using adders, energy and latency is considerable. In VLSI design, adder gives low energy consumption. Logic levels and circuit in multipliers is extended and area is consumed. To perform high speed operations, multipliers are arranged in parallel form. Adders are classified based on two multipliers. They are fully parallel adders and fully serial adders [2]. Various bits are operated using single digit serial multiplier. Here by using this, both area and speed is operated at highly.

In digital computers and digital signal processor, the addition operation is performed effectively. Arithmetic operations are performed in basic building blocks which plays major role in entire system. In hardware architecture, arithmetic unit plays major role and process of addition operation is easily performed. Different characteristics and different architectures are existed to perform the arithmetic operations. Binary adder structure is implemented and compared with various analysis [3-4].

The configuration of adders are classified into various types they are Ripple carry adder, carry skip adder, carry look ahead adder and carry select adder. Carry skip optimization algorithm is introduced to map the problems occurred in the system. Multi level tree structures are implemented in the carry skip optimization technique. This will fix the length of modules in the system. This will optimize the number of levels, number

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Object Tracking Techniques and Performance Measures – A Conceptual Survey

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Abstract—**Object tracking is an important computer vision chore which has key applications such as human computer interaction (HCI), visual surveillance, video compression, etc. In spite of widespread research on this topic, the majority of object tracking algorithms suffers from complications in treating complex object appearance changes caused by factors such as illumination variation, partial occlusion, shape deformation, and camera motion. Hence, operative modeling of 2D appearance of tracked objects is a crucial issue for the successful operation of a tracker. The main goal of computer vision is to permit computers to imitate the primary to complex functions of human vision to a minimum degree of acceptance. In order to achieve this goal, a significant effort has been made on object tracking which is a stimulating research topic in computer vision. A large number of techniques have been proposed for object tracking. Along with the techniques, different design metrics are also proposed. In this paper an exhaustive survey has been conducted on both the techniques and design metrics.**

Keywords—HCI, Kalman filter, Object tracking, Occlusion.

I. Introduction

Basically, the core of object tracking is to vigorously guesstimate the motion state which includes location, orientation, size, etc. of a target object in each frame of a video or image sequence. Object tracking is effectively applied to observe human actions in suburban areas, parking oodles, and banks [1][2]. In traffic transportation, object tracking is widely used to handle with flow monitoring [3], accident detection [4], pedestrian counting [5], and many others. Another key application of object tracking is in video compression to robotically detect and track moving objects in videos [6]. As a consequence, more coding bytes are allotted to moving objects and less coding bytes are used for backgrounds. Object tracking also has several HCI applications such as hand gesticulation identification [7] mobile video conferencing [8] and etc.

A. Overview of object tracking

A classical object tracking scheme is composed of four units: object initialization, appearance modeling, motion estimation, and object localization.

- Object initialization: This may be manual or robotic. Manual initialization is accomplished by users to mark object locations with bounding boxes or ellipses. Automatic initialization on the other side is ordinarily attained by object detectors like face or human detectors.
- Appearance modeling: This usually involves two mechanisms: visual representation and statistical modeling. Visual representation emphases on how to build robust object descriptors using various types of visual features. Statistical modeling focuses on how to construct operative precise models for object identification using statistical learning techniques.
- Motion estimation: This is expressed as a dynamic state estimation: $y_t = f(y_{t-1}; v_{t-1})$ and $x_t = m(y_t; w_t)$, here y_t is the current state, f is the state evolution function, v_{t-1} is the evolution process noise, x_t is the current observation, m denotes the measurement function, and w_t is the measurement noise. The chore of motion assessment is generally accomplished by exploiting predictors such as linear regression techniques [9], Kalman filters [10], or particle filters [11][12][13].
- Object localization: This is achieved by a greedy search or maximum a posterior approximation established on the basis of motion estimation.

B. Challenges in developing robust appearance models

Robust object tracking is becoming more challenging and difficult because of many phenomena such as,

i. Low quality camera sensors (such as those having low frame rate, low resolution, low bit-depth, and color distortion)
ii. Challenging factors (such as non-rigid object tracking, small-sized object tracking, tracking a varying number of objects, and complicated pose estimation)
iii. Real-time processing necessities
iv. Object tracking through cameras with non-overlapping views [14] and
v. Object appearance deviations (as shown in figure 1) resulted by numerous complex issues (such as environmental illumination variations, quick camera motions, full occlusion, noise commotion, non-rigid

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A Framework on Automated Ventricular Analysis of CMR Images

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Abstract— **Magnetic resonance imaging is a highly advanced reference imaging modality for cardiac morphology, function and perfusion in humans. A framework is proposed for automatic ventricular analysis using cardiac magnetic resonance images. The short axis cine CMR images are corrected for intensity-inhomogeneity using Bias Corrected Fuzzy C-Means method. Ventricular Segmentation of CMR images is important to quantitatively analyze global and regional cardiac function. Extraction of morphological and functional features of CMR images helps in diagnosis of various cardiovascular diseases. The effectiveness of the proposed framework is verified by the experimental results on real CMR images.**

Keywords— CMR, Inhomogeneity, Segmentation

I. INTRODUCTION

Heart disease is one of the most common causes of death all over the world. Different statistical surveys indicate that Ischemic Heart Disease (IHD) is becoming a major health burden especially. So, advanced research is needed for developing more cost effective technologies as a preventive measure against this silent killer.

General cardiac examination involves in assessing following four physiological measures: cardiac structure, function, perfusion and myocardial viability. Different imaging modalities including Ultrasound (US), Single Photon Emission Computed Tomography (SPECT), Computed Tomography (CT), and Magnetic Resonance Imaging (MRI) are used in performing cardiac examinations. Among these methods, Cardiac MRI (CMR) [1] is the popular imaging technique which is ionizing radiation free, non-invasive and gained substantial interest in the research community as it is capable of obtaining all cardiac measures suitably.

The magnetic resonance images are inhomogeneous in nature with low intensity profile and weak wall thickness. There are numerous causes for intensity-inhomogeneity in MRI, including B1 and B0 field inhomogeneity's and patient-specific interactions. The inhomogeneity leads to overlap of intensities between different tissues and often result in misclassification of tissues. Therefore, it is mandatory to use bias field correction which usually estimates the bias field that interprets the intensity-inhomogeneity.

The prevailing bias correction methods can be broadly characterized into two classes: prospective methods and retrospective methods. In order to avoid intensity-inhomogeneity in an image, prospective method uses either a special hardware or a specific sequence of operation during the acquisition process itself. Even though the prospective method is capable of correcting intensity-inhomogeneity, it has limited practical applications as it cannot handle patient dependent inhomogeneity's [2]. Retrospective methods rely mostly on the image data and therefore it is applied to remove the intensity- inhomogeneity's caused by patient dependent effects. Pham and prince (1999) proposed Adaptive Fuzzy C-Means (AFCM) method for energy minimization approach of bias field estimation in which a smoothing term was presented in their energy function to confirm the smoothness of the bias field. The algorithm gives better results, when the coefficients of smoothing term are adjusted appropriately. Ahmed et al (2002) proposed a modified Fuzzy C-Means (FCM) method for bias field estimation and correction to differentiate between the grey and white matters in brain MRI. Luminita Vese and Chan (2002) developed an energy function from a local intensity clustering criterion which is integrated with a neighborhood center in Level Set (LS) method. As the function is integrated into neighborhood center, the intensity distribution of each object caused misclassification and it is difficult to segment the object of interest accurately. A review on bias correction methods has been presented by [3].

Edge based and Region based Segmentation techniques are mainly classified based on the dissimilarities and similarity detection. Threshold based method [4] is one of the basic and simple segmentation techniques. Pixels are divided into two classes, one whose intensity values are less than threshold and the other whose intensities are greater than threshold.

The main limitation of thresholding is that, it is sensitive to noise [5] and it does not consider the spatial characteristics of an image. Edge detection methods are suitable only for simple and noise free images, because they fail to detect weak edges and may detect false edges in case of noisy and complex images [6]. Region based methods, based on the prior conditions and similarity of the pixel divide an image into

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materialstoday: PROCEEDINGS

7th INTERNATIONAL CONFERENCE ON MATERIALS PROCESSING & CHARACTERIZATION

17-19 March 2017

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Preparation and characterization of ternary alloy (Al-20Cu-10Mg) reinforced aluminium composite

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Abstract

A new ternary alloy is prepared (Al-20Cu-10Mg) with Al as a base material. An Al composite has been prepared using this new ternary alloy in a view to enhance strength, ductility, and effective transfer of load. Al-ternary alloy composite is prepared through stir casting route with an average particle size of 125µm at 0%, 5%, and 10% weight fractions. The casted billets are hot extruded to Φ14mm diameter rods. The mechanical behavior of composite is studied in terms of hardness, tensile, and compression. An increment of 20 % of hardness has been observed for 10% reinforced composite. Increased reinforcement enhanced the mechanical properties such as yield strength and tensile strength. Wear studies are also performed on the composites and revealed that the composite with 10%reinforcement has shown better wear resistance compared to the 0% and 5% composite due to the effective transfer of load from matrix to reinforced material.

Selection and/or Peer-review under responsibility of 7th International Conference of Materials Processing and Characterization.

Keywords: ternary alloy; stir casting, wear; Al composite;

1. Introduction

Metal matrix composites (MMCs) have been used in many applications due to its modulus, hardness properties, and high strength. D. Sujan et al. [1] reported that the aim of producing MMCs to get maximum possible strength to weight, and weight to stiffness ratio at low cost with light weight. The presence of small sized reinforcement particles which are induced in the matrix increases the mechanical properties like ultimate tensile strength, yield strength, young's modulus and hardness etc. Vencl A et al. [2] reported that optimum strength; hardness can be achieved at the cost of ductility due to the reinforcement of particles.

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2214-7853
Selection and/or Peer-review under responsibility of 7th International Conference of Materials Processing and Characterization.

Degradation of Fish Processing Industry Wastewater in Hydro-cavitation Reactor

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Abstract

In this work wastewater released from fish processing industry has been processed for the degradation. Degradation of this wastewater has been effectively carried out for the reduction in BOD, COD, TOC, Color and Odor. Hydro-cavitation reactor system was used for this process. This reactor system proved of its best and given satisfactory results.

Keywords: Hydro-cavitation, FPIW,Bio-degradability, BOD, COD,TOC

Preparation and characterization of ternary alloy (Al-20Cu-10Mg) reinforced aluminium composite

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A new ternary alloy is prepared (Al-20Cu-10Mg) with Al as a base material. An Al composite has been prepared using this new ternary alloy in a view to enhance strength, ductility, and effective transfer of load. Al-ternary alloy composite is prepared through stir casting route with an average particle size of 125μm at 0%, 5%, and 10% weight fractions. The casted billets are hot extruded to Φ14mm diameter rods. The mechanical behavior of composite is studied in terms of hardness, tensile, and compression. An increment of 20 % of hardness has been observed for 10% reinforced composite. Increased reinforcement enhanced the mechanical properties such as yield strength and tensile strength. Wear studies are also performed on the composites and revealed that the composite with 10%reinforcement has shown better wear resistance compared to the 0% and 5% composite due to the effective transfer of load from matrix to reinforced material.

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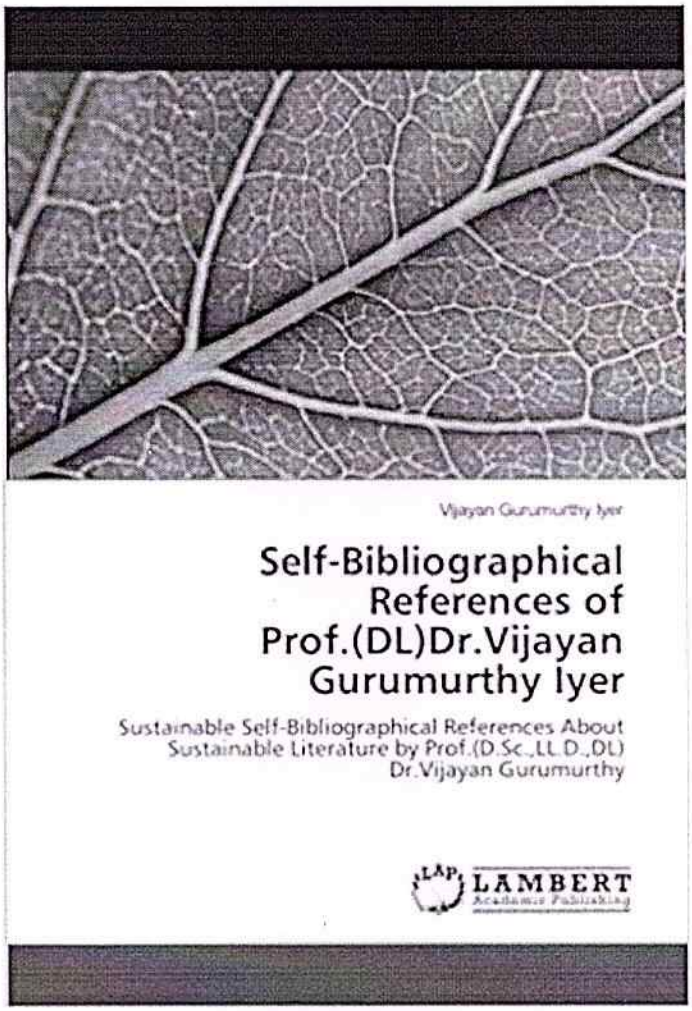

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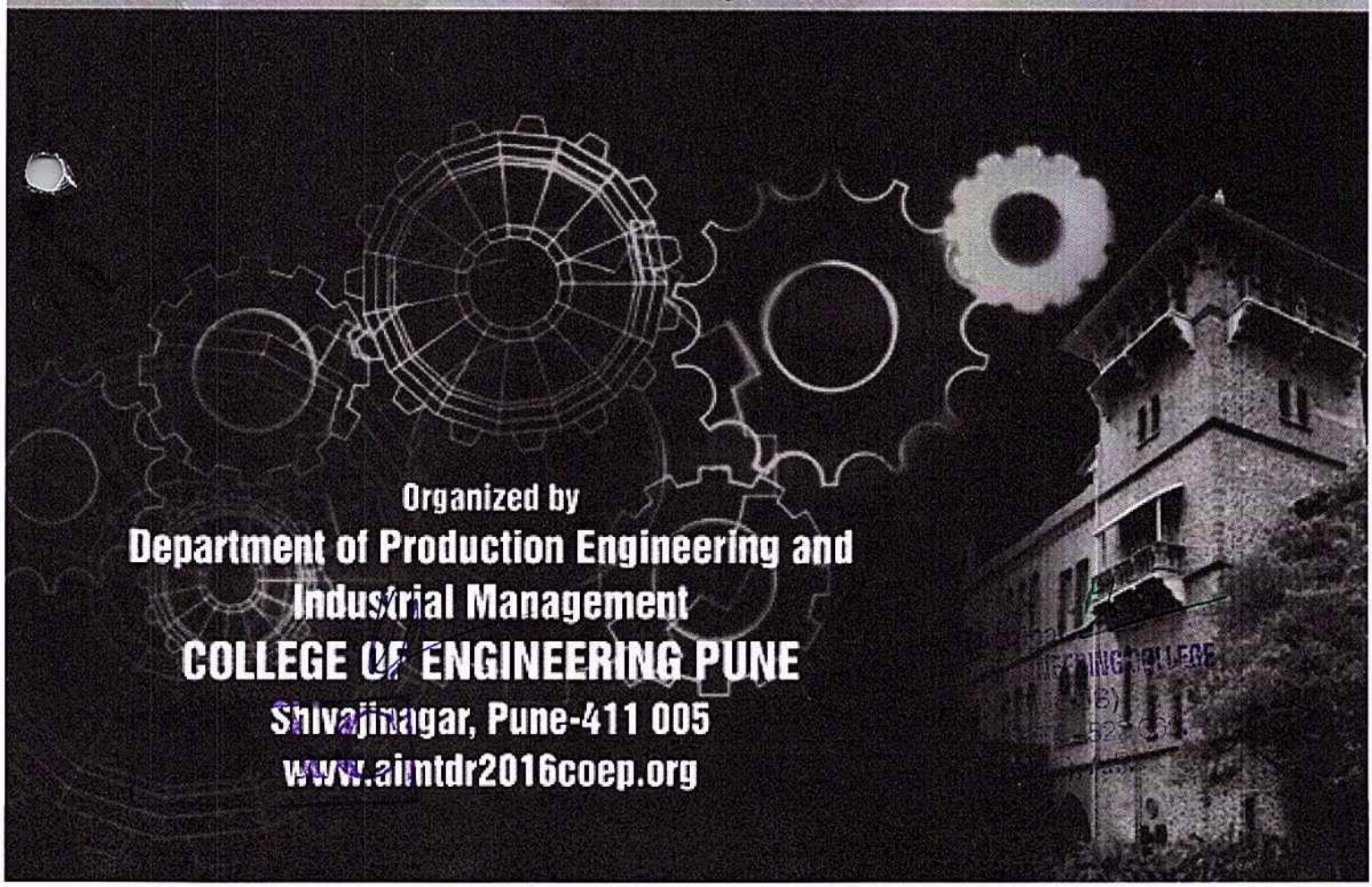

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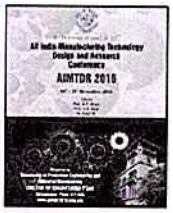

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Proceedings of
6th International & 27th All India Manufacturing Technology, Design and Research Conference (AIMTDR-2016)
College of Engineering, Pune, Maharashtra, INDIA
December 16-18, 2016

Dry Sliding Wear Studies on Al-Metal Matrix Composite Reinforced with Ternary Alloy (Al-20Cu-10Mg)

Kishore K.K.[1], Venkata Siva S.B.[2], Babu Rao J.[3] and Bhargava N.R.M.R.[4]

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ARTICLE INFO

Keywords:
AMC
Wear
Orthogonal Array
ANOVA
Taguchi Method

ABSTRACT

In the present investigation an attempt is made to establish relationship sbetween sliding speed, load, sliding distance on dry sliding wear of the aluminium and its composite using Taguchi technique. Aluminium metal matrix composites reinforced with Al-20Cu-10Mg particles are prepared by using stir casting process. The wear experiments are conducted using pin-on-disc apparatus. The experiments based on Taguchi technique are performed to acquire data in controlled way. An orthogonal array, signal to noise ratio and Analysis of variance (ANOVA) are employed to investigate the influence of process parameters on the wear behavior of aluminium and its composites. A regression equation is obtained to determine the wear rate of matrix and its composites. The confirmation tests are also conducted to verify the experimental results. It is observed that the incorporation of Al-20Cu-10Mg as reinforcement material in aluminium matrix material has improved the wear resistance. Different modes of wear are observed at different test conditions.

1. Introduction

Aluminium metal matrix composites (AMCs) have gained wide acceptance in the past three decades due to their high specific strength and stiffness and superior wear resistance [1]. Aluminium based metal matrix composites have found application in the manufacture of various automotive engine components such as cylinder blocks, pistons and piston insert rings where adhesive wear (Or dry sliding wear) is a predominant process. Aluminum matrix composites are now used in sporting goods, electronic packaging, armours, and automotive industries. They offer a large variety of mechanical properties depending on the chemical composition of the Al-matrix. The usual reinforced materials used are Al_2O_3, SiC, SiO2, BN, B_4C, and AlN.

Wear of AMC's depends on the weight fraction, morphology, and size of reinforcing phase and also strength of the interface. Several mechanisms have been proposed depending on reinforcement's nature, abrasive material, as well as matrix and fracture toughness. Al-Rubaie *et al.* [2, 3] studied the abrasive wear behaviour of Al-SiC MMC by varying the volume fraction of SiC reinforcement in the range of 5% - 20% and particle size 10, 27 and 43 □m. The results showed that wear rate increased with increase in abrasive particle size but decreased with increase in volume fraction. It is also observed that with increase in particle size of Al_2O_3 the wear rate has been increased. Thus the infiltration of SiC/ Al_2O_3 particles will increase the abrasive wear resistance of the aluminium alloy. The effect of applied load on wear behaviour of Al- 5%SiC and Al-10%SiC is studied by Chen *et al.* [4]. The results suggested that with increase in volume fraction of reinforcement particle the wear rate increased but with gradual increase in applied load the wear rates decreased. Chen *et al.* [5] considered the effect of heat treatment on the fretting wear behaviour of aluminium alloy composite synthesized by reinforcing 15 volume % SiC. It is observed that heat treatment of the composite increases the hardness of the material thus increasing fretting wear resistance.

With the increase of sliding speed/velocity/distance, the wear rate and cumulative wear loss increases for all the materials [6] and the curve trend is of linear type [7]. The sliding speed influences the wear mechanism strongly and at low sliding speed, the wear rate of the composites is lower. This may happen because at high speed, the micro thermal softening [8] of matrix material may take place, which further, lowers the bonding effect of the reinforced particles with that of matrix material [9]. At higher sliding velocity, wear rate is lower for MMCs and is due to the formation of a compact transfer layer at the region of the worn surfaces. The amount of the constituents of the counter-body in the transfer layer is seen to increase as sliding velocity increases thus forming a protective cover which tends to reduce wear rate [10]. Kowk and Lim [11] reported that massive wear occurs if the particles are smaller than a threshold value at higher speeds. Taguchi technique is a powerful design of experiment tool for acquiring the data in a controlled way and to analyze the influence of process variable over some specific variable which is an unknown function of these process variables and for the design of high quality systems [12]. Taguchi creates a standard orthogonal array to accommodate the effect of several factors on the target value and defines the plan of experiments [13, 14]. A series of alloys have been prepared and investigated for suitability as reinforcement. Copper and magnesium plays an important role in strengthening

ISBN: 978-93-86256-27-0