

3.3.1 Number of research papers published per teacher in the Journals notified on UGC CARE list during the last five years

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Link to the recognition in UGC enlistment of the	
				Link to website of the Journal	Is it listed in UGC Care list
Decolourization of Reactive Red 120 Using Agro Waste-Derived Biochar	Zunaithur Rahman	Civil	Advances in Materials Science and Engineering (Hindawi)	http://www.hindawi.com/journals/amse/	Yes
Investigation of mechanism of metal ion adsorption from aqueous solutions using Prosopis juliflora roots: Batch and fixed bed column studies	Zunaithur Rahman	Civil	Global Nest Journal	http://journal.gnest.org/	Yes
Properties of Plasma sprayed Al ₂ O ₃ -13TiO ₂ and ZrO ₂ blended coatings on bio medical alloy	S.Sathish	MECH	Transaction of the Indian Ceramic Society	http://www.indianceramicsociety.org/	Yes
Performance evaluation of Jatropa Blends in DI Diesel Engine with nano additives	Muniraja	MECH	International Advanced Research Journal in Science, Engineering & Technology	http://www.iaarset.com/	Yes
Structural, Optical studies of Pure and Sn doped Lanthanum oxide nano particles	Sureshkumar	Physics	International Journal of Innovative Research in Technology	http://www.ijirt.org/	Yes
Optical behavior of L-Serine Phosphate, a Semi organic improved NLO Single Crystal	Hidayathullah et.al	Physics	Journal of Emerging Technologies and Innovative Research	http://www.jetir.org/	Yes
Autonomous Fuzzy Controller Design for the Utilization of Hybrid PV-Wind Energy Resources in Demand Side Management Environment.	A.Mohanasundaram	EEE	MDPI -Electronics (Systems & Control Engineering)	http://www.mdpi.com/journal/electronics	Yes
Comprehensive Review of KY Converter Topologies, Modulation and Control Approaches With Their Applications	RAMEEZ RAJA	EEE	IEEE Access-Open Access	http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=6287639	Yes
PERFORMANCE IMPROVEMENT OF THREE PHASE GRID-TIED PV SYSTEM WITH UPQC	RAMEEZ RAJA K,ANWAR BASHA A	EEE	International Journal Of Innovative Research In Electrical, Electronics, Instrumentation And Control	http://ijireeic.com/	Yes
Deep Text Classification and Retrieval for Text Documents	Shanker, N.R.	CSE	Intelligent Automation & Soft Computing	http://www.iospress.com/catalog/journals/intelligent-automation-and-soft-computing	Yes
Haemoglobin Measurement from Eye Anterior Ciliary Arteries through Borescope Camera	Shanker, N.R.	CSE	Computer Systems Science and Engineering	http://www.techscience.com/journal/csse	Yes
Magneto-resistance sensor-based rotor fault detection in induction motor using non-decimated wavelet and streaming data	Shanker, N.R.	CSE	Automatika	https://www.tandfonline.com/doi/full/10.1080/00051144.2022.2052533	Yes
Motor Torque Measurement Using Dual-Function Radar Polarized Signals of Flux	Shanker, N.R.	CSE	Intelligent Automation & Soft Computing	http://www.iospress.com/catalog/journals/intelligent-automation-and-soft-computing	Yes

Running State Monitoring of Induction Motor Windings Using Near Infra-red Sensor Residual Signal and Q Factor Analysis	Shanker, N.R.	CSE	Journal of Electrical Engineering & Technology	http://www.springer.com/journal/42835	Yes
Multi-Site Air Pollutant Prediction Using Long Short Term Memory	Shanker, N.R.	CSE	Computer Systems Science and Engineering	http://www.techscience.com/journal/csse	Yes
Load Balancing: DCN Servers based on Regression Analysis During Heavy and Frequent Messages	Sulthana Begam	CSE	Wireless Personal Communications	http://www.springer.com/journal/11277	Yes
Induction motor's rotor slot variation measurement using logistic regression	Shanker, N.R.	CSE	Automatika	https://www.tandfonline.com/doi/full/10.1080/00051144.2022.2052533	Yes
Early Detection of Pediatric Cardiomyopathy Disease Using Window Based Correlation Method from Gene Micro Array Data	Shanker, N.R.	CSE	Journal of Sensors	http://www.hindawi.com/journals/js/	Yes
Modified Mackenzie Equation and CVOA Algorithm Reduces Delay in UASN	Shanker, N.R.	CSE	Computer Systems Science and Engineering	https://www.techscience.com/journal/csse	Yes
Aberrant behavior prediction and severity analysis for autistic child through deep transfer learning to avoid adverse drug effect	N. R. Shanker and E. Ganesh	CSE	Biomedical Signal Processing and Control	http://www.journals.elsevier.com/bio-medical-signal-processing-and-control	Yes
Visualization of dentate nucleus, pontine tegmentum, pontine nuclei from CT image via nonlinear perspective projection	Shanker, N.R.	CSE	Signal, Image and Video Processing	http://www.springer.com/journal/11760	Yes
Load Balancing in DCN Servers through SDN Machine Learning Algorithm	Sulthana Begam	CSE	Arabian Journal for Science and Engineering	http://www.springer.com/journal/13369	Yes
Efficient Optimization Algorithms for Minimizing Delay and Packet Loss in Doppler and Geometric Sp	Shanker, N.R.	CSE	Wireless Personal Communication	http://www.springer.com/journal/11277	Yes
Multiple Controllers in SDN – A Comprehensive Survey	M.Ahsan Shariff	CSE	International Journal of Advanced Research in Computer and Communication Engineering	http://www.ijarccce.com/	Yes
AUTOMATED RAIN FALL PREDICTION ENABLED BY OPTIMIZED CONVOLUTIONAL NEURAL NETWORK-BASED FEATURE FORMATION WITH ADAPTIVE LONG – SHORT-TERM MEMORY FRAMEWORK	Dr. M.Amanullah	IT	Wiley Online Library	http://onlinelibrary.wiley.com/	Yes
CLOUD AIDED SHARED DATA WITH DIGITAL SIGNATURE USER REVOCATION	H.Ayisha Ashifa	IT	Journal of Emerging Technologies and Innovation Research (JETIR)	http://www.jetir.org/	Yes
FUZZY LOGIC FOR STUDENT PERFORMANCE EVALUATION	Dhivya Bharathi P	IT	Journal of Emerging Technologies and Innovation Research (JETIR)	http://www.jetir.org/	Yes




PRINCIPAL
AALIM MUHAMMED SALEGH
COLLEGE OF ENGINEERING

Research Article

Decolourization of Reactive Red 120 Using Agro Waste-Derived Biochar

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Adsorption behavior of Reactive Red 120 from aqueous solutions onto rice husk-derived biochar was examined in batch mode of operation. To obtain the optimized conditions, various adsorption variables including temperature, initial dye concentration, biochar dosage, pH, and contact time were studied for effective remediation of the dye. The results showed that biochar uptake capacity varied linearly with biochar dosage and pH, but varied nonlinearly with temperature. The optimum value of pH, temperature, and a dosage of biochar was obtained as 2.0, 35°C, and 1 g/L, respectively, for reactive red 120 adsorption. TG analysis, FTIR, and SEM were used to investigate biochar characterization, and the results revealed that dye sorption onto biochar caused biochar variation. The possibility of reusing the biochar was examined from desorption studies, and they are conducted by studying different elutants and by altering the ratio of solid to liquid. From the results of experiments, the rice husk-derived biochar was reported to remediate reactive red 120 with the maximum removal efficiency of 75%.

1. Introduction

The usage of water has increased to a large extent due to the rapid growth of industrialization and population in the modern world. Several pollutants are released into rivers and streams in large quantities from industries, which result in degradation of water quality and also cause disturbance to the aquatic ecosystem [1]. Water pollution is increasing rapidly, and it is considered a major challenge in the modern world. Water pollution is majorly due to a large amount of sewage and wastage released from industries during the manufacturing and processing of raw materials. The used water for proces

contaminants in 1

the environment without sufficient treatment. Colorings are one of the key contaminants that contribute to excessive surface pollution. It is due to the usage of dyes in major industries. Dyes differ from one another and are generally categorized as synthetic dyes and natural dyes [2]. Chemical methods are used to manufacture synthetic dyes. The loss of water quality was primarily caused by dyes commonly discharged from industries. [3]. Modern-day procedures and technologies are insufficient to handle these enormous volumes of dye-bearing wastewater [4]. In India, sewage treatment capacity is less than the volume of wastewater generated in major cities [5]. Dye containing effluent from surrounding water dyes often results



Investigation of mechanism of metal ions adsorption from aqueous solutions using *Prosopis juliflora* roots: Batch and fixed bed column studies

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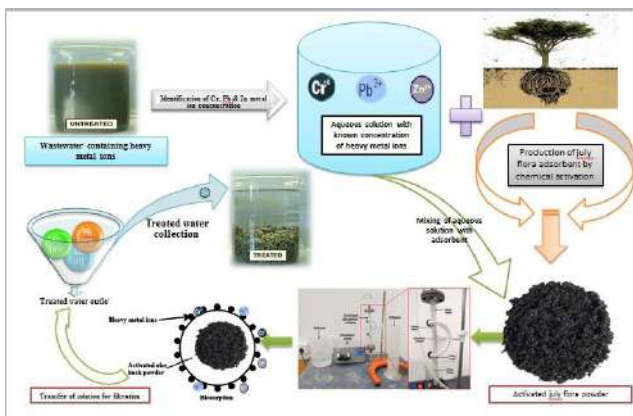
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<https://doi.org/10.30955/gnj.004061>

Graphical abstract



Abstract

Adsorption of heavy metal ions (Cr, Pb & Zn) using *Prosopis Juliflora* roots has been investigated by batch adsorption and fixed bed column process. The various properties of adsorbent were analyzed and the FT-IR spectra & SEM studies of *Prosopis Juliflora* powder, before and after adsorption of metal ions also examined. From the batch adsorption study, maximum amount of metal ion adsorption was found to be 87.12% for Cr (VI), 92.28% for Pb (II) and 95.62% for Zn (II) metal ions. The Freundlich isotherm model fitted well than the Langmuir adsorption isotherm with high regression values. From the column study, optimum bed height of 5 cm, flow rate of 5 mL/min and metal ion concentration of 100 mg/L was obtained by breakthrough analysis. The fixed bed column study followed Thomas & Yoon-Nelson model plots with good correlations and maximum desorption rate was achieved by adding 0.3N of concentrated H₂SO₄.

Keywords: Adsorption, metal ions, isotherm studies, breakthrough analysis, kinetic modelling, desorption studies.

1. Introduction

Water pollution is one of the serious issues that we are facing from earlier stage. Clean water is required for all the communities, animals and plants, industrial process etc. Supply of clean water without any pollutants is one of the critical challenges and many countries are facing these kinds of problems from earlier stages (Akpen *et al.*, 2018). The water gets highly polluted in recent days due to extreme activities of industrial manufacturing and other pathogenic activities. Then the water becomes unsuitable for drinking due to changes in their physical and chemical properties (Badmus *et al.*, 2007). The pollution in water may be created by the presence of dyes, metal ions, suspended and dissolved solids and other organic & inorganic pollutants with very high concentration levels (Hasanpour *et al.*, 2020). Among various pollutants in the water, heavy metal pollution is one of the serious issues due to metal ion's toxicity and accumulation; it is very dangerous to the surrounding environment and human beings (Biswajit *et al.*, 2011). Increasing heavy metal pollution in day by day, the present world faces many health issues such as cancer, respiratory problems and other health issues (Table 1). Hence, it is necessary to reduce/remove the accumulation of heavy metal ions presents in the wastewater before discharging them into the water bodies. Many research works have been conducted to remove the accumulation of heavy metal ions from the wastewater (Yunnen *et al.*, 2017). To develop an innovative treatment process because of urgent need, the adsorption process has focused on removing metal ion concentration using batch and fixed bed process (Hasanpour *et al.*, 2021). This process has many advantages such as low capital cost, selective metal removal, desorption with no sludge generation (Qin *et al.*, 2015). Adsorption is the process of accumulation of atoms, ions or gaseous molecules to the adsorbate d column type orbate materials



Properties of Plasma Sprayed Al_2O_3 -13 TiO_2 and ZrO_2 Blended Coatings on Biomedical Alloy

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Performance Evaluation of Jatropha Blends in DI Diesel Engine with Nano additives

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Abstract : In the present world it is basic to locate another fuel source because of the expanded industrialization and consumption of normal assets. The strategy for acquiring biodiesel from different sources and mixing them with diesel is embraced in numerous financially created and creating nations around the globe. This paper explores the usage of jatropha mix with diesel in DI-diesel motor. The presentation and ignition attributes of mixes 5%, 10%, 15% and 20% jatropha with perfect diesel. It is discovered that the mixes of biodiesel like jatropha with flawless diesel could substitute in the spot of unadulterated diesel and be utilized as a substitute wellspring of fuel sooner rather than later, hence sparing the common assets for the future age. Execution parameter like brake warm proficiency, explicit fuel utilization, demonstrated productivity, volumetric effectiveness, mechanical proficiency, brakespower is assessed and last end is drawn. As an inexhaustible, manageable and elective fuel for pressure start motors, biodiesel rather than diesel has been progressively fuelled to ponder its impacts on motor exhibitions and ignition qualities in the ongoing 10 years. Be that as it may, these examinations have been seldom evaluated to support comprehension and promotion for biodiesel up until this point. From these reports, the impact of biodiesel on motor power, economy, solidness and burning and the relating impact components are reviewed and dissected in detail.

IndexTerms - BMEP, Direct Injection, EGR, IMEP,Nano fluid

I. INTRODUCTION

The oil fuel exhaustion moving quick step by step and thus the cost of oil fuel climbs have had an extreme effect on the power and transport segments, likewise on the national and universal economy. The importance of biodiesel increments bit by bit because of the consumption of oil saves and improve in ecological concerns[1]. Neem oil is on-palatable oil and it is accessible in gigantic surplus amounts in South Asia. The neem oil generation in India is assessed to be 30,000 tons for each annum. Vegetable oils are naturally cordial and it may give an attainable substitute to diesel since these are inexhaustible in nature. Different non-palatable oils, for example, Neem oil, jatropha, elastic seed, mahua, squander cooking and cotton seed oils, are examined for their reasonableness to diesel motor fills. The primary burden of the biodiesel is its high creation cost because of the mind-boggling expense of vegetable oil, which records for practically 78% of the biodiesel generation.

The esters of vegetable oil are non-lethal, biodegradable and inexhaustible elective diesel fuel is accepting consideration.23.1% with biodiesel, which is 6% lower than that of diesel at full motor burden condition.[3] The higher thickness and lower calorific estimation of esters direct to the lower brake warm proficiency and motor exhibitions. In the advanced society having much advancement in innovation there is additionally some issues identifying with a substitute wellspring of fuel to continue the transportation part for the future generation. Any way our reliance is on diesel and oil for fueling the transportation segment and on the off chance that these proceeds, at that point this could undermine our vitality asset, influence our economy and even influence our condition so seriously that it might even take several years for a seed to grow. Along these lines we are looking for a substitute wellspring of fuel to have a supportable economy. This is conceivable with the utilization of Biodiesel which is an inexhaustible wellspring of vitality. In spite of the fact that it is unimaginable to expect to run a DI diesel Engine on 100% biodiesel like jatropha with no significant alterations in the by and by accessible motor, when mixed with diesel in different extents it would make the world marvel with its Eco-accommodating nature. Biodiesel is only long-chain alkyl esters which is gotten from creature fat and plant seeds. They are viewed as carbon sinkas they retain 78.5% of carbon in the environment as they consume and even considered as cleaner than pet

Structural, Optical studies of Pure and Sn doped Lanthanum oxide nano particles

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Abstract - Pure and Sn doped Lanthanum oxide nanoparticles were synthesized using sol-gel technique. The average crystallite sizes of pure and Sn doped lanthanum oxide is found to be 26 nm. The powder X-ray diffraction studies shows that all samples have single phase hexagonal structure. The Fourier Transform-Infrared Spectroscopy (FT-IR) study fairly agrees with the powder XRD results. From Scanning Electron Microscope (SEM) images, it is clearly seen that a uniform smooth surfaced hexagonal with high porosity structures. The UV-vis Diffuse Reflectance Spectroscopy study confirms the absorption edge shift towards the lower wavelength region with the increase in Sn-concentration in Lanthanum oxide. The Photoluminescence (PL) spectroscopy study indicates the maximum emissive power for Sn doped lanthanum oxide at 358 nm with strong intensity peak.

Index Terms - Dopant, Hexagonal, Nanoparticles, Porosity, Sol-gel.

I. INTRODUCTION

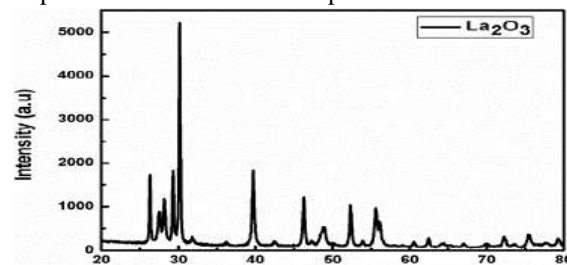
Lanthanum oxide La_2O_3 and other metallic oxide have very unique properties, which make them suitable for a lot of applications such as catalysts [1], optical filters [2], metal support [3,4], water treatment [5-8], and dielectric material [9,10]. Last decades, the synthesis of novel nano complex oxides with uniform crystalline nano size, high purity, and homogeneity had brought much attention by researchers [11]. Nowadays, many approaches have been followed to synthesize them, for example, hydrothermal microwave synthesis [12,13], Solution combustion method [14], reverse micelle approach [15], sol-gel processing [16]. Various synthesis routes are used for preparation of the nanocrystalline rare earths metal oxides. Sol gel route is found to be better synthesis method for getting the particles size metal oxide powder with less agglomeration. The sol-gel process is a versatile soft chemical process widely used for synthesizing metal

oxide, ceramic and glass materials. This process as well influences the particle morphology all through the chemical transformation of the molecular precursor to final oxide. Lanthanum nitrate and Tin nitrate (30 and 40 percentage) were mixed with 0.01M citric acid using a magnetic stirrer. Viscous gel obtained by heating was dried in an air oven at 110 °C and calcined at 600 and 800 °C for 2, 4, 6 hours to get the final powder. We report the synthesis of pure and Sn doped lanthanum oxide nanoparticles by sol gel method and characterization by XRD, FT-IR, UV- vis DRS, SEM and PL techniques.

II. RESULTS AND DISCUSSION

A. POWDER X-RAY DIFFRACTION STUDIES

The X-ray diffraction patterns shown in the Figures 1a b at room temperature revealed that, highly pure and Sn doped Lanthanum oxide nanoparticles. It is clearly seen that all the peaks are coincide with 73-2141 JCPDS. It was confirmed single phase hexagonal structure and the crystallite sizes were calculated by using Debye-Scherrer formula [17]. $D = K\lambda/\beta \cos\theta$ Hence K is a constant usually 0.9, and it belongs to the crystallite shape of prepared materials, λ is the wavelength of X-ray in nanometer, θ is theta or the diffraction angle, and β is the peak width at half maximum height obtaining from small crystallite size in radians. The average crystalline size of pure and Sn doped lanthanum oxide nanoparticles is $D=26$ nm.





Optical behavior of L-Serine Phosphate, a Semi-organic improved NLO Single Crystal

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Abstract:

Nonlinear optical activity of single crystal of semi-organic amino acid L-Serine Phosphate was developed by simple slow evaporation technique. Solubility study of the prepared compound was measured and metastable zone width was found. Single crystal X-ray diffraction (XRD) study was carried out for the grown crystal. The optical properties of the crystal were confirmed by UV-Vis analysis and powder SHG tester. The Fourier Transform-Infrared Spectroscopy (FT-IR) study fairly agrees with the XRD results and functional groups were analyzed. Vickers' micro hardness studies proven the mechanical strength of the grown crystal.

Keywords: L-Serine Phosphate, single crystal, Linear and Non-Linear, strength

I. Introduction

The Importance of nonlinear optical crystals in science and technology has been recognized recently for numerous important applications [1, 2]. This includes sensors, waveguide, transmission, infrared detectors, polarizer, transducers, and for image processing. Due to the efficacy in generating new frequencies from existing laser via harmonic generation, tremendous efforts have been made to identify new materials for such process. Organic and semi-organic materials remain the most widely used crystals for frequency conversion. Organic crystals have a large nonlinear coefficient compared to inorganic crystals. But organic crystals are very sensitive to the presence of intrinsic defects and phonon subsystem [3, 4]. Inorganic crystals have high mechanical and thermal stability than that of organic crystals [5, 6]. Semiorganic crystals are those which combine the positive and negative properties of organic and inorganic crystals. They are considered as promising nonlinear optical materials.



Article

Autonomous Fuzzy Controller Design for the Utilization of Hybrid PV-Wind Energy Resources in Demand Side Management Environment

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Abstract: This work describes an optimum utilization of hybrid photovoltaic (PV)—wind energy for residential buildings on its occurrence with a newly proposed autonomous fuzzy controller (AuFuCo). In this regard, a virtual model of a vertical axis wind turbine (VAWT) and PV system (each rated at 2 kW) are constructed in a MATLAB Simulink environment. An autonomous fuzzy inference system is applied to model primary units of the controller such as load forecasting (LF), grid power selection (GPS) switch, renewable energy management system (REMS), and fuzzy load switch (FLS). The residential load consumption pattern (4 kW of connected load) is allowed to consume energy from the grid and hybrid resources located at the demand side and classified as base, priority, short-term, and schedulable loads. The simulation results identify that the proposed controller manages the demand side management (DSM) techniques for peak load shifting and valley filling effectively with renewable sources. Also, energy costs and savings for the home environment are evaluated using the proposed controller. Further, the energy conservation technique is studied by increasing renewable conversion efficiency (18% to 23% for PV and 35% to 45% for the VAWT model), which reduces the spending of 0.5% in energy cost and a 1.25% reduction in grid demand for 24-time units/day of the simulation study. Additionally, the proposed controller is adapted for computing energy cost (considering the same load pattern) for future demand, and it is exposed that the PV-wind energy cost reduced to 6.9% but 30.6% increase of coal energy cost due to its rise in the Indian energy market by 2030.

Keywords: autonomous fuzzy controller (AuFuCo); demand side management (DSM); photovoltaic (PV) system; renewable energy management system (REMS); vertical axis wind turbine (VAWT)



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Comprehensive Review of KY Converter Topologies, Modulation and Control Approaches With Their Applications

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ABSTRACT In current scenario, the challenging task in designing a DC-DC converter has high voltage gain and small output ripple waves, which researchers deal with highly complicated. Because of its topological and Continuous Conduction Mode (CCM), the KY converters have developed a better converter than all the traditional DC-DC converters to overcome this intricacy of voltage transfer gain and output ripple waves. The KY converters had comparative and various qualities when compared with the boost converter with Synchronous Rectifier (SR). The KY converter is used in photovoltaic and sustainable power applications, which are examined in this study. KY converter incorporates mode-1 and mode-2 operation and its types, for example, one plus D and one plus 2D where the KY can deliver the Nth type of KY converters. This article provides a comprehensive review and investigation of the KY converters, which incorporates their topology with control methodologies, Pulse Width Modulation (PWM) techniques, working activity of KY converters, and types for mode-1 and -2; it interprets the few strategies the KY converter is executed and its applications.

INDEX TERMS KY converters, boost converter, Cuk converter, DC to DC converter, control methodology, digital implementation.

I. INTRODUCTION

DC-DC power converters are not only becoming more popular, but they are also being respected in the current market. It's better for invariable power sources in LCDs, Ipads, MP3 players, battery-powered industrial equipment, automobile stereos, communications equipment, fuel cells, electric vehicles, and solar cell modules tec., Good output voltage regulation, circuit layout with fewer components, good voltage transfer gain, and reduced output ripple voltage/current are all required for these applications. Based

on their structure, concept, performance, and application, many topology DC-DC converters have been constructed and classified into six generations. In Continuous Conduction Mode (CCM), typical non-isolated DC-DC converters/Luo converters with/without linked inductance have resulted in pulsating output current, higher output voltage ripples, a greater number of components, diodes, and a right half pole zero (RHPZ) structure [1]–[3]. Many KY topologies have been created to address these cries. KY family converters are recently derived DC-DC converters. Fuzzy Controller (SMC) and [4]. From this ed FLC plus SMC

The associate editor approving it for publication.





PERFORMANCE IMPROVEMENT OF THREE PHASE GRID-TIED PV SYSTEM WITH UPQC

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Abstract: This paper proposes a single stage three-phase four-wire grid-connected photo voltaic (PV) system, operating with a dual compensating strategy. The DC-bus voltage at the dc-link is improved by the PV system. Since the UPQC system is based on a dual compensation strategy. The parallelly connected inverter operates as a sinusoidal voltage source, whereas the seriesly connected inverter operates as a sinusoidal current source. This project proposes, an improvement in the real power and reactive power flow through the transmission line with UPQC using PID controller when compared to the system without UPQC.

Index Terms: DG-Distributed Generation, NPC- Neutral Point Clamped Inverter, PCC- Point of Common Coupling, PLL-Phase Locked Loop, PQ-Power Quality, PV-Photo Voltaic, RES-Photo Voltaic, SSSC-Static Synchronous Series Compensator, STATCOM-Static Compensator, UPQC-Unified Power Quality Conditioner

INTRODUCTION

To provide quality power has become today's most concerned area for both power suppliers and customers due to the deregulation of the electric power energy market. Efforts have been made to improve the power quality. Aspects on power quality can be classified into three categories that is, voltage stability, continuity of supplying power, and voltage waveform. The term custom power means the use of power electronics controllers for distribution systems. The custom power increases the quality and reliability of the power that is delivered to the customers. Customers are increasingly demanding quality in the power supplied by the electric company. One of the many solutions is the use of a combined system of shunt and series active filters like Unified Power Quality Conditioner which aims at achieving low cost and highly effective control. The UPQC is the most versatile and complex of the FACTS devices, combining the features of the STATCOM and the SSSC. The Unified Power Quality Conditioner is a custom power device that is employed in the distribution system to mitigate the disturbances that affect the performance of sensitive and/or critical load. several power quality problems related with voltage and current simultaneously therefore is multi functioning devices that compensate various voltage disturbances of the power supply, to correct voltage fluctuations and to prevent harmonic load current from entering the power system.

A Single stage three phase four wire grid-connected PV system with combined operation with a unified power quality conditioner (UPQC) is presented. The power circuit of the system, which is denominated PV-UPQC, is composed of two back-to-back connected neutral-point clamped (NPC) inverters. Thereby, series-parallel active power line conditioning, as well as injection of active power into the grid and load can be simultaneously performed.

Unified Power Quality Conditioner consists of two MOSFET based Neutral Point Clamped inverters (NPC), one shunt and one series cascaded by a common DC bus. The shunt converter is connected in parallel to the load. It provides VAR support to the load and supply harmonic currents. Whenever the supply voltage undergoes sag then series converter injects suitable voltage with supply. Thus UPQC improves the power quality by preventing load current harmonics and by correcting the input power factor. The UPQC can provide simultaneous control of all basic power system parameters, transmission voltage

The production of electrical energy from renewable energy sources (RES) has grown a lot in recent decades, mainly due to increased demand for electricity, as well as the global intensive efforts to overcome the harmful environmental impacts caused by pollutant energy sources, such as oil, coal, natural gas and others.

Normally, grid-connected PV systems can be deployed by means of single-stage or double-stage power conversion. Single stage PV systems are usually composed of only a grid-tied inverter (dc/ac converter). In this case, the PV array is directly connected to the dc-bus of the grid-tied inverter. On the other hand, in double stage PV systems, an additional dc/dc converter is placed between the PV array and the inverter. In this configuration, the maximum power point tracking (MPPT) is performed by the dc/dc converter. Considering single stage-PV systems, the task to perform achieving more efficiency when dc/ac converter





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SF-CNN: Deep Text Classification and Retrieval for Text Documents

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Haemoglobin Measurement from Eye Anterior Ciliary Arteries through Borescope Camera

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Abstract: Nowadays, smartphones are used as self-health monitoring devices for humans. Self-health monitoring devices help clinicians with big data for accurate diagnosis and guidance for treatment through repetitive measurement. Repetitive measurement of haemoglobin requires for pregnant women, pediatric, pulmonary hypertension and obstetric patients. Noninvasive haemoglobin measurement through conjunctiva leads to inaccurate measurement. The inaccuracy is due to a decrease in the density of goblet cells and acinar units in Meibomian glands in the human eye as age increases. Furthermore, conjunctivitis is a disease in the eye due to inflammation or infection at the conjunctiva. Conjunctivitis is in the form of lines in the eyelid and covers the white part of the eyeball. Moreover, small blood vessels in eye regions of conjunctiva inflammations are not visible to the human eye or standard camera. This paper proposes smartphone-based haemoglobin (SBH) measurement through a borescope camera from anterior ciliary arteries of the eye for the above problem. The proposed SBH method acquires images from the anterior ciliary arteries region of the eye through a smartphone attached with a high megapixel borescope camera. The anterior ciliary arteries are projected through transverse dyadic wavelet transform (TDyWT) and applied with delta segmentation to obtain blood cells from the ciliary arteries of the eye. Furthermore, the Gaussian regression algorithm measures haemoglobin (Hb) with more accuracy based on the person, eye arteries, red pixel statistical parameters obtained from the left and right eye, age, and weight. Furthermore, the experimental result of the proposed SBH method has an accuracy of 96% in haemoglobin measurement.

Keywords: Hemoglobin measurement; borescope camera; smartphone; anterior ciliary arteries region



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Magneto-resistance sensor-based rotor fault detection in induction motor using non-decimated wavelet and streaming data

S. Kavitha, N. S. Bhuvaneshwari, R. Senthilkumar & N. R. Shanker

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Motor Torque Measurement Using Dual-Function Radar Polarized Signals of Flux

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Abstract: Motor Torque (MT) measurement plays a vital role for evaluating the performance of squirrel cage induction motor during operating conditions. Accurate and continuous measurements of MT provide information regarding driving load capacity, performance degradation of motor, reduces downtime and increases the efficiency. Traditional inline torque sensors-based measurement becomes inaccurate during abrupt change in load during starting condition of motor due to torque spikes. Mounting of torque sensor on motor is a major problem during torque measurement. Improper mounting of sensor acquires signals from other inefficient driveline components such as gearbox, couplings, and bearing. In this paper, we propose a non-contact method for MT measurement using dual-function ultra-wide band radar sensor and called as motor torque- design for reliability (MT-DFR) method, which measures torque through and air gap magnetic flux. Torque is orthogonal to air gap flux density. Air gap flux varies with motor speed, different load, and supply voltage. Dual-function ultra-wide band radar sensor signal reflect from Air gap flux and polarized. Polarized signals of Dual-function ultra-wide band radar process with multi-synchro squeezing transform (MSST) and obtain Instantaneous Frequency (IF) of air gap magnetic flux. MSST provides better representation of reconstructed signal with higher concentration for oscillatory electromagnetic waves. MT measured from IF of MSST and Gaussian process regression. Proposed method of MT measurement performs in different loading conditions such as such as no load, static and transient load conditions, and induced torque spikes. The proposed MT-DFR method predicts the torque with 98.10% accuracy compared to traditional method and ground truth verified.

Keywords: Induction motor; ultra-wide band radar; polarization; multi-synchro squeezing transform; instantaneous frequency; gaussian process regression; torque prediction




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Original Article | [Published: 25 January 2022](#)

Running State Monitoring of Induction Motor Windings Using Near Infra-red Sensor Residual Signal and Q Factor Analysis

M. Ismail Gani , N. M. Jothi Swaroopan & N. R. Shanker*Journal of Electrical Engineering & Technology* **17**, 1761–1774 (2022)**107** Accesses | [Metrics](#)

Abstract

In Electric motors, identification of insulation and winding faults in stator and rotor during running state is a challenging task. Winding and insulation fault is identified through burning smell of coil, evaluating the efficiency of motor, or dismantling of motor. Motor running with winding and insulation faults lead to coil-to-coil and phase-to-phase short circuit fault. Winding insulation and winding coil fault in motor leads to unbalanced and differential flux radiation. Monitoring the winding and insulation during running state of motor is a challenging task. In this paper, monitoring of stator and rotor winding is proposed through NIR sensor during running state of motor. Near Infra-Red (NIR) sensor is fixed in air gaps of motor.



Multi-Site Air Pollutant Prediction Using Long Short Term Memory

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Abstract: The current pandemic highlights the significance and impact of air pollution on individuals. When it comes to climate sustainability, air pollution is a major challenge. Because of the distinctive nature, unpredictability, and great changeability in the reality of toxins and particulates, detecting air quality is a puzzling task. Simultaneously, the ability to predict or classify and monitor air quality is becoming increasingly important, particularly in urban areas, due to the well documented negative impact of air pollution on resident's health and the environment. To better comprehend the current condition of air quality, this research proposes predicting air pollution levels from real-time data. This study proposes the use of deep learning techniques to forecast air pollution levels. Layers, activation functions, and a number of epochs were used to create the suggested Long Short-Term Memory (LSTM) network based neural layer design. The use of proposed Deep Learning as a structure for high-accuracy air quality prediction is investigated in this research and obtained better accuracy of nearly 82% compared to earlier records. Determining the Air Quality Index (AQI) and danger levels would assist the government in finding appropriate ways to authorize approaches to reduce pollutants and keep inhabitants informed about the findings.

Keywords: LSTM; epochs; deep learning; air quality index; particulates; neural networks

1 Introduction

It is due of air that we are living today. Every month, we breathe roughly 1 million times without realizing the consequences of the air pollution we inhale. Over 93 percent of the world's population is exposed to dangerous air pollution chemicals such as Nitrogen Oxides (NO_x), Carbon Oxides (CO_x), Sulphur Oxides (SO_x), Particulate Matter (PM), Ozone (O₃), and Ammonia (NH₃) on a daily basis. Indoor air pollution is also much worse than outdoor pollution. Everyday products contain toxic compounds.

Noise, land, water, and air pollution are all major pollutants that influence humans and other living things. Among the several types of pollution, air pollution is the most serious. Natural disasters, automobiles, industries, crop fires, dust storms, man-made smokes such as burning of wood, plastics, natural gas, and coal, deforestation, population, and other factors all contribute to air pollution in India and is typically lower in summer than in the winter. Air pollution increases the risk of a variety of health



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Load Balancing: DCN Servers based on Regression Analysis During Heavy and Frequent Messages

G. Sulthana Begam¹ · M. Sangeetha² · N. R. Shanker¹

Accepted: 6 January 2022

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Abstract

Data center network (DCN) consists of server-farms and provides various services, which includes software, storage and applications. DCN uses software-defined networking (SDN) to centralize control for enhancing performance, scalability and security in servers. Load balancing in DCN server is significant and efficient management of resources improves network performance. In this paper, logistic regression based load balancing (LLB) algorithm is proposed for Energy-aware task scheduling, routing and server load balancing of SDN based DCN, which minimizes packet loss, delay, energy efficiency, operational cost maximizes throughput, optimizes load balance during heavy and frequent messages. The proposed LLB algorithm addresses the dynamic nature of DCN in terms of span and size of message flows. LLB algorithm dynamically selects optimal server for routing based on energy consumptions of server. LLB proposes routing strategy and finds optimal routing path based on Logistic Regression analysis with considering the utility function of DCN servers and bandwidth utilization of the network. The proposed algorithm is based on Logistic regression analysis, reduces the energy consumption by 4.7–18% and improves the server utilization by 86%, in comparison to heuristic algorithms, because of stochastic gradient decent weights calculation.

Keywords Software defined networking · Data center networking · Load balance · Machine learning · Regression analysis · Energy efficiency · OpenFlow

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Induction motor's rotor slot variation measurement using logistic regression

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Research Article

Early Detection of Pediatric Cardiomyopathy Disease Using Window Based Correlation Method from Gene Micro Array Data

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Disease prediction through gene is a challenging task. Researchers have proposed algorithms to identify disease from genes. Traditional algorithms prioritize through annotation and combines the structures in biological process or molecular functions and compared with annotations of known disease genes for classification. Pediatric Cardiomyopathy is a disease due to disorder in heart muscle and identification at early stage is a challenging problem. In this paper, the above problem solves through Window Based Correlation (WBC). In WBC, Global data is reduced to spatial data using block reduction technique. After Data reduction, strong relationship analysis between the genes is identified through RMSE values between the genes. This RMSE values helps to detect the pediatric cardiomyopathy at early stage using Window based correlation method. From the results, ablation study proves an accuracy of prediction is about 85%.

1. Introduction

In human body, DNA Structure is similar in all cells and they are dissimilar in sequence, when affected by diseases. DNA consists of gene which generates a code of sequence for proteins. Genes are expressed through proteins. Proteins are specified by encoding Genes and different proteins are produced during cell regeneration. The production of protein is affected through any biological process change, which arises due to disease, stress, food and ambient changes. The proteins are produced through process of molecular biology.

Transcription of a gene from DNA into temporary molecule is called as RNA. Furthermore, the translation of the gene is represented as cellular components which builds a protein using the RNA. The DNA and RNA have similar property where each has a chain of chemicals known as

bases. The bases are termed as Adenine, Cytosine, Guanine and Thymine and generally represented as A, C, G and T. Four bases are common for DNA and RNA. Thymine RA has Uracil referred as U. Genes are building blocks of inheritance and genes are passed from one to other generation. Genes contains DNA holds information of protein synthesis.

Protein performs building block in cells. If irregularity occurs other above process results in genetic disorder. However, mutation change in DNA content of cell will change genes. Changes in gene mutation cause's irregularities in making a protein. The irregular protein never performs well and leads to genetic disorder.

Disease prediction through genes is a difficult challenge. Researchers proposed algorithms [1-3] to identify the disease from genes. Traditional algorithms prioritize through annotation and combine structures in biological process or



Modified Mackenzie Equation and CVOA Algorithm Reduces Delay in UASN

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Abstract: In Underwater Acoustic Sensor Network (UASN), routing and propagation delay is affected in each node by various water column environmental factors such as temperature, salinity, depth, gases, divergent and rotational wind. High sound velocity increases the transmission rate of the packets and the high dissolved gases in the water increases the sound velocity. High dissolved gases and sound velocity environment in the water column provides high transmission rates among UASN nodes. In this paper, the Modified Mackenzie Sound equation calculates the sound velocity in each node for energy-efficient routing. Golden Ratio Optimization Method (GROM) and Gaussian Process Regression (GPR) predicts propagation delay of each node in UASN using temperature, salinity, depth, dissolved gases dataset. Dissolved gases, rotational and divergent winds, and stress plays a major problem in UASN, which increases propagation delay and energy consumption. Predicted values from GPR and GROM leads to node selection and Corona Virus Optimization Algorithm (CVOA) routing is performed on the selected nodes. The proposed GPR-CVOA and GROM-CVOA algorithm solves the problem of propagation delay and consumes less energy in nodes, based on appropriate tolerant delays in transmitting packets among nodes during high rotational and divergent winds. From simulation results, CVOA Algorithm performs better than traditional DF and LION algorithms.

Keywords: Gaussian process regression (GPR); golden ratio optimization method (GROM); corona virus optimization algorithm (CVOA); water column variation; dissolved gases; acoustic speed; divergent wind; rotational wind

1 Introduction

UASN plays a vital role in monitoring and surveillance of ocean areas in various depths. The monitoring and surveillance applications such as pollution monitoring, underwater exploration, seismic exploration, underwater navigation and tracking, hydrography, oceanography, Unmanned Underwater Vehicle (UUV), anti-submarine warfare needs efficient routing algorithms in different ocean environments and water column variations. The ocean environments are depth, salinity, temperature, and pressure. The water column variations are geometric and Doppler effects, rotational and divergent wind stress, dissolved



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Aberrant behavior prediction and severity analysis for autistic child through deep transfer learning to avoid adverse drug effect

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ARTICLE INFO

Keywords:
Deep transfer learning
IP webcam
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Action recognition

ABSTRACT

Autism Spectrum Disorder (ASD), in child is identified through various parameters such as social skills, repetitive behaviors, speech and nonverbal communication. Among the above parameters repetitive behavior plays a vital role for physician to prescribe dosage of drugs. The repetitive behavior and more aggressiveness in the autistic child is the symptom for growth of the disease. To control the repetitive behavior, the physician prescribe the dosage level of drug based on Aberrant Behavior Checklist (ABC). The ABC is measured only for few seconds by the physician and such measurement need continuous monitoring for proper prescription of drugs and also to avoid adverse drug effect. The above problem solve through IP Webcam app based ASD recognition for continuous monitoring and replaces the empirical method of ABC measurement. In this paper, the proposed method recognizes behavior and changes in autistic child through activity detection and repetitive behaviour, due to overdosage of drugs. In proposed method, hybrid framework incorporates training of deep CNN model for the monitoring of ASD children in natural environment through Autismdata.Net. Moreover, Transfer learning avoids the over-fitting problem in small size Autismdata.Net dataset through CNN in severity analysis of child. The behavior of ASD children is evaluated through Autismdata.Net dataset and validated through drug thermo regulation of autistic child. Action recognition accuracy of the proposed method is much better than the clinical literate/therapist analysis/observation. The proposed system helps physician for regulation of dosage level to ASD children.

1. Introduction

ASD patients find difficulty in day-to-day communication such as verbal, non-verbal, social interaction, and behavior [1]. ASD in child shows symptoms such as Rett's syndrome, autistic, pervasive development and Asperger's. ASD in child is about 1:59 ratio, according to the medical records of Centers for Disease Control and Prevention (CDC), U.S.A. [2] – 2018. The CDC record data shows ASD in boys and girls such as 1:37 (boys) and 1:151 (girls). CDC record proves that the boys are affected more than girls. ADHD (Attention Deficit Hyperactivity Disorder) [3] foundation record of Australia states that ASD is diagnosed only after 4 years of age and severity of the disorder increases up to the age of 20 years and decrease in severity is after 21 years of age. However, the medical record from the various foundation and hospital reveal that ASD symptom seen only below 2 years of age. The medical statistics show the

increase of ASD in children of about 10% to 17% for every year. Furthermore, Adverse Drug Reaction (ADR) effect in ASD children leads to kidney failure, cardiac arrest, irregular heartbeats, blood pressure, and coma. The drug dosage level for ASD person depends on the behavior and clinical trait. Clinical trait is a trial and error approach, followed by the physician for drug prescription with dosage level. The clinical trait identifies a new dosage level after several tests, and effect of dosage level is not monitored in the child through regular activity in day-to-day life, which leads to ADR. Furthermore, ASD children show different symptom in activity, which varies from child to child. The ASD symptom diagnose [4] through clinical traits only and never with medical reports or continuous monitoring. The clinical trait in ASD identification is done through vision, neurological disorder, genetic and weigh/pre-birth [5]. Furthermore, the prescription of drug and dosage levels for ASD patients depends on the clinical trait. In clinical traits,

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Visualization of dentate nucleus, pontine tegmentum, pontine nuclei from CT image via nonlinear perspective projection

R. Partheepan¹ · J. Raja Paul Perinbam² · M. Krishnamurthy³ · N. R. Shanker⁴

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Abstract

Neurologist analyses shape and structure of brain parts through any medical images such as CT, MRI, and PET for disease diagnosis. For diagnosis, automatic medical image segmentation segments the parts of brain with low contrast, and artefacts are never removed over boundary region in different parts of brain. Manual segmentation shows poor differentiation in boundary regions due to artefacts or steaks. In this paper, we propose dyadic CAT optimisation (DCO) algorithm for segmenting the brain regions from CT and MRI images via nonlinear perspective foreground and background projection. DCO algorithm provides exact structure and shape of brain regions and eliminates artefacts in boundary regions. DCO algorithm delineates the boundary region such as dentate nucleus, pontine tegmentum, pontine nuclei, petrosal nerve, petrous part of temporal bone, crista galli, internal occipital crest, and mastoid emissary foramen in brain image with high visibility and enhanced boundary and differentiates deformable shape. Performance of DCO algorithm is evaluated through 50 MRI and CT brain images and eight images with complex bone and muscle mass structures of brain. DCO algorithm shows an accuracy of 90% through structural similarity index.

Keywords CT · MRI · PET · Dentate nucleus · Pontine tegmentum · Pontine nuclei · Boundary visualization

1 Introduction

CT images are prone to artefact with low contrast in boundary regions of brain due to reconstruction of image. Artefacts are classified as four types, such as physics-based artefacts, patient-based artefacts, scanner-based artefacts, and helical and multisection artefacts [1]. Physics-based artefacts occur during acquisition of data from CT images. Patient-based artefacts arise due to movement of patient during scanning [2]. Scanner-based artefacts in CT image are because of inappropriate function of scanner in CT machine. Dense

objects create streaks in CT image. In dense objects regions, CT scan image shows low contrast and unclear boundary; when X-ray beam passes over the object, photon with higher energy absorbs less than photon with lower energy [3].

The brain structure differs from person to person, even in similar age-group person. Neurodegenerative disorders, such as Parkinson's disease (PD), Alzheimer's disease (AD), Prion disease, motor neuron diseases (MND), Huntington's disease (HD), spinocerebellar ataxia (SCA), and spinal muscular atrophy (SMA), are diagnosed through deformations in shapes of brain regions and boundary edges. Neurodegenerative diseases are diagnosed through variability in brain structure from CT atlas through nonparametric and parametric approaches [4]. In parametric measurement, regression analysis and volumetric measure technique apply for structure measures. The nonparametric measurement executes the region of interest (RIO) segmentation algorithm, which is performed manually and automatically. Brain structure is measured in CT or MRI imaging through ventricle-brain ratio, and brain structure size is proportional to head estimation size.

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Load Balancing in DCN Servers through SDN Machine Learning Algorithm

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Abstract

Development in Internet technologies increases Internet users exponentially. Increase in users leads to more data center network (DCN) and heavy data traffic in servers. Data traffic in servers is managed through software-defined networking (SDN). SDN improves utilisation of large-scale network resource and performance of network applications. In SDN, load balancing technique optimises the data flow during transmission through server load deviation after evaluating the network status dynamically. However, load deviation in network needs optimum server selection and routing path with respect to less time and complexity. In this paper, we proposed a multiple regression-based searching (MRBS) algorithm for optimum server selection and routing path in DCN to improve performance even under heavy load conditions such as message spikes, different message frequencies, and unpredictable traffic patterns. MRBS selects the server based on regression analysis, which predicts types of traffic and response time based on the server data parameters such as load, response time, and bandwidth and server utilisation. MRBS combines heuristic algorithm and regression model for efficient server and path selection. The proposed algorithm reduces the delay and time more than 45% and shows better server utilisation of 83% when compared with traditional algorithms due to stochastic gradient decent weights estimation.

Keywords Data center networks (DCN) · Software-defined networking (SDN) · Load balancing · Regression model · Server selection · Openflow

1 Introduction

The DCN[1] increases due to more usage from Internet applications such as streaming videos, e-commerce, social networking, and data storage from these applications expands up to 40 ZB every year. This growing demand for data storage and access needs efficient load balancing methods for reducing latency and response time. Any request forwarded to the server needs a load balancing mechanism to select the optimum server and path to achieve maximum

throughput, as well as reduce resource utilisation for better user satisfaction. The load balancing mechanism is for the selection of the optimum server and also depends on the routing path from the request of a node to a server. The DCN applies SDN algorithms for load balancing mechanism.

SDN [2] has emerged as an efficient network technology, capable of supporting innovation in future network functions and applications, which can be implemented quickly and efficiently. Major benefits include low operating costs through simplified hardware and network management, effectively utilising all available server resource. SDN consists of data and control plane, simple forwarding devices represent a data plane, and control plane consists of a controller program to perform various network control functions involving monitor and control behavior of the underlying network. The SDN with Floodlight controller improves the load balancing in DCN server clusters, which forwards a request to the destination server based on the heuristic algorithm, designed to select the best path and server. Performance of open-source controllers in SDN such as POX, NOX, Trema, Ryu, OpendayLight, Floodlight, and ONOS

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Efficient Optimization Algorithms for Minimizing Delay and Packet Loss in Doppler and Geometric Spreading Environment in Underwater Sensor Networks

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Abstract

This paper proposes a Cooperative Ray Optimization Algorithm (CoROA) algorithm that helps minimizing the delay and packet loss arising as result of Doppler and the geometric spreading environment in underwater acoustic networks. The existing algorithms perform routing and energy management for an underwater network in the temperature and salinity environment. The proposed CoROA algorithm is known for the efficient performance in different environments such as spatial and temporal variation for improving the battery life, network lifetime and throughput. The CoROA algorithm has more than one path through relay node to reach the destination node and improves the packet delivery, throughput and minimizes the delay and packet drop. The CoROA algorithm compares well with the existing algorithms that include AODV, Lion Optimized Cognitive Acoustic Network and Cat Optimization Algorithm in cognitive networks and shows better performance in terms of efficiency.

Keywords Cooperative ray optimization algorithm · LOCAN · Doppler and geometric environment · Throughput · Packet delivery ratio

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Multiple Controllers in SDN – A Comprehensive Survey

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Abstract: Software-defined networking technology is an approach that decouples the data plane and control plane providing programmatically efficient network configuration in order to improve network performance and monitoring than traditional network management. The controller is a central unit that controls the SDN model. Through this controller, all the communication takes place. In spite of such capability, one of the difficulties of the SDN controller is a single point of failure hence If the controller fails or is hacked, the entire system will either fail or get corrupted. Multiple controllers help to improving the network reliability because the data plane can continue to operate even if one controller fails. Furthermore, a single SDN controller has many drawbacks on both performance and scalability. Thus, multiple controllers are required and critical for large-scale networks. This paper surveys latest researches on multiple controllers of SDN, benefits and challenges of multiple controllers are discussed after giving an overview of SDN and OpenFlow in the paper. Finally, we conclude this survey paper with some proposed works and suggested open research directions

Keywords: Software Defined Networking (SDN), OpenFlow, Multiple Controllers

I. INTRODUCTION

It is difficult for network administrators to operate and manage when considering dynamic application requirements with traditional network architecture. Hence Software Defined Networking (SDN) has been proposed to solve those problems. SDN separates data plane and control plane by providing the programmability to configure the network. SDN controller is convenient for network operators and researchers by obtaining the global information of the whole network. Unlike traditional network, by decoupling the control plane and data plane in SDN, control planes are merged into a single unit named controller. SDN controller is able to provide Application Programming Interfaces (APIs) to upper applications and allow operators to deploy various network policies based on the requirements. The SDN control plane may take in different forms either single controller or multiple controller architecture. Based on the earlier studies, many medium-sized networks were carried out by a single controller whereas multiple controllers are still required in many circumstances like efficiency, scalability, and availability of the networks. Through load balancing, response latency can be reduced and new controllers can be added dynamically to achieve higher performance with the help of multiple controllers. It also provides redundancy mechanism to avoid single point of failure and improves the various aspects of the control plane like scalability, robustness, consistency and security. OpenFlow is a widely adapted protocol that defines an open standard Application programming interface for Software defined networks. Most Current controllers operations are associated with the OpenFlow protocol like POX, NOX, Beacon and Floodlight. Open Networking Foundation (ONF) manages OpenFlow standards where ONF is dedication and adoption of SDN. OpenFlow proposed that a switch can establish communication with multiple controllers to improve reliability of the control plane.

II. OVERVIEW OF SDN

It describes the basic theories of SDN, including SDN architecture, SDN controllers and a typical southbound interface. SDN breaks the vertical integration by decoupling control plane from data plane. With such separation, switches become simple forwarding devices and the control logic can be implemented in a logically centralized controller. It is responsible for policy enforcement, network configuration, topology management, link discovery, flow table entry and so on. SDN architecture normally contains three layers (i.e., infrastructure layer, control layer and application layer) and two interfaces (i.e., southbound interface and northbound interface). Figure 1 shows a simplified SDN architecture.



RESEARCH ARTICLE

Automated rain fall prediction enabled by optimized convolutional neural network-based feature formation with adaptive long short-term memory framework

Ananthajothi K✉, Karthick T, Amanullah M

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CLOUD AIDED SHARED DATA WITH DIGITAL SIGNATURE USER REVOCATION

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Abstract— Storage and sharing of data in cloud can be easily edited by users. To overcome this data modification in cloud a signature is provided to each individual who access the data in cloud. Once the data is edited by the user on a block, the user must ensure that the sign is provided on that specific block. When a user gets revoked from accessing the cloud the existing user of that cloud must re-sign the data signed by the revoked user. To re-sign the data the user must download the entire data and sign it. This difficulty is rectified with the a novel public auditing mechanism idea of proxy re-signatures. In addition to this, security of the data is also enhanced with the help of a public verifier who is always able to audit the integrity of shared data without retrieving the entire data from the cloud.

Index Terms — Cloud Computing, Proxy Re-Signer, Shared Data, User Revocation.

I. INTRODUCTION

Cloud computing means storing, allocating and accessing data and plans above the internet instead of our system's hard drive. The cloud is just a metaphor for the Internet. Cloud resources are normally not merely public by several users but are additionally vibrantly reallocated each demand. This can work for allocating resources to users. The aim of cloud computing is to apply established supercomputing, or high-performance computing domination, normally utilized by martial and scrutiny abilities, to present tens of trillions of computations each subsequent, in consumer-oriented requests such as commercial portfolios, to hold personalized data, to furnish data storage or to manipulation colossal, immersive computer games.

With data storage and allocating services endowed by the cloud, people can facilely work jointly as a cluster by allocating data alongside every single other. More specifically, after a user creates public data in the cloud, every single user in the cluster is able to not merely access and modify shared data, but additionally share the latest edition of the shared data alongside the rest of the group. To ensure the integrity of data, an extra safeguard is provided to the user. This is done by providing a digital signature to the data. This digital signature is a unique representation of the data and is used to verify the integrity of the data. Due to the attention of human errors.

cloud, a number of mechanisms have been proposed, such as public auditing, network security, digital signature etc... In these mechanisms, a signature is attached to every single block in data, and the integrity of data depends on the correctness of all the signatures. One of the most momentous and common features of these mechanisms is to permit a public verifier to effectually check data integrity in the cloud without downloading the whole data, denoted to as public auditing. When a user gets revoked from accessing the cloud the continuing user of that cloud have to re-sign the data authorized by the revoked user. To re-sign the data the users have to download the whole data and sign it. This difficulty is rectified alongside the novel are auditing mechanism believed of proxy re-signatures. In supplement to this, protection of the data is additionally enhanced alongside the aid of a area verifier who is always able to audit the integrity of public data lacking reclaiming the whole data from the cloud.

II. RELATED WORK

Boyang Wang et al [5] counseled a Certificateless public auditing mechanism in 2013. In that a public verifier does not demand to grasp certificates to select the right area key for the auditing. Instead, the auditing can be worked alongside the assistance of the data owner's individuality, such as her term or email address, that can safeguard the right public key is used. Meanwhile, this public verifier is yet able to audit data integrity lacking reclaiming the whole data from the Cloud but here the author didn't focus on revocation concept.

Nowadays, countless associations outsource data storage to the cloud such that a associate of an association (data owner) can facilely allocate data alongside supplementary associates (users). Due to the attendance of protection concerns in the cloud, both proprietors and users are counseled to confirm the integrity of cloud data alongside Provable Data Ownership (PDP) beforehand more utilization of data. Though preceding methods whichever unnecessarily ta proprietor to the ifiers, or familiarize cation metadata for erman S. M. et al [4] penly verifiable way





Fuzzy Logic for Student Performance Evaluation

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Abstract— In educational systems/institutions typically the success is measured by academic performance or how well students Evaluation must be done in best possible fairer manner if not degrade their future prospects and career opportunities. This study proposes a new performance evaluation method based on Fuzzy logic systems . Results of our methods for some real samples shows that our approach can be practical method for evaluating students performance in the university.

The objectives of proposed system is to provide more transparent and fairer result to all students. To achieve this makes use of Fuzzy logic.

Keywords—student performance evaluation ,Fuzzy logic system, data.

I. INTRODUCTION (HEADING 1)

- Student performance evaluation is one of the most important tasks in an evaluation institute. In educational institutions the success is measured by academic performance, or how well a student meets standards set out by governmental educational policies and/or the institutional rules and regulations. As career competition growing ever fiercer day by day the importance of students doing well in all sectors including academic institutes has caught the attention of parents, legislators and government education departments.
- Fuzzy logic was put forward earliest in 1965 by L.A. Zadeh. One of the primary applications of fuzzy logic was subway systems in Sendai city of Japan . Educational assessment is the process of documenting, usually in measurable terms, knowledge, based on the criteria incorporated. The assessment is formally defined as a measure of skills, attitudes and belief. In recent times. towards describing greater det: use.
- This can be logic techn

education domain effectively, there have been a lot efforts in defining the effective membership. Bai and Chen define fuzzy membership functions for fuzzy rules. The Fuzzy Logic techniques were proposed for determining the level of a student's understanding of a certain subject matter in the context of Intelligent Tutoring System, and in a fuzzy approach was

- proposed to assess student performance based on several criteria with a strong suggestion that the method be applied to Computer Assisted Instruction.
- We'll simply clean the data from the info set during pre-processing. It is conventional to separate the desired knowledge from the undesirable knowledge. With historical knowledge, the RECURRENT Neural Network-based model is trained. Then, during the next 6 hours, we'll construct a graph that will help us predict accurately. Given the enormous number of techniques available, we have chosen to use two primary algorithms: pre-processing and RECURRENT neural network (RNN). Preliminary process of information is to prepare it for further analysis by the primary processor. This term refers to any initial process stage in which multiple steps are required to organize knowledge for the user. A RECENT Neural Network (RNN) is a Deep Learning rule that processes incoming images and is capable of distinguishing one image from others. When compared to other classification methods, the amount of pre-processing required is significantly less.



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