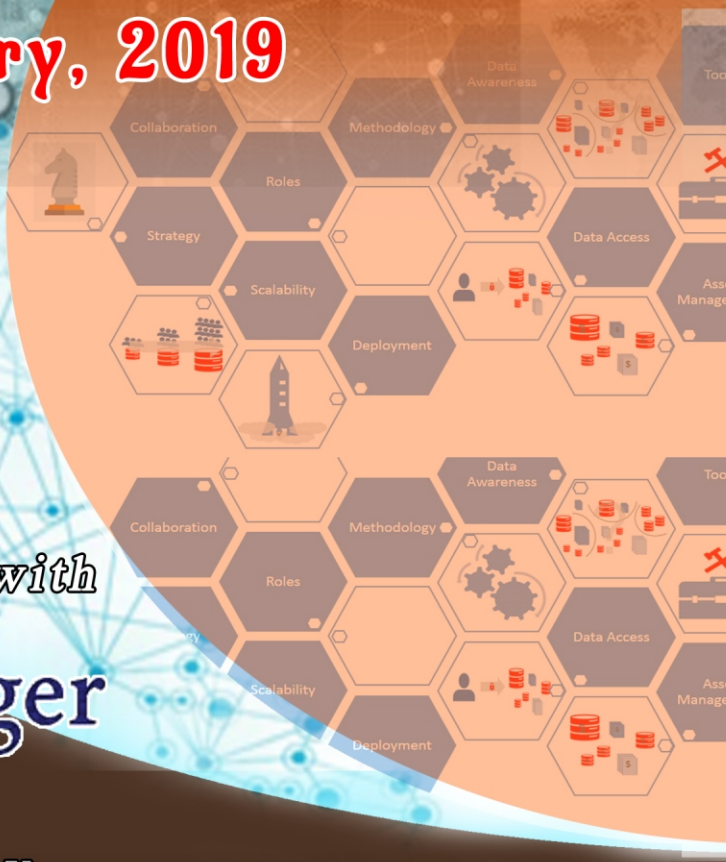
PROCEEDINGS

INTERNATIONAL CONFERENCE ON DATA SCIENCE AND MANAGEMENT (ICDSM-2019)

22nd, 23rd February, 2019



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Proceedings

of

International Conference

on

DATA SCIENCE AND MANAGEMENT

(ICDSM-2019)

22nd, 23rd February, 2019

Edited by:
Dr. Sambit Kumar Mishra
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ABOUT GANDHI INSTITUTE FOR EDUCATION AND TECHNOLOGY

Gandhi Institute for Education and Technology (GIET) is a fast growing technical institute, situated on the Southern belt of the capital city of Odisha, Bhubaneswar. It is established in the year 2009 with the most promising task of imparting high quality technical education to its students. It is an ISO 9001:2008 certified Institute with the approval of AICTE, New Delhi, Govt. of India and affiliation from BPUT Rourkela, Govt. Of Odisha. Its campus is rich in natural ambience and scenic beauty. The Institute keeps growing each year with a goal to excel and continues to enrich each year with new feathers to its cap.

GIET, Baniatangi provides its students with modern educational facilities while retraining traditional values, as well as using its strong industrial contact to moold young talented individuals who can compete in the global arena.

The Institute works with a mission to expand human knowledge beneficial to society through inclusive education, integrated with application and research. It strives to investigate on the challenging basic problems faced by Science and Technology in an Inter disciplinary atmosphere and urges to educate its students to reach their destination, making them come up qualitatively and creatively and to contribute fruitfully. This is not only its objective but also the ultimate path to move on with truth and brilliance towards success.

The aim of GIET is to rank among all leading technical institute across the country and globally as well. Consequently GIET has been awarded :

- All India Rank **66th** by **India Today** - Best Pvt. Engineering College Survey 2018
- All India Rank **144th** by **Time of India** - Best Pvt. Engineering College Survey 2018
- All India Rank **43rd** by **Data Quest** - Top T-School Survey 2018

GIET has constantly lead the way in reforming technocrats, taking pivotal roles in the reconstruction, modernization, and administration of the society. The Institute has a strong alumni base, most of them occupying coveted positions in many educational, industrial and research organizations all over the world.

■ ■ ■

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VICE CHANCELLOR

MESSAGE

It is indeed a great pleasure to learn that Gandhi Institute for Education and Technology (GIET), Baniatangi is going to organize an International Conference on "**Data Science and Management (ICDSM-2019)"** on 22nd and 23rd February, 2019. Thanks to the organizers for the initiatives and selecting a conference topic which is highly relevant in the present time. I am sure that the Conference will provide a platform to the Researchers, Academicians, Scientists and Engineers for a fruitful discussion on recent Advances and developments in the area of Data Science and Management. Further, I am made to understand that to commemorate the land mark occasion, a proceeding of the Conference is being published. I take this opportunity to give my best wishes to the Organizers, all the Members and Participants who have been instrumental in organizing this Conference and am quite confident that the Conference will meet expectations of the stake holders.

Prof. Chitaranjan Tripathy
B.Sc.(Engg.), M.Tech. (IIT), PhD. (IIT, Kharagpur)
Vice Chancellor
Biju Patnaik University of Technology (BPUT), Odisha

MESSAGE

It gives me immense pleasure that the Gandhi Institute for Education and Technology, Baniatangi is organizing International Conference on Data Science and Management (ICDSM-2019) on 22nd and 23rd February 2019. The occurrence of this type of conference has been always a very unique event. Sometimes, the organizer may not be sure whether it is either a sole event or the outset of a success story with a multitude of conference editions. I wish the Conference (ICDSM-2019) will follow the latter of my described scenarios and become a reputable, annual event in the scientific landscape of Odisha. As the Chief Guest and Keynote Speaker the Conference, ICDSM-2019, I know how hard and uncertain, it may be to acquire a sufficient number of highly respectable submissions in order to meet the requirements of the publisher.

The Conference will focus on practical application and data analytics in Engineering and Management. The two days Conference will definitely provide an excellent platform for the research scholars, academicians, students to spread knowledge on Scientific research in interdisciplinary areas.

Also, I would like to thank you Professor (Dr.)Samarjeet Borah from Sikkim Manipal University and Professor (Dr.)Sambit Kumar Mishra from Gandhi Institute for Education and Technology, Baniatangi for the organization of my participation in ICDSM-2019.

I wish the Conference a grand success.

Dr. Zdzislaw Polkowski
Professor
Faculty of Technical Sciences,
The Jan Wyzykowski University, Poland

MESSAGE

I am extremely happy to say that Gandhi Institute for Education and Technology, Baniatangi is organizing two days International Conference on Data Science and Management(ICDSM-2019). The theme associated to the Conference has a clear significance for the present scenario. The passion of learning generally helps to discover and invent new things towards development of the society. I strongly believe that this Conference will provide a unique opportunity to extend the scientific understanding towards research activities.

I congratulate the organizers and wish the Conference a grand success.

Dr. Valentina Emila Balas
AurelVlaicu University of Arad, Romania

MESSAGE

There are three major trends emerging and evolving fast with the conscious adoption of pioneering technologies and tools in the most happening IT space. It is forecast that there will be billions of connected devices (due to the surge in the consistently growing device ecosystem) and trillions of digitized objects (due to the widespread leverage of the digitization and edge technologies such as sensors, actuators, stickers, microchips and controllers, tags and codes, beacons, LEDs, specks,). On the other side, with the arrival and articulation of scores of promising digital technologies, business transformation sees a tectonic shift. Specially, as microservices architecture (MSA) emerging as the most optimized and organized application architecture pattern, it is anticipated that there will be millions of polyglot microservices, which, when systematically and smartly composed, result in path-breaking, business-critical, process-aware, people-centric and composite services.

With these physical and cyber/virtual entities are set to interact (locally and remotely) with one another in a purpose-specific manner, there will be massive amount of multi-structured data, which has to be cleanly captured, cleansed and crunched in order to extract actionable insights in time. The knowledge discovered through a host of data analytics platforms, machine and deep learning algorithms, and practices can be disseminated to software applications, devices, and IT systems. This process-driven knowledge-enablement empowers software applications, IT services, system, and network, connected devices, digitized elements, etc. in order to be adaptive in their decisions, deals and deeds. That means, every system is intrinsically enriched with appropriate intelligence in order to be self, surroundings and situation-aware. Every tangible entity, being stuffed with required insights in time exhibits, is able to be computational, communicative, sensitive, responsive, perceptive, decision-making, and active.

The data volume, variety, velocity, and viscosity are seeing a lot of strategically sound changes. The data size challenge is very humongous. And making sense and money out of exponentially growing data heaps poses a greater challenge. The new discipline of data science is all set to untangle hidden knowledge out of data. There are deterministic, diagnostic, predictive, prescriptive and personalized analytics procedures. Data mining and analytics approaches are fast maturing and stabilizing in order extricate usable insights. With the surging popularity of machine and deep learning algorithms, automated and self-analytics of tremendous amount of poly-structured data is seeing the reality. Thus, with the continued support of product and platform vendors, domain experts, data scientists, artificial intelligence (AI) and augmented reality (AR) research scientists, we can easily expect smarter hotels, homes, hospitals, etc., in the days ahead. This conference is hugely beneficial for faculty members and researchers to gain a deeper and decisive understanding of the futuristic technologies and tools in order to embark on a variety of investigations on collected and stocked data to bring forth actionable insights, which can be looped back to business workloads and IT services to demonstrate adroit behavior.

Pethuru Raj, PhD
Chief Architect and Vice President
Site Reliability Engineering (SRE) Division
Reliance JioInfocomm. Ltd. (RJIL), Bangalore 560025, India

CHAIRMAN

MESSAGE

I am really very happy to know that Gandhi Institute for Education nad Technology, Baniatangi is organizing a two days International Conference on Data Science and Management (ICDSM-2019) on 22nd and 23rd February 2019 at its campus. The main motivation of the conference, what I understand is to focus on data science techniques including exploratory data analysis as well as management. Accordingly, participants will definitely learn important concepts and theory of data science along with the challenges. A large number of experts, delegates, academicians and students are participating in the Conference and will deliberate on the topic. The Data Science as well as management in general plays major role in meeting the demands of modern IT infrastructure & IT solution that seeks continuous improvement in performance. Of course there is a growing need from the industries for development of new concepts and approach to meet the challenges in the field of information technology. Keeping in view, this Conference is being organized to facilitate meaningful interaction among the industries and R&D institutions.

Experts of reputed national and international institutes have agreed to deliver keynote addresses, invited talks and chair the Technical sessions during the Conference. It is an excellent platform for all concerned to update their knowledge and share their expertise during the Conference.

The Conference of this magnitude is quite impossible without the active participation of large numbers of dedicated researchers. I express my sincere thanks to the authors for their cooperation and contribution. I strongly believe that it would not have been possible had there been no such spontaneous involvement of these scientists and academicians.

I wish the Conference a grand success.

Prof. (Dr.) Satya Prakash Panda
Chairman
Gandhi Institute for Education and Technology
Baniatangi, Bhubaneswar, Khurda, Odisha

President
GIET University, Gunupur, Odisha

VICE-CHAIRMAN

MESSAGE

It is quite gratifying to note that the department of Computer Science and Engineering of our college is hosting the International Conference on Data Science and Management (ICDSM-2019), in association with Springer-LNDECT Series on 22th and 23rd February 2019.

Organizing such an event at this point of time reinforces our objective of developing an environment for the exchange of ideas towards technological developments. I wish the conference would be able to deliberate on current issues of national and international relevance, particularly in the field of Data Science along with other related smart processes. These ensure rapid access to infrastructure services with agility in rolling out newer products and thus, playing a crucial role in connecting towards improving the learning ecosystem, and for that matter, changing the world order itself for larger good of the human race.

In this regard, the International Conference on Data Science and Management (ICDSM-2019) aims to bring together leading academic scientists, researchers and scholars to exchange and share their experiences and research outcome on all aspects. The provision of a premier interdisciplinary platform for researchers, practitioners and educators will definitely being shared along with their views in the context of the most recent innovations, trends, as well as practical challenges encountered and solutions adopted in the fields of Data Science as well as management.

Our conference serves as a global platform for all concerned to update their knowledge and share their expertise irrespective of differences in time and geography. Our conference ICDSM-2019 serves as an excellent forum to explore the role of innovative technologies in computer science and engineering.

I convey my warm greetings and felicitations to the organizing committee and the participants and extend my best wishes for the huge success of the conference.

Prof. Jyoti Prakash Mishra
Vice Chairman
Gandhi Institute for Education and Technology
Baniatangi, Bhubaneswar, Khurda, Odisha

PRINCIPAL

MESSAGE

Data science is a multidisciplinary blend of data inference as well as technology in order to solve analytically complex problems. This aspect of data science is all about uncovering findings from data. In this regard, it is a great pleasure that our Gandhi Institute for Education and Technology is organizing two days International Conference on Data Science and management(ICDSM-2019)on 22nd and 23rd February 2019. In the wake of the recent developments and new demands being focused towards Science and Technology, it is essential to create platform for the overall growth of the nation. I am sure, this conference will definitely encourage researchers, academicians to work together for overall growth.

I congratulate the organizers for their effort and wish the International Conference a grand success.

Prof. (Dr.) Mohan Charan Panda
Principal
Gandhi Institute for Education and Technology
Baniatangi, Bhubaneswar, Khurda, Odisha

DEAN (DSA)

MESSAGE

I am very glad to say that our Gandhi Institute for Education and Technology, Baniatangi is organizing Two days International Conference on Data Science and Management (ICDSM-2019) on 22nd and 23rd February 2019 in our Campus. Today, Data Science plays a major role in meeting the infrastructural demands of modern society that seeks continuous improvement in performance. Accordingly, this Conference (ICDSm-2019) will facilitate meaningful interaction among the Industries and other research Institutions to take the lead in the technological progress of the country.

It is the most accurate platform for all concerned to update their knowledge and share their expertise during the Conference and I do hope that the delegates and participants will be highly satisfied with the outcome and would be greatly benefitted from the Conference.

I wish the International Conference a grand success.

Prof (Dr.) Jibanananda Jena
Dean (DSA)
Gandhi Institute for Education and Technology
Baniatangi, Bhubaneswar, Khurda, Odisha

HEAD (RESEARCH & DEVELOPMENT)

MESSAGE

The two days International Conference on Data Science and Management (ICDSM-2019) on 22nd and 23rd February 2019 will focus towards wide range of data mining and computational Intelligence related areas along with their algorithms and applications of current issues of almost all branches of Engineering and Technology. The Data Science has been suitably tweaked to meet the growing demands in our education sector and addressing most of the data storage and security related issues. Accordingly, with specific advantages of digital learning on cloud, the horizons of learning environments can be further expanded.

In this regard, the Conference(ICDSM-2019) is going to be a strong booting platform to initiate and propagate the diverging ideas coming out from the delegates and keynote speeches of the Resource persons.

I wish the Conference a grand Success.

Dr. Sambit Kumar Mishra
Head (Research & Development)
Gandhi Institute for Education and Technology
Baniatangi, Bhubaneswar, Khurda, Odisha

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Ramadevi Womens University, Bhubaneswar, Odisha, India

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Infrastructure As A Service Cloud Computing Model in Micro Companies

Anil Kumar Mishra, Bikash Chandra Pattanaik

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** The paper contains a description of activities concerning the problem of Cloud Computing (CC) in micro companies in Poland, especially from the perspective of model of Infrastructure as a Service (IaaS). Important aspects of CC have been discussed, e.g.: using CC systems in Poland at present and limitations to the use of CC. It is assumed that CC may be useful to reduce the cost of running a business in micro companies. The paper described is based on an extensive review to identify relevant studies published in the literature recently. It may be observed that, despite some advantages, CC systems in micro companies are not in common use. The main methods used in this study were interviewed, observation, literature study on CC but the most important method is a case study. In addition, the work contains assumptions regarding future work and trends in this field, especially in CC context.

Keywords : Cloud Computing, micro companies, hybrid systems, business process, IaaS

A framework of Fog Computing for Business

Sidhanta Kumar Balabantray, Sambit Kumar Mishra

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** In general, Cloud Computing provides desirable solution mechanism towards advancements in computing as well as network technologies. The backbone of the Cloud Computing paradigm is based on the data centres which are capable of handling, storage and processing of large scales of data. The basic concept of the fog processing has been developed in the field of the Internet of Things and artificial intelligence towards achieving effective solution mechanisms with more efficiency. Fog computing is ideally suited to distributed environments in which there are many devices, providing data, such as sensors and cameras used in IoT systems. Accordingly, fog processing also fits well with the needs of environments in which it is crucial to quickly collect and pre-process data and then forward them for central processing. In this paper, the comparison has been done among cloud computing, edge computing and fog computing along with focusing towards the role of Fog Computing linked with information communication technology in business focusing towards acquiring and generalizing empirical knowledge.

Key words : Cloud computing, Edge Computing, Fog Computing, IoT, RAS, Agility, Machine learning

Educational Data Mining: A study on socioeconomic indicators in Education in INEP Database

Satyaranjan Mishra, Hiren Kumar Praharaj
Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** The educational data mining enables the discovery of factors that make it possible to improve educational proposals, as well as to predict student performance and factors that influence learning. in view of this, the present work uses the database provided by inep, with the purpose of explaining better which socioeconomic variables influence the grades that the students obtained in the test of the enem 2016, one of the exams of major importance and with an elavada quantity untapped data. the pca technique was applied and bayesian networks were generated to analyze the performance. the results show that income, parental schooling and school type are strong influencing factors.

Keywords: *Data mining; Bayesian Network; Government Data; Enem; Educational Indicators*

Prediction of Malignant & Benign Breast Cancer: A Data Mining Approach in Healthcare Applications

Bijaya Nanda, Chinmaya Ranjan Pattnaik

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** As much as data science is playing a pivotal role everywhere, healthcare also finds it prominent application. Breast Cancer is the top rated type of cancer amongst women;which took away 627,000 lives alone. This high mortality rate due to breast cancer does need attention, for early detection so that prevention can be done in time. As a potential contributor to state-of-art technology development, data mining finds a multi-fold application in predicting Brest cancer. This work focuses on different classification techniques implementation for data mining in predicting malignant and benign breast cancer. Breast Cancer Wisconsin data set from the UCI repository has been used as experimental dataset while attribute clump thickness being used as evaluation class. The performances of these twelve algorithms:Ada Boost M1, Decision Table, J-Rip, J48, Lazy IBK, Lazy K-star, Logistics Regression, Multiclass Classifier, Multilayer–Perceptron, Naïve Bayes, Random Forest and Random Tree is analyzed on this data set.

Keywords- Data Mining, Classification Techniques, UCI repository, Breast Cancer, Classification Algorithms.

Feature Selection and Clustering of Documents using Random Feature Set Generation Technique

Prakash Chandra Jena, Himadri Sekhar Tripathy

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract— In this digital world, information exists in abundance everywhere. Document Clustering and instances involving Pattern mining requires a subset of relevant features for analysis. Feature sets, which constitute one or more words, from the content of a document play a vital role in document clustering. A filter based method for feature selection algorithm called Random Feature set Generation (RFG) is proposed in this paper for document clustering. In feature selection, the selected features are checked for its quality using a quality metric and the best quality terms are used as the basis for document clustering ignoring the worst terms as well as frequently occurring common terms from the corpus. Exhaustive experimentation for identification of feature sets is impossible due to its increased demand for computational effort. The advantage of RFG approach lies in selecting "Good" quality terms for document clustering. The Feature sets thus obtained are used for Document clustering using K-Means and X-Means clustering algorithms. Experimental results have shown "Good" quality terms filtered using Random feature set Generation (RFG) do not rely on monotonicity assumptions and it shows positive correlation than the feature sets obtained using Sequential forward feature set generation.

Keywords— Featuresets, clustering, sequential forward, random feature set, k-means, x-means, etc.

Characterization &Optimization of Tool Design of an Injection molded part through Mold-Flow Analysis

Padmalochan Prusty, Chandan Kumar Sethy, Laxman Kumar Sahoo

Gandhi Institute for Education and Technology, Baniatangi,Bhubaneswar

Abstract **-** Engineering polymers has wide applications in automobile parts & its accessories are mostly produced by injection molding technique that gives good dimensional quality, durability, molding quality & finishes. The challenging issue in injection molded product is to maintain the quality of the product in terms of dimensions, molding quality & finishes, etc. This depends on the part design, tool design, mold quality, injection molding process parameters, polymer material characteristics, etc. Experimental verification has been done with tool design, subsequently repeated number of analysis made through 'Mold-flow Plastic Part Advisor' to get optimized tool design considering all the injection molding process parameters. Finally the mold being manufactured taking inputs from 'Mold-flow Plastic Part Advisor' and injection molded components were produced that improved the quality of the product, reduces cycle time. Thus reduces the cost of the product & the process.

Key words: Tool design, Injection mold, Injection molding process, Mold-flow Plastic Advisor

A generalized partial canonical correlation model to measure contribution of individual drug features towards side effects prediction

Satya Krishna. V, K.G.S. Venkatesan

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract- Accurate prediction of drug side effects is an open problem of importance for drug development. Side effects are related to a variety of interlinked aspects such as chemical properties of drugs, drug-target interactions, pathways involved and many more. Various statistical methods and machine learning techniques have been implemented towards creating models that incorporate such features to predict adverse drug reactions. One of the chal- lenges in these efforts is to disentangle interdependence of features to identify contribution of individual features towards specifying side effects. We present a partial canonical correlation analysis model that facilitates enumeration of contribution from individual drug features towards prediction of a class of side effects, irrespective of interdependence on other features. The model is a combination of analytical and numerical strategies, and can be used to arrive at the most effective set of drug features starting from a range of available descriptors. For eye and nose related side effects, we demonstrate the implementation of our model for identification of best 2D and 3D chemical features that are closely linked with organ-specific adverse reactions. Despite the pres- ence of large number of drugs that are simultaneously associated to both the organs, the model could discern distinct drug features specifically linked to each class. With the availability of large amount of data with an array of interdependent drug descriptors, such a model is of value in drug discovery process as it enables in dealing with multidimensional drug features space.

Keywords- Drug discovery Partial canonical correlation Chemoinformat- ics · Side effect modelling Feature selection

A Survey: Prediction of Student's Performance using Deep Learning

Sunita Barik, Aurobindo Kar

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract — The primary purpose of any educational institution is to ensure that quality education is provided to its students. Thus, identifying factors affecting student's performance and then try to resolve weakness of these factors play a vital role in providing highest quality of education. This project helps in predicting overall performance of the student by extracting useful available data (student courses records, event participation, extra and co curricular activities, placements). Being able to predict student performance will enable a teacher or any educational institute in providing appropriate assistance to those students who are at risk to perform poor in their academic, placement as well as in other co-curricular and extra-curricular activities. Assisting them in a timely manner will reduce the number of students failing a particular course and will also indirectly reduce the number of students who are dropping out of their educational program.

Keywords—student, performance prediction , academics, extra curricular, placement prediction.

A Brief Review on Fruit Fly Algorithm

Purnya Prava Nayak, K.Muralibabu

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract – In the past few years, many numbers of swarm optimization algorithms have been proposed and used in various application areas. Swarm optimization algorithm is a technique that enhances an issue by iteratively trying to improve an applicant's arrangement as to a given proportion value. In this study, a brief description of a recently proposed Fruit Fly algorithm (FFA) is presented. The implementation of FFA is dependent on the search behaviour of the fruit flies and based on this concept, this algorithm has been applied in many of the research fields and also in fields like science, engineering, medical, agriculture, etc. It also includes the variants of FFA.

Roadmap for Strategic IT Business Alignment with Indian Industries

Dhaneswar Parida, Sachi Nandan Mohanty

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract - Technology when used in a broader sense, the Information Technology and the Information system plays a major part in the business initiatives and the transactions. The Technology road mapping concept is the new version of management tool to run a business effectively and smoothly. The use of those new languages makes the management process flow smoothly and delivers quality product and service in an organized way.

Keywords - Bigdata, Nosql, cloud computing, machine learning, IT strategies

Analysis of PDF of different channel models in FSO

Deepak Kumar Rout, Amita Rani Das

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** Recently free space optical communication (FSO) is a high demanding technique due to the high ability it offers. But it is limited to certain fields due to some drawbacks. Generally this communication used for short range applications due to presence of various atmospheric turbulence. In this paper we are analysing and comparing the PDF of various channel models such as Gamma-Gamma, log normal, Nakagami, Weibull distribution, K- distribution and Negative-exponential etc.

Keywords **-** FSO, Turbulences, PDF.

Energy Efficient and Multicast Based Greedy routing for Proactive and Reactive Routing Protocols

Banoj Kumar Panda, P.Suneel Kumar

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract- Due to frequent path breakup the lifetime of an adhoc network decreases which leads to the development of energy efficient routing. Again to improve the speed and scalability issue, geographic routing has a prior importance. In this paper, we have addressed the improvisation in QoS for adhoc network on the basis of multicast based greedt forwarding strategy for different routing protocols under various constraints. We have proposed these methos on proactive and reactive protocols to analyze major performance factors like control overhead, energy consumption, throughput and end-to-end delay using NS3.

Keywords-Greedy routing, multicast, energy efficiency, routing protocols, performance metrics.

Capturing Anomalies of Cassandra Performance with Increase in Data Volume:A NoSQL Analytical Approach

G.Arul Dalton, Suchismita Mishra

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Abstract **-** NoSQL database technology has been doing rounds since the early 1990s but it was the exponential growth of internet and the rise of web applications that lead to a dynamic surge in the popularity of NoSQL databases. The BigTable research by Google (2006) and the Dynamo research by Amazon (2007) paved the way for databases which could develop with agility and operate at any scale. Cassandra and MongoDB have emerged as the two most widely used NoSQL database and hence either of the two is preferred depending on the data problem user is attempting to solve. This paper describes the underlying principles as well as the differences between both the databases. We focus on showing the anomaly in performance of Cassandra as the data volume increases and at the same time we compare its performance with that of MongoDB. We establish how important is a factor is data volume in choosing either of the database for an application. Extensive experiments have been carried out to scale the performance in terms of anomaly similarities and the future scope is pinpointed.

Keywords **-** NoSQL database. Sharding. Consistency. Indexing. Replication.

t-SNE Manifold Learning Based Visualization: A Human Activity Recognition Approach

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Abstract -Visualization of data which is enormously generated at present has become one of the major steps in machine learning before applying the classifier on related domain problems. This paper inculcates the visualization and recognition of human activity from n-dimensional space to low-dimensional space by implementing an algorithm and sometimes best termed as a tool called as t-SNE (t-distributed stochastic neighborhood embedding), which is a non-linear algorithm and has been inspired by SNE (stochastic neighbor embedding). This algorithm is applied to build the relationship between various actions done by human, where class label information has been introduced to well represent the actions from similar action class. This comes under a machine learning methodology called manifold learning, where the class label information helps to classify the action done by human. This learning technique uses probabilistic embedding of neighbors from n-dimensional space with low-dimension to find a mapping of data points from one distribution to another distribution. Experimental results and their comparison with other visualization tools like PCA shows the effectiveness of t-SNE algorithm with human activity recognition and MNIST dataset. The results produced by t-SNE algorithm in terms of visualization are always better than many other algorithms.

Keywords-Dimensionality reduction, Manifold learning, Stochastic neighbor embedding, Visualization.

Data Lineage in Apache Spark: Survey

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Abstract—Apache spark is very powerful when we consider the parameter latency, security, speed and fault tolerance. This paper lays attention on lineage in apache spark. Paying attention towards the lineage, when we perform any transformation operation, the resultant records are stored in RDD. And RDD Lineage keeps track of the changes made in records so whenever data failure occurs it can replay the systems for recreating lost outputs. Also we mentioned different lineage types along with various lineage tools like Ramp, Newt, Titian & Spline.

Index Terms— Lineage in Apache Spark, Fault tolerance, Hadoop Map Reduce data provenance, Spline, Titian, Newt, Ramp, High Performance Cluster Computing.

Use of Data Analytics for effective e-Governance : A Case Study of "eMutation" System of Odisha

Bright Anand D, Anil Kumar Mishra

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Abstract -The e-Governance always mean to Good Governance which is the delivery of services at the citizens' end. The cost of the service is also minimum. To strengthen the service deliveries, Government needs to emphasise Information and Communication Technology(ICT) and make best use of it. Now, the automation or process conversion from manual to computerized system is not only the objective. The use of Machine Learning, Data Mining, Artificial Intelligence are also to be applied on e-Governance to increase the throughput. Big Data and its analysis is also used for analyzing the services, their impacts on the society and sustainability of the services for socio economic development of the nation. Decision making for provisioning G2G, G2B and G2C services would be accurate with these analytics. So, Data Analytics is an important stream of Computer Science to provide better governance to the society. The Land Records System of Odisha and the e-Governance initiatives taken in that area is studied in this paper.The eMutation, which is the online updation of Record of Rights (RoR) is thoroughly analysed and the improvement of service delivery using ICT is discussed. The analysis indicates that, how e-Governance service is more effective with Data Analytics and it provides many performance indicators to the government for taking right decisions at right time. The Dash Board, Websites and MIS reports are designed and displayed in such a manner, that becomes more effective and responsive to the need of the citizens and society.

Key words - Data Analytics, Data Mining, e-Governance, eMutation, RoR

A Meta-Analysis of Impact of ERP Implementation

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Abstract **-** In the era of globalization, the most of the corporates focus to automate their system to excel and enhance the capacity of the organization. In this context a number of research papers have been published to understand the automate system process. The automate system further named as Enterprise Resource Planning. In this article, the author try to explore the Enterprise Resource Planning system, pre implementation, post implementation challenges, opportunities and impact of the various scenario through published articles in reputed journals. For this study, the author has identified one hundred one reputed article published during two thousand fourteen to November- two thousand eighteen. The study has segregated to five broad regions like pre and post implementation of Enterprise Resource Planning systems, extension, trend and prospective and education. It was found that most of the developing and underdeveloped Countries are in heading to manage their convoluted operation with the help of some type Enterprise Resource Planning systems available in the market with a number of challenges.

Keywords **-** ERP; ERP Systems; Enterprise Resource Planning; Meta-Analysis;

A Symmetrical Encryption Technique for Text Encryption Using Randomized Matrix Based Key Generation

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Abstract—At present huge amount of data are moving through internet, this creates a huge concern for the security of the data while it is being moved through unsecured medium like wireless internet. Among all data most commonly used data format is text data which even though being highly vulnerable to security breaches is used in essential areas like banking and database management. There are many methodologies proposed to secure this data but the possibility of data being exploited remains.The proposed system presents a new symmetric encryption technique where complexities of calculating determinants and developing random matrices are used to generate keys. The system consists of three phases, key generation, encryption and decryption. In the first phase keys are generated which are computed by calculating the determinants of decomposed matrices, these decomposed matrices are generated from the multiplication of the original random matrices. In the second phase a key is randomly selected and is added with the ASCII value of the text message. The new generated value is then multiplied with the multiplication factor which is decomposition of selected key into the range of zero to nine. In the last phase the encrypted text is reverted back to its original text by performing reverse operations performed during encryption phase i.e. division of ASCII value of encrypted text by multiplication factor and then subtraction of the value of key from the computed result. The performance of the system is measured by calculating the total time taken to generate key with encryption and decryption of the input text message. The proposed system has been compared with various existing robust systems like AES, DES and BLOWFISH. And from the comparison it can be asserted that the proposed system is more efficient than the existing systems.

Keywords— BCD Coded Parity Based Encryption Technique, RBCMCPCC, AIDEA, LEA,Determinant, matrix multiplication

Box Office Success Prediction through Artificial Neural Network and Machine Learning Algorithm

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Abstract- In this study, a comparison is made between Artificial Neural Network Algorithm and Machine Learning Algorithm of Support Vector Machine by considering pre-release and pre plus post release features of a movie for predicting a movie to a particular success class. These success classes includes Flop/Disaster, Average, Hit, Super-Hit and Block-Buster of a movie. Our best performing model from Artificial Neural Network and Support Vector Machine is able to give better performance in order to predict any particular movie to specific success class of a movie for both the cases of pre-release as well as pre plus post release features of a movie.

Keywords- Artificial Intelligence, ANN, SVM

Data Mining using RFM Analysis: A case study for an online retail store

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Abstract— Data mining is a process to discover interesting trends and patterns in large data sets to predict outcomes. A large amount of data present in organizations can offer useful insights into customer buying patterns. With so much competition in the market, all companies want to improve their market share, attract more customers, retain existing customers and define better approaches to give customers satisfaction, increase profits and ease decision-making. The goal of the study is to use RFM analysis for an online retail store and help them improve customer relationship, provide better product recommendations with associated rankings and attain their goals of profit.

Keywords—*RFM, Data mining, Clustering, Classification, Association rule mining,Customer segmentation*

Real-Time Stock Trend Prediction via Sentiment Analysis of News Article

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Abstract **-** The stock market is volatile and volatility occurs in clusters, price fluctuations based on sentiment and news reports are common. A trader uses a wide variety of publicly available information to forecast the marketing decision. This paper proposes an advice to traders for stock trading using sentimental analysis of publically available news reports. It is based on a hypothesis, that news articles have an impact on the stock market, with this hypothesis we study the relationship between news and stock trend and also proved that negative news has a persistent effect on the stock market. In order to prove this assumption semi-supervised learning technique is being used to build the final model of news classification. This research shows that SVM with TF-IDF as feature performs well in further analysis. The accuracy of the prediction model is more than 90% having 52% correlation with the return label of a stock.

Keywords- Text Mining, Human Sentiments, KNN, Random Forest, Multinomial Naïve Bayes, linear SVM, News.

E-commerce Customers using MLP based ANN

Chinmaya Ranjan Pattnaik, Prakash Chandra Jena

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Abstract **-** The presented investigations deal with the implementing data analytics over *Turkey* based e-commerce company's data repositories. The main objective is to hunt for classification of the customer's behavior patterns. Artificial neural network (ANN) model was applied over customer's data set to forecast the customer's purchasing patterns. The result would benefit the marketing department to recognize the targeted customers for specific campaigning activity. The efficiency of ANN models was also tested. The obtained results revealed that the neural network model using back-propagation technique has high accuracy towards customer prediction. The implementations were carried out in R programming environment.

Keywords **-** Data Analytics, Customer Behavior Analysis, Classification, MLP, ANN

Image Mining by Multiple Features

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Abstract -This paper discusses an image mining algorithm for efficient and accurate image retrieval. The proposed method uses the combination of color features and texture features. In use of color feature, 1st order, 2nd order and 3rd order moment is calculated on a sub-block. These moments calculates statistics features over a local region. The computed first order moment is considered as mean and second order moment is standard deviation. Whereas, the third order moment is considered as skewness. These features are calculated for images and stored in database. For texture extraction, Center Symmetric Local Binary Pattern (CSLBP) feature is used. CSLBP is simple in computation and rotation invariant. CSLBP generates 16 bin histogram for one sub-block. In order to capture minute details around local region, Laplacian of Gaussian (LoG) is used as a weight factor during CSLBP histogram construction. This weight factor makes texture feature more powerful and increases its discrimination power. Resultant weighted histogram is quantized and binary result is stored in database. For test image, its texture and color features compared with stored texture and color features. Based on color and texture feature's correlation with test image, results are retrieved. Our results clearly shows that, by incorporating the multiple features as well as local weight factor, the proposed image mining gives desirable retrieval results.

Keywords: Color Moment, CSLBP, LoG, image mining

A Hybrid Time Series Forecasting Method based on Supervised Machine Learning Program

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Abstract— Clean and inexhaustible source of energy is the requirement of entire world with respect to the present scenario. Among the different types of energy sources. Wind energy is the most clean energy and inexhaustible source of energy. In order to ensure the production of clean energy it is required to forecast the level of wind energy from a day ahead. Forecasting of wind energy not only forecasts the level of wind but also predicts the type of wind energy, density and other important variables. This paper describes the short term forecasting based on Machine Learning algorithm. This paper compares the different Machine Learning Algorithm and its behavior in predicting or forecasting the day ahead data for wind energy system. Machine learning based on Python is formulated in this paper.

Keywords— Wind Energy, Python, Forecasting, Training set, Testing Set

Analyzing performance indices with query terms associated with data servers

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Abstract **-** While associated with huge volume of data, generally it is observed that it may require specific analytical capabilities along with desired efficiency to process the data. The primary significance may lie with its analytical use that may help to generate an justifiable decision. The main characteristics associated with these type of data may be volume representing the amount of data produced from multiple sources, variety representing the data types, with, increasing the number of Internet users, velocity, representing the speed of data frequency from different sources, veracity, representing the quality of the data and more over the value, representing the value of huge amount of data. Considering this scenario, adaptation of the concept of virtualization may be thought of to associate on-demand computer resources and systems to facilitate a number of integrated computer services to facilitate the access to the users instead of depending on local resources. Implementing the technique, variety of online services such as virtual server storage, and applications and licensing for desktop applications may be offered. It is being clearly understood that the concept of virtualization may be suitably applied towards application and use of encapsulating software layer which may provide the same inputs, outputs for the specific applications. Accordingly, the software that performs such applications may be termed as hypervisor, or virtual machine monitor. Indeed, the virtual machine may be the logical equivalence of physical machine. Being associated with multiple virtual machines on the same hardware may logically performed the simultaneous operations and also quite comparable with separate air-gapped physical machines to enhance the security measures. In this paper, it has been proposed to analyze the performance of data servers considering the query terms along with their performance indices.

Keywords **:** Query terms, Virtualization, Virtual machines, Data Centers, Query index

Harry Porter Stories: Contrastive analysis of Bangla-English Corpus

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Abstract— In the present world, the language barrier creates a great problem for information sharing a purpose. To suppress the problem new technologies already implemented and different machine translator is introduced and used by different countries over the world. Contrastive analysis is required for identifying the linguistic differences between a couple of languages. At first, enrich corpus is required for linguistic research. English language corresponding Bangla text analysis is a tricky task due to the phonetic issue. In the paper, we compare some Linguistic comparison between Bangla and English of Harry Porter Stories to identifying structural differences and similarities based on a number of parameters such as Corpus size (in words), Vocabulary size (no. of unique words), Corpus size (in lines), Top ten frequent words etc.

Keywords—*Corpus, Contrastive Analysis, Python, Linguistic*

Author Profiling: Predicting Gender from Document

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Abstract -As the internet is aging, a massive amount of data is being created on the web, out of which mostly is text. Therefore, authorship of the contents and prediction of characteristics of author is becoming a new domain of data analytics making Author Profiling a research area with huge scope of possibilities and outcomes. The ability to describe the features or traits of an author has key application in many security and forensic areas. The PAN labs provide a platform for scholars by organizing author profiling tasks, for example, language, gender prediction etc. In this paper, we are attempting to predict gender of a particular author, for which we have considered English dataset of PAN 2017.

Keywords - NLP, Classification, cross validation, Logistic Regression, SVM and Multinomial Naive Bayes.

Novel approaches to find root word, Part of Speech and Suffix from Odia words and sentences used in Sentiment Analysis: A deep Study

Amit Gupta, G.Arul Dalton

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Abstract - Words and sentences are evolved and use for expression of man's inner feelings. Any language spoken or written by human beings, use many words in sentences of language to expresses his feelings and emotions through sentences. To supplement our own mother tongue, we borrow such words from other languages. Odisha, which is a state in the eastern part of India, hasmore than 33 million people speaking and writing this language. When some decision is taken, opinions of other individuals are also considered. The culture and knowledge stored in many forms through Odia language text has a rich heritage. Odia is the mother language of the majority of the people of Odisha at present and also in the past. Various text forms such as reviews, news and blogs are natural language processing task that mine information from opinion mining, and classify them on the basis of their polarity as positive, negative or neutral. The last few years, enormous increase has been seen in Odia language on the Web. In English language, research in opinion mining mostly carried out but it is very important to perform the opinion mining in Odia language also as large amount of information in Odia is available on the Web. Sentiment Analysis and Opinion Mining are the field of study that analyzes people's opinions, sentiments, evaluations, attitudes and emotions from written language. It is one of the most active research areas in Natural Language Processing and is also widely studied in data mining, web mining, and text mining. The various phases of Natural Language Processing (NLP) included here are Lexical, Morphological and Syntactic-Semantic stages, to find the Root word, Part of Speech, Suffix and Synonym of words in Odia text.

Keywords - Opinion Mining, Sentiment Analysis, Natural Language Processing, Odia Language, Classification.

CNN-BD: An Approach for Disease Classification and Visualization

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Abstract. **-** Data visualization is one of the complex parts of the discovery process in the current era of big data. Finding the hidden level data of Big data is that the principal goal of the classifier. The size of the data, number of classes, and the feature space have an effect on the performance of the classifiers. The new analysis of algorithms is needed for improving the accuracy, efficiency, and reliability of the classifiers. This paper proposes a Deep Learning based Convolution Neural Network classifier to classify and visualize the disease data. PCA (Principal Component Analysis) and PSO (particle swarm optimization) methods are used for multivariate data analysis to handle massive data and feature selection. To demonstrate the proposed learning algorithm, real-world datasets are used. The comparative study shows that deep learning classifier performs better than other classifiers and scientifically higher.

Keywords **-** Big data, Convolutional Neural Network, PSO, PCA, Machine Learning.

Scheduling virtual data along with data servers: Case Study

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Abstract **-** It has been observed that the cloud computing environments sometimes may provide significant benefits, including reconfiguring virtualized resources on demand., which may be very much beneficial towards deploying cloud services. Earlier, in particular traditional data centers, usually, applications may be tied to specific physical servers to deal with the upper-bound assigned tasks. In that case, the data centers may be expensive to maintain low resource utilization associated with virtual technology. Indeed, the cloud data centers sometimes may become more flexible and secure and provide better support for on-demand allocation. It may improve server utilization and signifies appropriate virtualization technology. As the cost of current data centers may be mostly driven by their energy consumption, sometimes challenges may have to be faced regarding cost of energy per each virtual machine while being associated with heterogeneous environment. Practically, while designing for the private cloud, major challenges associated with cloud computing environment may be faced. As in this consideration, each virtual machine may be mapped towards the physical host in accordance with the available resource on the host machine, accordingly, quantifying the performance of scheduling and allocating cloud infrastructure may be extremely challenging. In this paper, it has been focused on virtualized data and evaluation mechanisms associated with data servers as well as data centers.

Key words- Virtual machine, Data Center, CPU Core, Throughput, Thread

Evolution of Optical Storage in Computer Memory

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***Abstract*—**Optical Storage of data provides a solution for the reading and writing large memories (having capacities greater than 108) with small random access time (typically several microseconds) with high-speed data transfer rates (0.1-1 Gbit/s). The well-known properties characteristic of holographic storage, including lensless stigmatic imaging capabilities and redundancy, make the holographic storage technique attractive. When using a two-dimensional storage medium, theoretical studies indicate that an information density on the order of 2_106 bit/cm 2 are obtainable, or a wavelength of 0.5 _m. Even if one used optical components (lenses,etc.) having transverse dimensions as large as 80 cm, such a system would be limited to a capacity of about 1010 bits. To obtain larger sizes, it will be necessary to use a 3-dimensional storage medium allowing superposition of the stored information. This could be accomplished by varying the angle of the holographic reference beam. A practical system for realizing such a memory is presented here. The organization of the memory is compatible with the use of reversible storage material. The read-write functions are achieved using an acoustooptic deflector, which eliminates any mechanically moving parts. The organization permits the use of a second deflector to vary the reference angle and allows superposition of holograms. Possible recording materials which could be used in such memories are ferroelectric crystals or ceramics. Experiments have demonstrated the possibility of electrically ontrolling the fixation and erasure of holograms in these materials. This paper tells about the holographic storage and other optical storage techniques.

***Index Terms*—**Optical Storage, Holographic Storage, 3D Optical Storage, WORM disk.

Realization of monochromatic filter in visible range: An application to optical embedded system

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Abstract.- This paper explores the realization of three monochromatic filters in visible range using silicon grating structure to control the electrical circuit through an Arduino development board in conjunction with RGB sensors. To begin with, a RGB separator is used to split the total visible light spectrum range into three individual spectrum range for red, blue and green colors which further processed through three RGB monochromatic filters to obtain the single wavelength of light like 462.7 nm for blue, 568.7 nm for green and 641.7 nm for red color. These individual color signal wavelengths are finally processed through the Arduino development board using RGB sensors to activate the corresponding electrical circuit which leads to an optical embedded application. Plane wave expansion (PWE) simulation method and Matlab Simulink are employed to get the reflectance characteristics of the filters and to model the entire structure respectively.

Keywords- Silicon grating structure, RGB monochromatic filter, PWE, Matlab Simulink, Arduino development board.

Strategies and performance analysis of queries associated with cloud database

Sambit Kumar Mishra, Hiren Kumar Praharaj

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Abstract - In the present days, cloud computing plays the vital role towards technologies associated with service. The primary objective of cloud computing is to make people compute and store the resources properly and effectively. Therefore to improve the performance in the cloud, it may require optimization towards processing data. It is obvious that cloud computing enhances sharing computing power as well as storage for number of applications towards database with heterogeneity. But it has been observed that the way the number of applications is influenced by various cloud platforms, the high scale generated data the data generated may be increased as well as consumed during the applications. Accordingly with the availability of virtual machines, cloud computing may enable users for usage of resources to execute complex queries efficiently on large scale data. The complete autonomy towards each node in the large database environments may be expected towards the services through external communication along with the experimentation towards optimizing query terms. Accordingly, unifying and authorization linked with the desired problem may be partially linked with specific points towards information retrieval along with its characteristics. In that scenario, the large database may be linked with the virtual server towards providing services to the relevant data. Also the database associated with the cloud may be associated with the various instances linked with different heterogeneous databases. Many techniques have already been presented linked to processing queries in cloud databases. In this paper, it has been proposed to optimize query processing linked with virtual data associated with virtual servers. Accordingly, the generation of queries along with the execution query plans may also attempt to optimize the performance of virtual databases.

Key words - Cloud database, Virtualization, Query plans, Schema, Virtual machine

Cloud Based Weather Monitoring System

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Abstract — Weather Analysis acts as a crucial role in daily activity to predict the weather system. Weather affects many fields such as Agriculture , Industrial and aviation department. Temperature, humidity alarm systems are integrated with the monitoring system(s) with high and low set points. There should b e a alert and also most likely an detectable alert, together with automated telephone dial-up or SMS text warnings to key personnel. This paper prefers the design of real time weather monitoring system and making alert after a desired degree of temperature. This system associates to the Thingspeak cloud service with sensors for gathering data and accumulates the data in the desired channel. The channel data is analysed by Matlab Analysis option on the Thingspeak cloud. Using IFTTT, a free web b ased service to create the chain of simple conditional statements used to create the notification on mail, messages, tweet etc. This observation of the temperature data plays a key role in server maintenance and Agriculture weather data is compulsory to p redict the rainfall.In this paper we assert a solution that uses technologies like Cloud Computing,Embedded systems and Internet of things to improvise the productivity and at the same time decrease the usage. This architecture has b een implemented in Neemrana, Rajasthan.

Keywords — Raspberry Pi 3, DHT11, Thing Speak, MATLAB, IFTTT

Video Surveillance for violence detection using deep learning

Anil Kumar Mishra, Sidhanta Kumar Balabantray

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Abstract. **-** In order to detect violence through surveillance cameras, we provide a neural architecture which can sense violence and can be a mea-sure to prevent any chaos. This architecture uses a pre-trained ResNet-50 model to extract features from the video frames and then feed them fur-ther into a ConvLSTM block. We use a short-term di erence of video frames to provide more robustness in order to get rid of occlusions and discrepancies. Convolutional Neural Networks allow us to get more con-centrated spatio-temporal features in the frames, which aids the sequen-tial nature of videos to be fed in LSTMs. The model incorporates a pre-trained Convolutional Neural Network connected to Convolutional LSTM layer. The model takes raw videos as an input, converts it into frames and output a binary classi cation of violence or non-violence label. We have pre-processed the video frames using cropping, dark-edge removal and other data augmentation techniques to make data rid of unnecessary details. The evaluation of the performance of our proposed method, three standard public datasets were used and accuracy as the metric evaluation is used.

Keywords **-** Violence detection Residual networks(ResNets) Convo-lutional Long-Short Term Memory cells(ConvLSTM) Deep learning.

Noise Estimation and Optimization of current density for HS-IMPATT Devices at 220.0 GHz Frequency

Ajay Kumar Swain, Subhasish Mohanty
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Abstract - To see the potentiality of heterostructure based impact avalanche transit time (HS-IMPATT) devices, new types of material combination GaP/GaAs heterostructure diode is studied by the author and the results are compared with the homostructure based diode by taking GaP and GaAs as base materials. The diodes are design and simulated to operate at the millimeter-wave frequencies of 220.0 GHz. Here a drift-diffusion model is used to design the double drift region IMPATTs based on all these semiconductor materials. The simulation results of these diodes shows that GaP/GaAs based HS-IMPATT diode gives better performance in terms of efficiency and RF Power as compared to other diodes. It is also observed from the results that the noise analysis i. e. mean square noise voltage and noise measure (NM) for GaAs/GaP is very less as compared to GaAs and GaP.

Keywords-Avalanche Noise, current density, Heterostructure, Impact ionization, RF power

Zero loss 90^0 waveguide: A futuristic photonic components to unravel bending loss issues

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Abstract **-** A proposal related to zero loss waveguide is evinced in the present communication, which deals with two dimensional photonic crystal structure having 90^0 bend channels to unravel bending loss issues owing to no altering of a signal between input and output. The said approach is also extended to exhibit an exhilarated result pertaining to short and long channels, where channel is manipulated with signal of wavelength, 619 nm. Furthermore, the entire work is executed with the help of finite difference time domain method (FDTD) to realize the above mentioned proposal, which could be an apt candidate to riddle out bending loss issues which encounter a serious problem in the communication system.

Keywords- Bending loss, 90^0 waveguide, Future component, Finite difference time domain method.

Stress effect on A-SiCN:H waveguide at terahertz frequency for sensing application using FDTD technique

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Abstract - This article explores that on A-SiCN:H based photonic waveguide at terahertz frequency is investigated at wavelength of 632 nm using FDTD technique. The dispersion analysis is applied for computing the reflectance of A-SiCN:H waveguide with the help of finite difference time domain technique. The simulation upshot shows that transmitted intensity fluctuate in zigzag manner with respect to the compressive stress from -250 MPa to -50 MPa at frequency 632 nm.

Keyword - FDTD, Transmitted intensity, A-SiCN:H

Investigation of Graphene nano particles in a nano composite film via photonic crystal fiber

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Abstract - The concentration of graphene nanoparticle in non composite film is estimated in this paper with the help of photonic crystal fiber is processed through regression analysis and subsequently a mathematical model is developed to design a correlation between input and output parameter. Finally a fourth order model is divulged in this research pertaining to the vis-à-vis entering of signal emerging for fiber and concentration of graphene a nano particle in nano-composite film.

Keywards -GNP's; PCF; Regression Analysis; Mathematical Model.

Deep Sentiment Classification

Dhaneswar Parida, Sachi Nandan Mohanty

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Abstract **-** In this research paper, I propose a sentiment analysis approach that could predict Deep Emotions and could make possible above objectives. Build Word embedding by human meta-voice and wordnet. The prediction model by the combination of CNN (Convolutional), LSTM (Recurrent) and RNN (Recursive) could give a continuous variation of the *Emotion Factors* after each fragment. Further analyzing the data by a simple model could predict Deep Emotion of the live text/speech stream.

Lesion localization and extreme gradient boosting characterization with Brain tumor MRI images

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Abstract **-** Detection of tumor Lesion with their precise location and characterization is an important task in the brain tumor diagnosis from the magnetic resonance (MR) images. But it is a time taking task and error-prone process by the radiologists or clinical experts. The several works have been introduced in the brain tumor detection but it failed to discover the exact location and characterization of the lesion. In order to improve the automatic tumor lesion localization and characterization, an efficient machine learning technique called Lee Filtered Bivariate Correlative Regression based Extreme Gradient Boosting (LFBCR-EGB) is introduced. Initially, numbers of MRI brain images are taken from the database.

The LFBCR-EGB technique comprises three major processes namely preprocessing, lesion localization and characterization. The regression function is used to find the positive and negative similarity between the pixels in an image. The negative similarity result provides the exact localization results with minimum time. Finally, the lesion characterization is done by applying an extreme gradient boosting technique to improve the accuracy with the certain features. The features are extracted from the ROI and construct the several weak learners. The ID3 classifier is used as weak learners of the extreme gradient boosting technique to classify normal or abnormal tissue based on the information gain. By this way, the LFBCR-EGB technique performs accurate and fast tumor detection along with the exact location of the tumor. Experimental evaluation of proposed LFBCR-EGB technique is carried out using MRI brain image database with different factors such as peak signal to noise ratio, lesion localization time and classification accuracy. The simulation results shows that the proposed LFBCR-EGB technique obtains better results in terms of peak signal ratio, classification accuracy with lesion localization time.

Keywords **-** Magnetic resonance (MR) images, Lesion Localization, characterization, bivariate correlated regression, feature extraction, extreme gradient boosting technique.

Investigating Various Cryptographic Techniques Used In Cloud Computing

Nirjharinee Parida, Amit Gupta

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***Abstract*—** Cloud computing is the newest buzzword which is rising in its technology,also in its popularity as it reduces the burden of investment for infrastructure,software, hardware or any kind of resource in an organization. However, data security remains one of the biggest challenges while cloud implementation. Lots of traditional encryption algorithms are there to ensure security such as play fair cipher, DES, etc. But these algorithms only encrypt plain text into cipher text during communication. For data analysis, the data is deciphered on the cloud which acts as easy prey for the hackers. Herein, we talk about a cloud computing model that captures an abundant class of big-data use-cases and allows reasoning about relevant threats and security goals. We then survey three cryptographic techniques – homomorphic encryption,verifiable computation, and multi-party computation – which have the potential to achieve these goals.

***Index Terms*—** Homomorphic encryption, Verifiable Computation, Multi-Party Computation, Cloud Computing.

Storing "OPTIK" Data in Cloud: Photonics for Embedded Application

Amita Rani Das, Banoj Kumar Panda

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract-Present communication dilates the upshot of foregoing published research in OPTIK: International Journal of Light and Electron Optics, which was dealt with optical MUX/ DEMUX and is manifested in cloud, which envisages as embedded system or cloud computing application. Investigation of 101 channels of optical MUX/ DEMUX using grating SOI (silicon on insulator) was published in reference [1]. In this particular work, grating SOI structure was backbone of MUX/ DEMUX owing to individual SOI leads to filtering application which decides the allowance or disallowance of signal. Further, the permit or forbid of signal relay on nature, position and configuration of grating structure. As far as configuration is concerned, throughput of the research depends on refractive indices and thickness of odd and even layers. These structure parameters regulate the reflection characteristics, which leads to the computation of agree or disagree of the signals. This work is also divulged the thickness of grating structure for which signals are allowed or disallowed because different thickness of grating structure permits different wavelength of signal. However, the above data is confined with the published journal only. For the sake of wide dissemination the above information,the desired data are stored in a web server (MariaDB \ SQL database) and information can be extracted as per the user requirement by using PHP as the backend. To establish above said information in cloud, we manipulate with a system consists of PHP script which communicates with database and executes the query operation on users requirement. The intrinsic mechanism of operation in cloud relay on following flowchart fig 1. Realizing above said operational mechanism, the outcome for allowing signals, 1500 nm to 1600 nm can be drawn from the website http://gpalai.tk. To understand the same, fig. 2 shows the home page of the website whereas fig.3 (a) and 3(b) shown the result for the 1540 nm and 1550 nm of transmitted signal.

Keywords: Mux/demux, optik data, photonics

Establishing of bio-info in cloud

P.Suneel Kumar, Sudhansu Sekhar Khuntia

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Abstract **-** Owing to the burgeoning of present know-how relating to medical science and technology, present communication divulges the upshot of recent research work pertaining to biosensing application with the help of cloud server for the sake of wide dissemination of aforementioned data and subsequently the uploaded documents in cloud can also be accessed by common researchers. The principle of preservation of information in cloud server is based on information flow like user input data, querying according to input and fetching the information, which is the backbone of the present work.

Keywords **-** Metamaterial, Bio-info, Cloud server

A Deep Neural Network on Object Recognition Framework For Submerged Fish Images

Smrutirekha Das, Sumit Kar

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** Now-a-days recognition of objects such as fishes has drawn more attention while submerged pictures are showing some difficulty due to their poor picture quality which also includes rough background surfaces when compared to general images. Medicines prepared from fishes help in curing different diseases to reduce the health issues in the present world (for example rheumatism problems, gel for wounds, bandages etc). In our proposed method we are projecting a deep neural network which supports in recognition of fishes to acquire their count, species and medical usage.

Index terms- fish species identification, Auto encoder, deep neural network.

Expectation Radar Returns from Ionosphere Using Decision Tree Technique

Diptirani Behera, Gangadhar Purohit

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract - In this paper, the prediction of Decision Tree classification is assessed utilizing two property attribute selection choice measures for ionosphere dataset. Decision tree utilizes isolate and vanquish system for the essential learning procedure. From the outcome investigation we can reason that the execution of Decision Tree classification depends on the characteristic attribute selection choice measures. Decision Tree is valuable since development of choice tree classifiers does not require any area learning. The primary goal is to manufacture a proficient expectation demonstrate for Ionosphere radar comes back with high exactness.

Keywords- Decision Tree, Classification, Ionosphere, Entropy and Gini

Identification of crop health condition using IoT based automated system

Bikash Chandra Pattanaik, Sidhanta Kumar Balabantray

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract— Agriculture is the main source of living on the earth. The food production is at risk due to the attack of pathogens, insect pests and weeds. Crop losses due to several harmful organisms can be more significant and must be prevented, or reduced, by taking several crop protection measures. To produce maximum yields, plants need to be healthy and strong from the start and carefully nurtured throughout the season. In this paper, an automated system has been developed to detect whether the crop is normal or diseased. This paper also aims to develop an automated system that detects the presence of type of disease in the crops. An automated system is developed using different sensors like temperature, PIR, humidity and odour based on variation in crop health condition. The values getting from the different parameters based on temperature, humidity and odour are used to detect presence of crop disease. The main objective of this paper was to help crop thrive and stay healthy.

Keywords*— temperature, humidity, pathogens, organisms , disease*

A Framework of Dimensionality Reduction utilizing PCA for Neural Network Prediction

Sambit Kumar Mishra, Satyaranjan Mishra

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

***Abstract*—** This paper proposes the utilization of Principal Component Analysis (PCA) to decrease high dimensional information and to enhance the prescient execution of Neural Network machine learning model. Tests are done on a high dimensional dataset, in which the errand is to recognize an objective. The investigations demonstrate that the utilization of this PCA strategy can enhance the execution of machine learning in the arrangement of high dimensional information. It is broadly utilized in a large portion of the example acknowledgment applications like face acknowledgment, picture pressure, and for discovering designs in high dimensional information. The work in this paper includes highlight decrease utilizing PCA pursued by order which is finished utilizing Neural Network calculation. The exact outcomes exhibit Neural Network order with PCA is a productive characterization for extensive datasets.

Keywords: *PCA, Neural Networks, Back propagation, Classification and Machine Learning*

A Novel Approach on the Role of FEMTO Small Cells for Effective Energy Consumption in 5G Networks

Hiren Kumar Praharaj, Bijaya Nanda

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** Fifth generation (5G) is a forthcoming mobile network technology which is most likely to be initiated in India by 2020 through different top mobile operators. In 5G technology, the mobile consumers have given extreme importance when compared to other features. In this work, an effort is made to analysis different existing generations of mobile wireless technology in terms of effective energy consumption by the mobile. Even though fifth generation technology for smart phone network has improved the speed of transmission significantly, it in addition put forward a few drawbacks. Among them conserving the energy is one of the most significant in fifth generation. The role of small cells in energy efficient management is studied and based on the functions they are classified to reduce the energy utilization, and to increase the energy efficiency. As the cellular technology is growing very fast energy utilization is a major concern. In this paper we discuss novel architecture of different types of small cells in 5G mobile networks that are used in effective energy consumption. In this proposed work among various forms of small cells especially the role of Femto cells is discussed in energy consumption.

Keywords- Energy, Consumption, Transmission, Conserving, Utilization

Air Quality Monitoring Through IoT And Big Data Analytics

Chinmaya Ranjan Pattnaik, Prakash Chandra Jena

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Abstract -Air is one of the major important concerns for the human life. The survival of the human life is completely depending on the air. So, the air is defined as "Lets Live the human life". The oxygen is much required for the life. The fresh air contains more oxygen. The more oxygen helps for the better functionality of the body. Now a day the air is getting polluted due to heavy usage of chemicals, use of petroleum products and release of CO2. So, day by day the purity of the air is maximum decreasing. Hence it becomes necessary to monitor the air pollution in various segments. The importance of air quality has been recognized in early 1980's. Different techniques are used to measure the air quality. Hence, we propose a new technique of Data science for analyzing the air quality and we have implemented IOT techniques to monitor the air quality.

Key words - Air Quality Monitoring, IOT sensors, Quality Analysis, Big Data Analytics, Data Logger

An Efficient Feature Selection for Liver Cancer Prediction utilizing SVM Algorithm

Himadri Sekhar Tripathy, Batakrishna Tripathy

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** The Clinical associations have gathered substantial amounts of data about patients and ailments. Anyway in a vast dataset not all highlights add to speak to the illness forecast, in this way diminishing and choosing various adequate highlights may enhance exactness of the order. In restorative, Liver Cancer is a standout amongst the most pervasive and lethal malignant growths in individuals. Liver malignancy is hard to be analyzed at a beginning period because of the hazard factors. Hence, new metrologies for early Liver Cancer are expected to decide the state of the Liver Cancer. The primary goal of this examination work is to foresee liver malignant growth ailments group based RFE utilizing SVM arrangement calculation way to deal with locate the ideal arrangement of highlights. These classifier calculations are looked at dependent on the execution factors i.e. arrangement exactness and execution time. Trial results demonstrated that utilizing the group based component choice technique with SVM calculation accomplished higher characterization exactness than without highlight determination SVM classifier. In our outcome demonstrate that highlights choice enhance altogether the classifier execution.

Keywords **-** *SVM, RFE, K-means, Classification & Liver cancer*

Artificial intelligence and common sense : The Shady Future of AI

G.S.S.Rao, Satya Krishna. V

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Abstract - Artificial Intelligence (AI) revolution has recorded more impact than any other revolutions in the human history. AI systems have more far ahead with the recent advances particularity with deep learning that attained state of art results in almost all Machine Learning (ML) tasks. However, AI systems are venerable but are highly vulnerable which demands timely human intervention. Further, AI systems can easy be tweaked and misguide to produce misleading results that are far from the reality. It is high time to address this susceptibility of AI since reliance on AI systems is keep growing exponentially. AI lacks the key aspect of human intelligence - common sense that guides humans to take better action and decision based on consequences and makes humans more adaptable. This missing aspect of AI inspired the researchers to work towards Artificial general Intelligence (AGI). AGI research involves developing AI systems with human-like consequential and conscious learning. This paper presents the theoretical and practical vulnerability of AI through literature,examples, experiments. The literature and examples concentrates in famous and popular AI systems like deep learning, google translate, visual cognition etc. The experiments are carried out using two datasets; a gene expression dataset for prediction and image dataset for object detection and scene recognition. The experiment results reassertions the weakness of AI and the requirement of AGI.

Keywords - Deep learning, artificial general intelligence, AGI,

A Novel Study on Role of Cell Zooming for Energy Efficiency and Quality of Service in 5G Technologies

K.G.S. Venkatesan, Sunita Barik

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Abstract **-** Cell zooming technology is an emerging and potential one that is used in 5g cellular networks. This helps in accomplishing higher energy efficiency, and quality of service is also ensured. The advantage of cell zooming technology is partial by the enlarged outage probability. This paper presents a detailed novel study on energy efficiency and QoS when cell zooming method is used in 5g networks. In this paper techniques that gives solution for traffic load imbalance is discussed and reduction of energy consumption by cell zooming simulations is discussed.

Keywords- Cellular networks, Quality of service, power demand, Base stations, 5g technology.

A Deep Neural Network on Object Recognition Framework for Submerged Fish Images

Aurobindo Kar, Purnya Prava Nayak

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** Now-a-days recognition of objects such as fishes has drawn more attention while submerged pictures are showing some difficulty due to their poor picture quality which also includes rough background surfaces when compared to general images. Medicines prepared from fishes help in curing different diseases to reduce the health issues in the present world (for example rheumatism problems, gel for wounds, bandages etc). In our proposed method we are projecting a deep neural network which supports in recognition of fishes to acquire their count, species and medical usage.

Index terms- fish species identification, Auto encoder, deep neural network.

Development of Compact Micro Wave CPW Band Stop Filter Based on Sub Wave Length Metamaterial Filter

Deepak Kumar Rout, Banoj Kumar Panda

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** In this letter, we numerically and experimentally investigate the stop-band performance of coplanar waveguide (CPW) band stop filter (BSF) consist with circular complementary split ring resonators (CCSRR) [16].The measured center frequency (f_r) of the BSF is 11.56 GHz with high rejection rate, and the 3-dB BW varies by the number of cascading unit CCSRR cells loaded. It has been observed that a single CSRR in the ground plane provides a very high Q factor and also gives a low stop-band BW with low insertion loss. BSFs with unit CCSRR for designs are designed and calculated. A good agreement between simulated and calculated results is achieved [17]. In addition, the CSRR in CPW configuration can easily be integrated into microwave circuit due to purely planar technology, which is favorable to MMIC designs.

Key words **-** CSRR, CPW, BSF, MMMIC

Leafy-Cube: A New Hypercube Derivative for Parallel Systems

Sachi Nandan Mohanty, Arabinda Pradhan

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Abstract **-** The current paper attempts to design a hypercube based new derived interconnection network topology called Leafy-cube (LC). The Leafy-cube is observed to possess improved network topological parameters such as node degree, packing density, diameter, average node distance, cost, no of edges, bisection width in comparison to other contemporary networks. The aim of the purposed work is to improve network size and degree while keeping diameter same or as low as possible with respect to the original structure, lower average node distance, message traffic density. The extra nodes may be used for load balancing.

Keywords: HC, degree, diameter, cost

Security Model for Preserving Privacy of Image in Cloud

P.Karunakar Reddy, Nirjharinee Parida

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** Cloud can refer as a public or semi public interface between network nodes based on certain contractual agreement. Data transmits across networks within different connected nodes. Cloud provides on-demand self-service. It also provides broad network access means from any standard device such as PC, laptop etc where connection can be made with the network cloud. Cloud provides broad network access and uses resource pooling. As a lot of companies are having big insecurities while dealing with data within the cloud, and this plays a major role in the security of cloud . This paper will offer a comparative analysis of some of the widely acceptable algorithms used considering data reliability, scalability, integrity it provides on the cloud from unauthorized access based on image encryption/decryption method.

Keywords **-** Cloud, Cloud Security , AES, RSA, Image Encryption.

Internet of Things : An Overview

Amit Gupta, G.Arul Dalton
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Abstract -In future The Internet of Things will transform the real world objects into intelligent virtual objects. The main aim is to unify everything in our world under a common infrastructure, which gives not only control over things, but also keeping us informed of the state of the things. The main objective of this paper is to provide an overview of Internet of Things, basic building blocks, enabling technologies and its use in our daily life.

Keywords: Internet of Things (IoT), Wireless Sensor network, ZigBee, Actuators, sensors, RFID, Wi-Fi, Bluetooth, Barcode, EPC

A Cost Evaluation Framework for Fault Prediction Technique in Testing

Suchismita Mishra, A.Pandi

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract- In current situation, Service Oriented Architecture is received by the greater part of the organization, which is a gathering of inexactly coupled administration. In this paper, we have proposed a versatile cost assessment structure that joins cost drivers for different blame expulsion stages and plays out a money saving advantage examination for testing and blame forecast. Our cost assessment structure consider more commonsense situation where the undetected shortcomings are followed in all the later testing stages and the relating flaw evacuation cost is assessed in view of the association particular measurements . Here we have focused on two of the most pertinent research questions with respect to testing. To start with, regardless of

whether blame forecast could financially help in decreasing programming improvement cost, for a specific task. We pick a blame forecast system for a general enhanced execution .We have utilized the proposed structure to examine the convenience of different blame expectation methods in testing. The examination comprised of execution assessment of two noteworthy blame expectation methods i.e. straight relapse and coordinations relapse on two distinct adaptations of EBay web administrations. Here we have discovered blame expectation valuable for the ventures with the level of broken modules not as much as a specific edge.

Keywords- *Cost analysis, Linear regression, Logistic regression, Software metrics, Testing, WSDL.*

Electricity Monitoring System Using Internet of Things (IoT)

Satya Ranjan Biswal, Smrutirekha Das

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** Out of several challenges electricity consumption is one of the vital problems in day to day life. In the article we have used Internet of Things (IoT) for monitoring the electricity consumption and save the wastage of electricity. Our paper is portrayed to quantify vitality utilization in the house and create its bill consequently utilizing telemetric correspondence which can help in decreasing vitality utilization in house as the proprietor is persistently being informed about the quantity of units that are expended. Its objective is to produce charge consequently by checking the power unit's utilization in a house also, in an approach to decrease the difficult work. The estimations are performed consequently and the bill is refreshed on the web by utilizing a system of Internet of Things. The bill sum can be checked by the proprietor

anyplace internationally. Outline and usage of undertaking is fundamentally founded on Arduino, ESP8266Wi-Fi module and Current Sensor ACS712controller utilizing IOT idea. In power transmission human inclusion isn't required. Purchaser pays the power charge for the expended control. In the event that buyer neglects to pay the bill on time then power transmission can naturally kill. Likewise control burglary can be recognized if any altering happens it will send the data to the server and also it will cut the power consequently.

Keywords- IoT, Arduino, Current Sensor, Node MCU,ACS712,ESP8266.

Design of an Active Stabilizing Controller for Hydrodynamics Bearing Using FOPID Controller

P.Suneel Kumar, Madhulita Mohapatra

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract - Hydrodynamic bearings are fluid film bearings that rely on a film of oil or air to create a clearance between the moving and stationary elements. They are cylindrical in structure used in systems having high speed rotating shaft and heavy in weight, which supports a rotating shaft and transmit its axial load to a machine foundation by floating it on a self-renewing film of oil. But they tend to have high friction. We have designed a fractional-order PID or P$I\lambda D\mu$ controllers, in which the order of the integral and derivative parts, λ and μ respectively, are fractional. Our main aim is to take advantage of the introduction of these two parameters and fulfills additional specification of design, ensuring a robust performance of the controller system with respect to the gain variations and noise. A method for tuning P$I\lambda D\mu$ controller is proposed to fulfill five different design specifications.

Keywords: fractional-order PID or P$I\lambda D\mu$ controllers, conformal mapping, Fractional Order (FO) methodology, Hydrodynamics bearing, internal damping, oil whirl.

Design a 4-bit carry look-ahead adder using pass transistor for less power consumption and maximization of speed

K.Muralibabu, Dhaneswar Parida

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Abstract - A high speed power efficient 4-bit Carry Look-ahead Adder (CLA) is designed by using Pass Transistor Logic (PTL). To overcome the issues of delay as well as power consumption the PTL has been deliberately used in Integrated Circuits design. The Pass-Transistor Logic is a better way to implement circuits for high speed and low power applications in less number of transistors. Parameters like delay, power consumption, and energy are reduced so much as compared to available logic styles such as Static CMOS logic, DOMINO logic, Sub-threshold regime logic, etc. All the Analysis and simulations have been done by CADENCE Virtuoso Simulation Tool in 180nm Technology with the supply voltage of 1.8V at 5MHz operating frequency.

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Key words: Carry look-ahead adder, PTL, Cadence virtuoso tool, delay, power, energy.

Design and analysis of hybrid antenna for next generation electronics applications

Satya Ranjan Biswal, Smrutirekha Das

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract - A hybrid antenna that comprised both 4G and 5G antennas, in this paper a 4G antennas is proposed, that have operated in the basis of MIMO application, A 4G antenna have consisted of two antenna array module, it have capable of covering 2G, 3G and also 4G ranges. In this same way 5G antennas have consisted of eight antenna array module, the designed antenna uses FR4 substrate, and co-axial feed port for 4G module .the 4G module designed using neutralization line technique for better result. All the investigation parameter of 4G antenna like radiation pattern, current distribution, VSWR, s-parameter, Bandwidth and return loss in term of dB, have been calculated. And the 4G antenna module is designed and tested by ANSYS HFSS software version15.2.

Key words: ANSYS HFSS, MIMO, VSWR, 4G, 5G, hybrid antenna

Investigating Various Cryptographic Techniques Used In Cloud Computing

Bright Anand D, Anil Kumar Mishra

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

***Abstract*—**Cloud computing is the newest buzzword which is rising in its technology,also in its popularity as it reduces the burden of investment for infrastructure,software, hardwarenor any kind of resource in an organization. However, data security remains one of the biggest challenges

while cloud implementation. Lots of traditional encryption algorithms are there to ensure security such as play fair cipher,DES, etc. But these algorithms only encrypt plain text into cipher text during communication. For data analysis, the data is deciphered on the cloud which acts as easy prey for the hackers. Herein, we talk about a cloud computing model that captures an abundant class of big-data use-cases and allows reasoning about relevant threats and security goals. We then survey three cryptographic techniques –homomorphic encryption, verifiable computation, and multi-party computation –which have the potential to achieve these goals.

Index Terms—Homomorphic encryption, Verifiable Computation, Multi-Party Computation, Cloud Computing.

A Simple IoT Framework for Versatile Real-Time Ambient Air Quality Monitoring System

Bright Anand D, Anil Kumar Mishra

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** In any working environment, deterioration in the ambient air quality presents a global challenge to improve. The traditional approach of air quality monitoring involve large and expensive scientific equipment permanently installed and professionally maintained as an arrangement in specialized laboratories in selected locations. These labs monitor and measure air quality on the basis of the samples collected from fields. Advances in MEMS technology, Internet of things (IoT) Platform, and energy-efficient telecommunication infrastructure have led to the emergence of low-cost, miniature and efficient sensors based embedded systems, capable of measuring and monitoring ambient air quality in real-time. Integration of

big-data analytics and machine-learning techniques can extract a lot of intelligence from the accumulated data regarding the understanding of cause and fluctuations in the air pollutions, its predict trend and provide early warning of possible threats. This paper presents a precursor study leading towards the design of miniature IoT based air quality monitoring system to keep track of ambience quality parameters on real-time of any specific environment susceptible to cause hazardous health conditions and human life risk due to presence of poisonous gases and particulate matters, such as in underground mines and sewage lines.

Keywords: Wireless Sensor Network (WSN), Mining Safety, Early Warning System

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Artificial Intelligence based surveillance system and traffic management system for Smart cities

G.Arul Dalton, Suchismita Mishra

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Abstract **-** The present CCTV monitoring systems have high-tech cameras but still, it requires human operators to have a constant watch over the footage which is a very tedious task. Often things get overlooked and sometimes they fall asleep. This paper focuses on our proposed model, which analyses the human behavior to help in crime detection and prevention and also performs facial recognition. It also helps in traffic management as it can inform the operators about high traffic and fewer traffic routes. The system is based upon Artificial Neural Networks.

Keywords—Artificial Intelligence, Artificial Neural Networks, Convolutional Neural Networks, Traffic management

■■■

Impact of Attribute Optimization on Heart Disease Prediction

Saswati Pattnaik, Deepak Kumar Rout

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Abstract- Today Data Mining is being successfully implemented in various diverse fields like telecommunications, retail, marketing, agriculture, education and many such domains. Among these several fields of application, healthcare is a critical sector where data mining and feature optimization is applied efficiently. In healthcare field, feature optimization plays an important role in effective disease diagnosis of patients. Heart disease is a very critical risk throughout world. Diagnosis at proper time is very crucial for patients to deal with heart risk factors. In this paper, we have used data mining and feature optimization to deal with heart disease diagnosis. Here several classifiers like Decision Tree (DT), Artificial Neural Networks (ANN), Support Vector machine (SVM) and Naive Bayes (NB) are used to classify the heart disease patients while Genetic algorithm (GA) is used as the feature optimization agent. It is observed that with the use of genetic algorithm, the classification performance is enhanced with the implementation of the above classifiers.

Keywords- Naïve Bayes, Artificial Neural Ne5twork, Genetic Algorithm, Data Mining, Classification Accuracy.

A Review on Facial Expression Based Behavioral Analysis using Computational Technique for Autistic Disorder Patients

G.Arul Dalton, Suchismita Mishra

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract -Within recent decades the chances of a child being diagnosed with autism spectrum disorder has increased dramatically. Individuals with autism disorder have markedly different social and emotional actions and reactions than non-autistic individuals. It is a chronic disorder whose symptoms include failure to develop normal social relations with other people, impaired development of communicative ability, lack of imaginative ability, and repetitive, stereotyped movements. There exist numerous techniques associated to detect autism disorders in children. Facial expression based method is an effective technique frequently used by medical experts to detect the emotional patterns of autistic children. Our paper reviews this technique to determine behavioral analysis of autistic children. Comparative analysis of existing techniques is undertaken to select the most optimal technique of autism detection.

Keywords: Autistic Disorder, Facial Expression, Emotion Recognition, Shanon's entropy,Kinectsensor,$Precognizer,3Dfacialmodel.

Prediction of artificial water recharge sites using fusion of RS, GIS, AHP and GA technologies

A.Pandi, Satya Ranjan Biswal

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** This paper narrates experimental set up for finding most suitable area for artificial water recharge sites using a fusion of GIS, RS AHP, and GA technologies. To do so, GIS was implemented using six geodata layers. Experimentations regarding potential suitability of the sites were done using RS technology. Based on this, the proposed model gave suitability map as output. For ranking and weighting the criteria AHP and GA were used. The results of the study were appealing and efficiently found out most suitable areas in the Kalamnuri taluka of Maharashtra, India. The study could be a role model for groundwater management crisis in other areas in India.

Keywords: Water Management, GIS, AHP, DSS, GA.

Implementation of multipath based multicast routing protocol in hierarchical wireless sensor network

Bijaya Nanda, Chinmaya Ranjan Pattnaik

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** Transmission range and energy conservation have been considered as the major challenge in research community now a days. Although stationary network based hierarchical routing protocols has been evolved to resolve those issues, but they are also associated with frequent link breakage and less lifetime due to improper utilization of energy. So, we have proposed a model in which multipath scheme is applied on a multicast based hierarchical routing to give better energy utilization thereby improving the lifetime of hierarchical wireless sensor network. In this paper, we developed a ring routing in a heterogeneous network along with its modification in form of multicast and multipath implementation and also analyzed them with other protocols in terms of energy consumption, packet delivery ratio, throughput and delay using NS3.

Keywords: Hierarchical sensor network, ring routing, multipath , multicast routing, performance metrics.

Analysis and Design of Ethernet to HDMI Gateway using Xilinx Vivado

Prakash Chandra Jena, Himadri Sekhar Tripathy

Gandhi Institute for Education and Technology, Baniatangi,Bhubaneswar

Abstract:- In the present era the increased complexity of design, decreases the design cycle and reduces the cost, efficient power consumption has led to the arrival of methodology of system-on-chip (SoC) in the semiconductor industry. A SoC usually contains reusable IPs, memory elements, bus architecture i.e for interfacing IPs, clock circuits and mixed signal blocks SRAM i.e embedded processors or controllers, and other components on SoC, programmable blocks i.e FPGA etc. The functionality of SoC can be easily improved by integrate more Intellectual Property (IP) components with it. A number of SoCs is integrated to form more complex system. Though the reuse of IPs on SoC has increased the hazard of misuse of IPs to the third party entries but it still plays an integral part of SOC's. In silicon IPP (industries IP protection) technique have been implemented in design flow of VLSI and have been extended to security considerations for SoC design methodology. In this paper authors created IP's for Ethernet and HDMI using Xilinx Vivado 18.2 which is built for Internet of Things (IoT) application.

Keywords: System on Chips, Field Programmable Gate Array, Intellectual Property, Internet of Things, industries IP protection

Identification of Crop Health Condition Using IOT Based Automated System

Batakrishna Tripathy, G.S.S.Rao

Gandhi Institute for Education and Technology, Baniatangi,Bhubaneswar

Abstract **-** Agriculture is the main source of living on the earth. The food production is at risk due to the attack of pathogens, insect pests and weeds. Crop losses due to several harmful organisms can be more significant and must be prevented, or reduced, by taking several crop protection measures. To produce maximum yields, plants need to be healthy and strong from the start and carefully nurtured throughout the season. In this paper, an automated system has been developed to detect whether the crop is normal or diseased. This paper also aims to develop an automated system that detects the presence of type of disease in the crops. An automated system is developed using different sensors like temperature, PIR, humidity and odour based on variation in crop health condition. The values getting from the different parameters based on temperature, humidity and odour are used to detect presence of crop disease. The main objective of this paper was to help crop thrive and stay healthy.

Keywords.: Temperature, Humidity, Pathogens, Organisms, Disease

A Novel Approach on the Role of FEMTO Small Cells for Effective Energy Consumption in 5G Networks

Satya Krishna. V, K.G.S. Venkatesan

Gandhi Institute for Education and Technology, Baniatangi, Bhubaneswar

Abstract **-** Fifth generation (5G) is a forthcoming mobile network technology which is most likely to be initiated in India by 2020 through different top mobile operators. In 5G technology, the mobile consumers have given extreme importance when compared to other features. In this work, an effort is made to analysis different existing generations of mobile wireless technology in terms of effective energy consumption by the mobile. Even though fifth generation technology for smart phone network has improved the speed of transmission significantly, it in addition put forward a few drawbacks. Among them conserving the energy is one of the most significant in fifth generation. The role of small cells in energy efficient management is studied and based on the functions they are classified to reduce the energy utilization, and to increase the energy efficiency. As the cellular technology is growing very fast energy utilization is a major concern. In this paper we discuss novel architecture of different types of small cells in 5G mobile networks that are used in effective energy consumption In this proposed work among various forms of small cells especially the role of Femto cells is discussed in energy consumption

Keywords. 5G Networks, Femto cell, pico cell, micro cell, macro cell.

A Novel Study on Role of Cell Zooming for Energy Efficiency and Quality of Service in 5G Technologies

Sunita Barik, Aurobindo Kar

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Abstract **-** Cell zooming technology is an emerging and potential one that is used in 5g cellular networks. This helps in accomplishing higher energy efficiency, and quality of service is also ensured. The advantage of cell zooming technology is partial by the enlarged outage probability. This paper presents a detailed novel study on energy efficiency and QoS when cell zooming method is used in 5g networks. In this paper techniques that gives solution for traffic load imbalance is discussed and reduction of energy consumption by cell zooming simulations is discussed.

Keywords: Cellular networks, Quality of service, power demand, Base stations, 5g technology.

Homomorphic Encryption: Review and Applications

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Abstract **-** In a recent decade, Homomorphic encryption became more popular because of its special properties. Homomorphic encryption is identified to be the key candidate for providing the security on the cloud data. The cloud based applications and service providers have given an extreme importance to homomorphic encryption when compared to the other security techniques. In this work, an effort is made to present the overview of the Homomorphic encryption and its different types. At a broad level, the various potential applications of homomorphic encryption are discussed to demonstrate the importance of Homomorphic encryption in the various areas.

Keywords: encrypted data, public cloud, secure, homomorphic encryption, EVoting, Information retrieval.

Data Governance and Compliance

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Abstract **-** Data governance and compliance play critical roles in ensuring that organizations manage their data assets effectively and adhere to regulatory requirements. This paper explores the concepts of data governance and compliance, focusing on their importance, principles, and best practices. It discusses the role of data governance frameworks in establishing accountability, transparency, and data quality standards within organizations. Additionally, it examines compliance regulations such as GDPR, HIPAA, and CCPA, and their implications for data management practices. Through case studies and examples, this paper highlights the challenges and benefits associated with implementing robust data governance and compliance programs.

Keywords: Compliance, Regulatory Compliance, Accountability, GDPR, HIPAA, CCPA, Data Stewardship, Data Lifecycle Management, Risk Management, Data Privacy

Data Integration and Interoperability

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Abstract:

Data integration and interoperability are essential components of modern data management systems, facilitating the seamless exchange and consolidation of data across heterogeneous sources and platforms. This paper explores the concepts of data integration and interoperability, focusing on their significance, challenges, and strategies for implementation. It discusses various approaches to integrating disparate data sources, including ETL (Extract, Transform, Load) processes, data virtualization, and API-based integration. Additionally, the paper examines the importance of standards such as XML, JSON, and RESTful APIs in promoting interoperability between different systems. Through case studies and examples, this paper highlights the benefits of effective data integration and interoperability in enabling data-driven decision-making and enhancing organizational efficiency.

Keywords:

Data Integration, Interoperability, Data Management, ETL ,Data Virtualization, Integration, Standards, XML, JSON, RESTful APIs,Heterogeneous Data Sources, Data Exchange.

Big Data Analytics and Decision Support Systems

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Abstract:

Big Data Analytics and Decision Support Systems (DSS) represent two intertwined fields pivotal for modern organizations aiming to leverage data-driven insights for strategic decision-making. This paper delves into the synergistic relationship between Big Data Analytics and DSS, elucidating their significance, methodologies, and applications. It explores how Big Data Analytics harnesses advanced computational techniques to extract actionable insights from massive and diverse datasets. Concurrently, it investigates how Decision Support Systems facilitate decision-making processes by providing analytical and predictive capabilities. Moreover, the paper examines case studies illustrating the integration of Big Data Analytics within Decision Support Systems across various domains such as finance, healthcare, and marketing. Through this analysis, the paper underscores the transformative potential of integrating Big Data Analytics with Decision Support Systems in driving informed and effective decision-making.

Keywords:

Big Data Analytics, Decision Support Systems, Predictive Analytics, Data Mining, Machine Learning, Information Systems, Decision Modeling

Predictive Analytics and Machine Learning

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Abstract:

Predictive analytics and machine learning are two interconnected domains that enable organizations to extract valuable insights from data and make accurate predictions about future outcomes. This paper provides an overview of predictive analytics and machine learning, highlighting their significance, methodologies, and applications. It explores how predictive analytics utilizes statistical techniques and machine learning algorithms to analyze historical data and forecast future trends or behaviors. Additionally, it discusses the role of machine learning in automating the process of building predictive models and improving their accuracy over time. Through case studies and examples, this paper demonstrates the practical applications of predictive analytics and machine learning across various industries, such as finance, healthcare, and marketing.

Keywords: Predictive Analytics, Machine Learning, Data Analysis, Predictive Modeling, Data-driven Decision Making

Risk Management and Fraud Detection

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Abstract:

Risk management and fraud detection are critical components of financial security and regulatory compliance for organizations across industries. This paper examines the methodologies and technologies employed in risk management and fraud detection, emphasizing their importance in mitigating financial losses and maintaining trust among stakeholders. It delves into various risk management frameworks and fraud detection techniques, including statistical modeling, anomaly detection, and machine learning algorithms. Moreover, the paper explores case studies illustrating the application of these approaches in real-world scenarios. Through this analysis, it underscores the proactive role of risk management and fraud detection in safeguarding assets and preserving organizational reputation.

Keywords: Risk Management, Fraud Detection, Financial Security, Regulatory Compliance,Anomaly Detection, Machine Learning Algorithm

Customer Relationship Management (CRM) Analytics

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Abstract:

Customer Relationship Management (CRM) analytics plays a pivotal role in helping businesses understand and enhance interactions with their customers. This paper explores the significance of CRM analytics in optimizing marketing strategies, improving customer satisfaction, and driving revenue growth. It discusses the methodologies and technologies used in CRM analytics, including data mining, customer segmentation, predictive modeling, and sentiment analysis. Moreover, the paper examines how organizations leverage CRM analytics to personalize customer experiences, identify cross-selling and upselling opportunities, and mitigate customer churn. Through case studies and examples, this paper demonstrates the practical applications of CRM analytics in various industries, highlighting its impact on customer retention and loyalty.

Keywords: CRM, Data Mining, Customer Segmentation, Predictive Modeling, Customer Satisfaction

Data Warehousing and Data Lakes

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Abstract:

Data warehousing and data lakes are two prominent approaches for storing and managing large volumes of structured and unstructured data within organizations. This paper examines the concepts, architectures, and functionalities of both data warehousing and data lakes, emphasizing their roles in facilitating data-driven decision-making and analytics. It explores how data warehouses provide a centralized repository for structured data, enabling efficient querying and analysis for business intelligence purposes. Additionally, it discusses how data lakes offer a scalable and flexible storage solution for diverse data types, including raw, unprocessed data suitable for exploratory analysis and machine learning. Through comparative analysis and case studies, this paper elucidates the strengths and limitations of both approaches and highlights best practices for integrating data warehousing and data lakes to support diverse analytical needs.

Keywords: Data Warehousing, Data Management, Business Intelligence, Analytics Integration

Data Science for Disaster Response and Emergency Management

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Abstract:

Data science has emerged as a powerful tool for disaster response and emergency management, offering insights that aid in mitigating the impacts of natural and man-made disasters. This paper investigates the applications of data science in disaster response and emergency management, focusing on its role in proactive planning, real-time monitoring, and post-event analysis. It explores how data science techniques, including predictive modeling, geospatial analysis, social media analytics, and machine learning, enable authorities to anticipate and respond effectively to disasters. Moreover, the paper discusses the integration of diverse data sources, such as satellite imagery, sensor networks, and social media feeds, to enhance situational awareness and decision-making during emergencies. Through case studies and examples, this paper highlights the transformative potential of data science in improving disaster resilience and saving lives.

Keywords: Data Science, Disaster Response, Emergency Management, Predictive Modeling, Geospatial Analysis

Enterprise Information Management

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Abstract:

Enterprise Information Management (EIM) is a strategic framework aimed at efficiently managing an organization's information assets throughout their lifecycle. This paper explores the principles, methodologies, and benefits of EIM in enabling organizations to optimize data governance, enhance data quality, and maximize the value of their information resources. It discusses key components of EIM, including data integration, master data management, metadata management, and information governance. Moreover, the paper examines how EIM fosters collaboration between business and IT stakeholders to ensure alignment with organizational goals and regulatory requirements. Through case studies and examples, this paper illustrates the transformative impact of EIM in driving operational efficiency, enabling informed decision-making, and fostering innovation.

Keywords: Enterprise Information Management, Data Governance, Data Quality, Master Data Management, Metadata Management

Data Science for Urban Planning and Smart Cities

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Abstract:

Data science has emerged as a critical tool for urban planning and the development of smart cities, enabling policymakers and city planners to harness data-driven insights for sustainable urban growth and improved quality of life. This paper explores the applications of data science in urban planning and smart city initiatives, focusing on its role in optimizing infrastructure development, transportation systems, energy management, and public services. It examines how data science techniques such as spatial analysis, predictive modeling, and machine learning can inform decision-making processes and address urban challenges such as traffic congestion, air pollution, and resource allocation. Moreover, the paper discusses the importance of data governance, privacy, and ethics in the context of smart city initiatives. Through case studies and examples, this paper highlights the transformative potential of data science in shaping the future of urban environments.

Keywords: Data Science, Urban Planning, Smart Cities, Spatial Analysis, Predictive Modeling

Computational Intelligence and Management

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Abstract:

Computational intelligence (CI) techniques have gained prominence in recent years due to their ability to address complex management problems through adaptive and learning-based approaches. This paper explores the integration of computational intelligence in management practices, focusing on its applications in decision-making, optimization, and problem-solving across various domains. It investigates how CI methods such as neural networks, genetic algorithms, fuzzy logic, and swarm intelligence contribute to enhancing managerial effectiveness and organizational performance. Moreover, the paper discusses the challenges and opportunities associated with the adoption of CI in management contexts, including data quality, interpretability, and ethical considerations. Through case studies and examples, this paper highlights the potential of computational intelligence to revolutionize management practices and drive innovation in the digital era.

Keywords: Computational Intelligence, Management, Decision-Making, Optimization, Problem-Solving

Data Science for Educational Management and Learning Analytics

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Abstract:

Data science plays a pivotal role in transforming educational management through its application in learning analytics. This paper explores the utilization of data science techniques to enhance educational management practices and improve student outcomes. It examines how learning analytics, powered by data science, enables educators and administrators to gain insights into student performance, engagement, and learning behaviors. Additionally, the paper investigates the role of predictive modeling, clustering, and natural language processing in identifying at-risk students and personalizing learning experiences. Furthermore, it discusses the ethical considerations and challenges associated with the implementation of data-driven approaches in educational settings. Through case studies and examples, this paper underscores the potential of data science for educational management and its impact on shaping the future of learning.

Keywords: Data Science, Eduactional Management, Learning Analytics, Student Performance, Personalized Learning

There is no secret to success
It is the result of preparation,
hardwork and learning from failures.

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