

ICRAIC2IT

International Conference on Recent Advancements and Innovations in Computing, Communications and Information Technology

22 – 24, April 2022

Vijayawada, India

www.nriit.edu.in/icraic2it/



Department of
Science &
Technology,
Government of
India



Souvenir

Sponsored by:

AICTE, New Delhi &
Science & Engineering
Research Board, DST,
New Delhi

Organized by :

Departments of CSE & ECE

NRI INSTITUTE OF TECHNOLOGY

(Autonomous)

ISO 9001 : 2015 Certified, Approved by AICTE, New Delhi,
Permanently Affiliated to JNTUK, Kakinada,
CSE, ECE & EEE Accredited by NBA, NAAC "A" Grade
Agiripalli, Vijayawada, India - 521212

ICRAIC2IT

**International Conference on
Recent Advancements and Innovations in
Computing, Communications and Information
Technology**

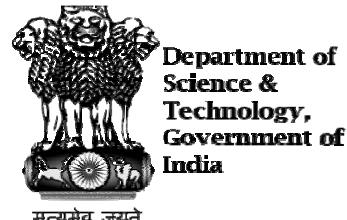
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Agiripalli, Vijayawada, India - 521212

**Souvenir of A Three day International Conference on "Recent
Advancements and Innovations in Computing, Communications and
Information Technologies" (ICRAIC2IT), 22 – 24 April, 2022, Vijayawada,
India**

Preface

The three day International Conference on Research Advancements and Innovations in Computing, Communications and Information Technology (ICRAIC2IT) is sponsored by All India Council for Technical Education (AICTE), New Delhi, Science Engineering Research Board (SERB), New Delhi and co sponsored by NRI Institute of Technology, Agiripali, Vijayawada. The conference is aimed to have a common international platform, wherein the faculty members, researchers and working professionals of various technical institutions across the globe involve in sharing their technical and research experiences. This conference ensures value addition to the participants and would certainly improve the knowledge levels of the participants.

Most of the emerging areas in Computer Science and Communication Technology are identified as topics of importance. The innovations and recent developments in the identified topics were highly focused and a call was given for paper submission.

The Conference announcement brochures have been posted to around 24000 academicians of technical institutions across the globe. The organizing committee has received a total of 114 research papers. After scrutiny, 76 papers have been shortlisted and accepted for presentation. The organizing committee has fully utilized the internet services for all its correspondences. Elaborate arrangements have been made to provide boarding and lodging facilities to all the non-local participants. Every effort has been made to make the conference a grand success. Every care has been taken to publish all the presented papers in AIP Conference Proceedings (Scopus Indexed).

Our heartfelt thanks are due to Dr R Venkat Rao garu, Chairman, NRI Institute of Technology, Agiripalli, for his continuous patronage and support for conducting numerous technical events organized by the faculty members of NRIIT.

Our Sincere thanks are due to Dr C Naga Bhaskar garu, Principal as he is the driving force behind for organizing this prestigious international conference. We respectfully acknowledge the timely support and valuable suggestions given by Dr G Rosaiah garu, Director, Administration and R & D, NRIIT.

We place our gratitude to our department HODs Dr D Sunitha, HOD: CSE and Dr R Sunitha, HOD: ECE for their active involvement and supporting the organizing team in all respects.

We owe our sincere thanks to Professor J V R Murthy garu, J N T U K, Kakinada who has consented to be our chief guest at the inaugural ceremony and also accepted to give a key note speech on the first day of the program. We place it the honour of our respects to all our colleagues, all the members of the organizing committee, paper reviewers, experts from various technical institutes, who took keen interest in rendering their valuable services.

We sincerely thank all those who helped us directly and indirectly in conducting this conference. We also appreciate the support extended by the department students, the staff members of other departments. We express our gratitude to all the speakers from the other esteemed institutions, for their participation and those who have come all the way from different places across the country. I sincerely thank all the persons who helped directly or indirectly to make this two day national conference a grand success. We wish all the participants a happy stay, enjoyable and fruitful sessions during the conference.

Dr. K.V. Sambasivarao
Organizing Secretary

Dr P Rama Koteswara Rao
Convener

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India**



MESSAGE

Learning gives creativity, Creativity leads to thinking, Thinking provides knowledge and Knowledge makes us great.... Says Abdul Kalam, the former President of India.

I strongly believe that the three day International Conference on Research Advancements and Innovations in Computing, Communications and Information Technology (ICRAIC2IT) that is sponsored by All India Council for Technical Education (AICTE), New Delhi, Science Engineering Research Board (SERB), New Delhi and co-sponsored by NRI Institute of Technology, Agiripalli, Vijayawada, provides an appropriate platform to suit the words of Dr. Abdul Kalam.

I congratulate the departments of CSE and ECE for jointly organizing a mega event of the kind which not only opens the vistas of research to the faculty and Industry professionals but also to young engineers at large. It is noteworthy to mention that the Government is also keen on promoting valuable and informative research on emerging technologies to tap the innovative and creative capabilities of the young learners.

The theme of the conference also rightly reflects on the same area which sows seeds of hope, aspiration and learning to mine creativity and expertise of the engineers of this generation. The management of NRIIT is always enthusiastic and supportive for the conduct of such events that promote knowledge churning besides providing impeccable hospitality and cozy accommodation. I hence believe that the participants will have immense take-away from the conference to enrich their scholarship and wisdom.

I conclude with the proverb “***Curiosity is a wick in the candle of learning.***”

**Dr R Venkat Rao,
Chairman**

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MESSAGE

“Capacity to learn is a gift, ability to learn is a skill, and willingness to learn is a choice.”

With these words I would like to congratulate the departments of CSE, IT & ECE who are jointly organizing a three day International Conference on Research Advancements and Innovations in Computing, Communications and Information Technology (ICRAIC2IT) that is sponsored by All India Council for Technical Education (AICTE), New Delhi, Science Engineering Research Board (SERB), New Delhi and co-sponsored by NRI Institute of Technology, Agiripalli, Vijayawada from 22nd to 24th April 2022. Willingness to learn helps one to grow.

The new education policy of our government upholds study on emerging trends and technologies to enable both teaching and learning communities contribute more for research. Thus I am glad to have learnt that the response from the academicians all over the country & overseas is indeed immense. Along with all the participants even I am eagerly waiting to listen to the modern trends from the research papers that are going to be presented in three parallel sessions on the said three days.

I am confident that this International Conference will go a long way in bringing together the academicians and researchers in vital areas of advanced technologies. NRI Institute of technology invites the paraphernalia of minds that will set the gears of bright change in motion to achieve great heights, showcase their talent and excel in novel fields to win laurels.

I also wish this conference to set new dimensions to the intellectual forum gathering in our lush green mango orchards. I congratulate the organizing committee and Departments of CSE, IT and ECE for their cooperation, coordination and commendable hard work to join the dots and make things happen in the way they have to be. I wish all the participants a productive and unforgettable take away from this three day conference.

Dr C. NAGA BHASKAR
Principal

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MESSAGE

“Learning is a treasure that will follow its owner everywhere”

This is an appropriate proverb to persuade today’s young generation. The three day International Conference on Research Advancements and Innovations in Computing, Communications and Information Technology (ICRAIC2IT) that is sponsored by All India Council for Technical Education (AICTE), New Delhi, Science Engineering Research Board (SERB), New Delhi and co-sponsored by NRI Institute of Technology, Agiripalli, Vijayawada, undeniably endorses an addition to the knowledge and wisdom of the participants.

The commendable efforts of the departments of CSE and ECE have brought this mega event to our forefront. The much edifying research findings of the academic colleagues, industrial professionals with profundity in exploring new things are truly laudable. Focus of the government on emerging technologies is driving the researchers on the right path providing more scope to consistent learning and exploring. I appreciate the immense response for paper presentations; most of which are abounded with relevant and practical content. In this connection I congratulate all the participants for their unprejudiced enthusiasm.

‘Imagine! Improve! Implement!’ Imagination-thrives for improvement-and these together-with proper implementation-makes a dynamic engineer in the long run. To make sure of that the spirit of competition continues to highlight the zeal to learn more and earn more in all fields of life and future.

I extend my earnest appreciation to the management of NRIIT for encouraging the conduct of such events which promote inquisitiveness among the students of not only our college, but also among the students of other colleges and universities. I wish all the participants a wonderful and fruitful stay on all the three days of the conference that helps them achieve, excel and win laurels.

**Dr G Rosaiah
Director, Administration and R & D Cell**

Keynote Speech

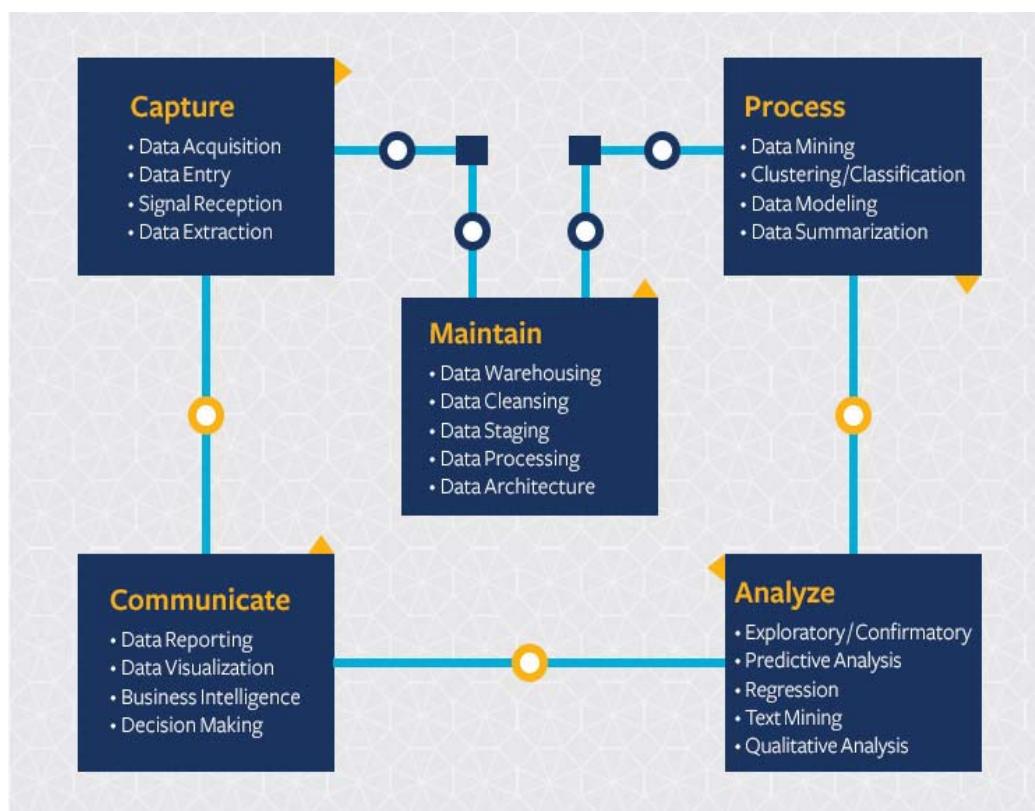
Data Science as a burgeoning subject with great prospects

By Prof. J V R Murthy,
Director, Incubation & IPR &
Professor, CSE Department, J NT U K, Kakinada

What is Data Science?

Data science continues to evolve as one of the most promising and in-demand career paths for skilled professionals. Today, successful data professionals understand that they must advance past the traditional skills of analyzing large amounts of data, data mining, and programming skills. In order to uncover useful intelligence for their organizations, data scientists must master the full spectrum of the data science life cycle and possess a level of flexibility and understanding to maximize returns at each phase of the process.

The Data Science Life Cycle



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The image represents the five stages of the data science life cycle: **Capture**, (data acquisition, data entry, signal reception, data extraction); **Maintain** (data warehousing, data cleansing, data staging, data processing, data architecture); **Process** (data mining, clustering/classification, data modeling, data summarization); **Analyze** (exploratory/confirmatory, predictive analysis, regression, text mining, qualitative analysis); **Communicate** (data reporting, data visualization, business intelligence, decision making).

The term “data scientist” was coined as recently as 2008 when companies realized the need for data professionals who are skilled in organizing and analyzing massive amounts of data.¹ In a 2009 McKinsey & Company article, Hal Varian, Google’s chief economist and UC Berkeley professor of information sciences, business, and economics, predicted the importance of adapting to technology’s influence and reconfiguration of different industries.²

“The ability to take data — to be able to understand it, to process it, to extract value from it, to visualize it, to communicate it — that’s going to be a hugely important skill in the next decades.” – Hal Varian, chief economist at Google and UC Berkeley professor of information sciences, business, and economics³

Effective data scientists are able to identify relevant questions, collect data from a multitude of different data sources, organize the information, translate results into solutions, and communicate their findings in a way that positively affects business decisions. These skills are required in almost all industries, causing skilled data scientists to be increasingly valuable to companies.

What Does a Data Scientist Do?

In the past decade, data scientists have become necessary assets and are present in almost all organizations. These professionals are well-rounded, data-driven individuals with high-level technical skills who are capable of building complex quantitative algorithms to organize and synthesize large amounts of information used to answer questions and drive strategy in their organization. This is coupled with the experience in communication and leadership needed to deliver tangible results to various stakeholders across an organization or business.

Data scientists need to be curious and result-oriented, with exceptional industry-specific knowledge and communication skills that allow them to explain highly technical results to their non-technical counterparts. They possess a strong quantitative background in statistics and linear algebra as well as programming knowledge with focuses in data warehousing, mining, and modeling to build and analyze algorithms.

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They must also be able to utilize key technical tools and skills, including:

R

Python

Apache Hadoop

MapReduce

Apache Spark

NoSQL databases

Cloud computing

D3

Apache Pig

Tableau

iPython notebooks

GitHub

Why Become a Data Scientist?

Glassdoor ranked data scientist among the top three jobs in America since 2016.⁴ As increasing amounts of data become more accessible, large tech companies are no longer the only ones in need of data scientists. The growing demand for data science professionals across industries, big and small, is being challenged by a shortage of qualified candidates available to fill the open positions.⁵

The need for data scientists shows no sign of slowing down in the coming years. LinkedIn listed data scientist as one of the most promising jobs in 2021, along with multiple data-science-related skills as the most in-demand by companies.⁶

Where Do You Fit in Data Science?

Data is everywhere and expansive. A variety of terms related to mining, cleaning, analyzing, and interpreting data are often used interchangeably, but they can actually involve different skill sets and complexity of data.

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Data Scientist

Data scientists examine which questions need answering and where to find the related data. They have business acumen and analytical skills as well as the ability to mine, clean, and present data. Businesses use data scientists to source, manage, and analyze large amounts of unstructured data. Results are then synthesized and communicated to key stakeholders to drive strategic decision-making in the organization.

Skills needed: Programming skills (SAS, R, Python), statistical and mathematical skills, storytelling and data visualization, Hadoop, SQL, machine learning

Data Analyst

Data analysts bridge the gap between data scientists and business analysts. They are provided with the questions that need answering from an organization and then organize and analyze data to find results that align with high-level business strategy. Data analysts are responsible for translating technical analysis to qualitative action items and effectively communicating their findings to diverse stakeholders.

Skills needed: Programming skills (SAS, R, Python), statistical and mathematical skills, data wrangling, data visualization

Data Engineer

Data engineers manage exponential amounts of rapidly changing data. They focus on the development, deployment, management, and optimization of data pipelines and infrastructure to transform and transfer data to data scientists for querying.

Skills needed: Programming languages (Java, Scala), NoSQL databases (MongoDB, Cassandra DB), frameworks (Apache Hadoop)

What Is Data Science?

Data science is the domain of study that deals with vast volumes of data using modern tools and techniques to find unseen patterns, derive meaningful information, and make business decisions. Data science uses complex machine learning algorithms to build predictive models.

The data used for analysis can come from many different sources and presented in various formats.

Now that you know what data science is, let's see why data science is essential to today's IT landscape.

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The Data Science Lifecycle

Data science's lifecycle consists of five distinct stages, each with its own tasks:

1. **Capture:** Data Acquisition, Data Entry, Signal Reception, Data Extraction. This stage involves gathering raw structured and unstructured data.
2. **Maintain:** Data Warehousing, Data Cleansing, Data Staging, Data Processing, Data Architecture. This stage covers taking the raw data and putting it in a form that can be used.
3. **Process:** Data Mining, Clustering/Classification, Data Modeling, Data Summarization. Data scientists take the prepared data and examine its patterns, ranges, and biases to determine how useful it will be in predictive analysis.
4. **Analyze:** Exploratory/Confirmatory, Predictive Analysis, Regression, Text Mining, Qualitative Analysis. Here is the real meat of the lifecycle. This stage involves performing the various analyses on the data.
5. **Communicate:** Data Reporting, Data Visualization, Business Intelligence, Decision Making. In this final step, analysts prepare the analyses in easily readable forms such as charts, graphs, and reports. Prerequisites for Data Science

Here are some of the technical concepts you should know about before starting to learn what is data science.

1. **Machine Learning :** Machine learning is the backbone of data science. Data Scientists need to have a solid grasp of ML in addition to basic knowledge of statistics.
2. **Modeling :** Mathematical models enable you to make quick calculations and predictions based on what you already know about the data. Modeling is also a part of Machine Learning and involves identifying which algorithm is the most suitable to solve a given problem and how to train these models.
3. **Statistics :** Statistics are at the core of data science. A sturdy handle on statistics can help you extract more intelligence and obtain more meaningful results.
4. **Programming :** Some level of programming is required to execute a successful data science project. The most common programming languages are Python, and R. Python is especially popular because it's easy to learn, and it supports multiple libraries for data science and ML.
5. **Databases :** A capable data scientist needs to understand how databases work, how to manage them, and how to extract data from them.

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Data Scientist

- Job role: Determine what the problem is, what questions need answers, and where to find the data. Also, they mine, clean, and present the relevant data.
- Skills needed: Programming skills (SAS, R, Python), storytelling and data visualization, statistical and mathematical skills, knowledge of Hadoop, SQL, and Machine Learning.

Data Analyst

- **Job role:** Analysts bridge the gap between the data scientists and the business analysts, organizing and analyzing data to answer the questions the organization poses. They take the technical analyses and turn them into qualitative action items.
- **Skills needed:** Statistical and mathematical skills, programming skills (SAS, R, Python), plus experience in data wrangling and data visualization.

Data Engineer

- **Job role:** Data engineers focus on developing, deploying, managing, and optimizing the organization's data infrastructure and data pipelines. Engineers support data scientists by helping to transfer and transform data for queries.
- **Skills needed:** NoSQL databases (e.g., MongoDB, Cassandra DB), programming languages such as Java and Scala, and frameworks (Apache Hadoop).

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About the organizing Institute

Sri Durga Malleswara Educational Society was established in 2007 with the objective of reaching the zenith in the field of education. NRI College of Pharmacy, started in 2007 and NRI Institute of Technology, started in 2008 are the result of such sincere and dedicated efforts and stern determination of the founders of the society. NRI Institute of Technology is an AICTE approved Institution affiliated to the JNTUK which functions as a private self financing institution to cater to the needs of juvenile aspirants in and around Vijayawada. The promoters of NRIIT started the college with a vision to empower the students with vibrant technology, sensitively matured and innovative to face the challenges of real time global experiences.

The founders are socially conscious and continuously responding to the needs and requirements of the region, to uplift the region and to promote educational facilities by establishing schools, to promote games and sports activities in the region, help the poor and improve their health standards by organizing free medical camps etc., Since the day of inception, NRIIT has been growing at a credible but steady pace for an educational institution of its kind. Both NRIIT and NRI College of Pharmacy have been taking a place of pride every year JNTUK results are announced.

NRI College of Pharmacy had recently added a feather to the crown of the Society by successfully placing its first out going batch of dynamic young pharmacists in various esteemed Organizations. are an Autonomous Institution with good discipline as well as Result oriented.with NAAC-A Grade,JNTU Kakinada -Permanent affiliation and ISO Certified Institution.

The institution is built in a calm and serene atmosphere, surrounded by lush greenery and is well connected by college buses as well as public transportation. Ideally located on sprawling 20 acre Mango groves, on Vijayawada – Nuziveedu State Highway, the campus is about 23 KM away from Vijayawada and 22 KM away from Gannavaram Airport.

NRIIT offers ten B.Tech Courses in Engineering viz., CSE, CSE(AI&ML), CSE(DS), AI & ML, (CSE-Telugu Medium), IT, ECE, EEE, MECH and CIVIL Engineering and six Post Graduate programmes viz., M.Tech with five specializations in Computer Science and Engineering, Digital Electronics and Communication Systems, Power Electronics and Drives, Structural Engineering, and Thermal Engineering and Master of Business Administration.

NRI proved its mettle by gaining 52nd Rank out of 8000 promising engineering colleges of excellences all over India and 32nd Rank among 100 engineering colleges in combined AP according to the reviews conducted by CSR which are highly prestigious. NRI is recently accredited by NAAC with "A" Grade and in the race of getting NBA accreditation shortly.

The teaching skills and efficiency of the faculty are enhanced by continuous evaluations and feedback. They nurture and hone students in various disciplines like, Communication, Technical, Behavioral, Managerial and Soft Skills. Faculty teaching skills have been enhanced by the training offered by WIPRO MISSION 10X. We also train our students on campus for various certification programs. So far, 235 students were certified by Microsoft as "Micro-Soft Technology Associate (MTA)" and 72 students are in the process of "Oracle Certification Program". Also, Direct Infosys Campus Connect college, where faculty and student development programs and technical projects will be handled.

A strong Training and Placement Cell is made available to the students, to make them face

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Industrial Challenges globally. Till now more than 1700 students got placed in many renowned companies like i.e., Tech Mahindra, TCS, Infosys, HCL Technologies, Virtusa, Polaris, IBM, FSS, Atos, Wipro, Valuelabs, JusPay, Ionixx, IVTL Infoview, Byjus, BroadComm, Mindtree, ADP, TIBCO, Cognizant, Efftronics, Ramtech, Cadeploy, Cadsys, Hexaware, Mmodal, NTT Data, Mphasis, Sutherland, Petrofac, Jain Irrigation, Flexiware Solutions, Charter Global, mroads, Miracle, etc.

NRI students always march forward to keep the flag high with their genius and hard work. Also, NRI is one of the Android Application Skill Development Centers set up by the Government of A.P and the only one in Krishna District.

NRI feels proud to let you know that it has its own platform to conduct online assessments under 24/7 CCTV surveillance. Also, we have 850+ latest configured systems backed up by uninterrupted power supply and duly supported by 20 no's of 10KVA UPS and 2 no's of 25KVA generators and also solar power. We have minimum Internet bandwidth of 100 Mbps for the smooth conduct of online assessments.

NRI feels it a privilege to let you know that it is awarded A-Grade by the Department of Technical Education, Government of Andhra Pradesh based on "Key Performance Indications" this year, 2016.

NRI students are bestowed with Top Class Infrastructure, State-of-Art Labs and LCD displays provided in all the AC Class-Rooms, innovative teaching and learning methods to update students' knowledge. To facilitate better & easy conveyance to students a fleet of more than 45+ buses ply to all corners in and around Vijayawada.

The intake details for 2021-22 is given hereunder :

B.TECH. DEGREE PROGRAMS	Sanctioned Intake
Electrical & Electronics Engineering (EEE)	60
Electronic & Communication Engineering (ECE)	180
Computer Science & Engineering (CSE)	180
Artificial Intelligence and Machine learning (CSE)	60
Data Science (CSE)	60
B.Tech (CSE) - RL	60
B.Tech CSE (AI & ML)	180
Information Technology (IT)	60
Mechanical Engineering (ME)	120
Civil Engineering (CE)	60
Master of Business Administration (MBA)	60
Master Of Technology (M.Tech – Computer Science & Engineering)	24
Master Of Technology (M.Tech — Digital Electronics & Communication Systems)	18
Master Of Technology (M.Tech – Power Electronics & Drives)	18
Master Of Technology (M.Tech – Structural Engineering)	18
Master Of Technology (M.Tech – Thermal Engineering)	18

All departments are well equipped with the state-of-the-art equipment, sophisticated laboratories, Computer Centers, with the most contemporary facilities backed by advanced computer systems and the software.

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About the Organizing Departments

Computer Science and Engineering

The Departments of Computer Science and Engineering was established in the year 2008. The Department is known for its excellent facilities and faculty. It offers B.Tech (CSE), B.Tech (AI & ML), B.Tech (DS) and M.Tech (CSE) programs at Under graduate and Post Graduate levels. The aim of these programs is to enable students to acquire specialized knowledge for various subjects in computer science & information technology, as well as to enrich the students' personal, social and cognitive development to meet challenges of today and tomorrow.

The department is taking maximum advantage of autonomous status and has prepared an excellent course curriculum for its autonomous students linking industry with curriculum. The autonomous curriculum is enriched with a wide range of courses viz., Practice based learning, Project based learning, and choice based learning, Optional Electives, Skill Development courses, Co-curricular activities, Professional Development activities, CPT modules, Audit Courses and Open Electives etc.

The department has acquired a Recognized Research Centre by J N T U Kakinada, after considering the potential of its resources. Andhra Pradesh State Skill Development Corporation (APSSDC) has established a state-of-the-art AP CMs Skill Excellence Centre with knowledge partners: Google, Amazon, Microsoft, Udacity, Coursera, etc. The department also entered into to MOU with 6 reputed organizations, which help us to arrange Expert lectures, Workshops, Seminar Talks, and Training Sessions.

The department is enriched with 35 well qualified and experienced staff, out of which 7 staff members are Doctorates, 12 staff members are doing their Ph.Ds. Every year the staff members publish a total of 50 – 70 research papers in reputed international journals. The faculty of the department have fetched 8 projects from Government funding agencies viz., AICTE,DST,SERB, MSME - New Delhi, APSSDC, Amaravati. Faculty also have published 65 International journal publications, 4 text books and 8 patents in the last three years.

The sincere efforts of teaching and non-teaching staff with their diversity of knowledge have spawned a plethora of exciting jobs. The department is making all its efforts to improve infrastructure & facilities in the Department. Department has been witnessing praise worthy performance of our passed out students in many Multi-national Companies and in general IT industry. Many companies of repute show their interest to visit our Institute for campus recruitment.

Department of Electronics & Communication Engineering

The Department of Electronics and Communication Engineering has been initiated in the year 2008 with an intake of 60 students under UG Program. Currently the intake is 180 and as on rolls while lateral entries admitted in second year the no. of students in the department considerably raised to 754. The P.G program has been initiated in 2012 in “Digital Electronics and Communication Systems” with an intake of 18 students. The department has 37 well qualified and experienced staff, out of which 4 staff members are Doctorates, 10 staff members are doing their Ph.Ds.

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The department is actively engaged in R&D, organizing seminars, workshops and conferences in related areas. The number of paper publications by the faculty in the past three years is 70 in National and International Journals. The number of PhDs guided by our faculty is 4. The Department has two funding projects worth Rs. 20,00,00/- for establishing Nodal Centre of Andhra Pradesh CM's Skill Excellence Center and Rs. 5,00,000/-under AICTE Unnat Bharat Abhyans Scheme. Department takes credit of two patents which are under the process of review and approval. 18 faculties have applied for various funding projects. Some of our faculty conferred awards for their research, participation in Journals as advisory committee. Our faculty are certified in 49 NPTEL courses in the past two years and 7 faculties were awarded Elite+Silver and 20 faculties were awarded Elite. Two of our faculty is acting as Members in Board of Studies in other Institutions.

Our students participate in Technical, cocurricular and extracurricular activities in various institutions in and outside the state and published papers. Several students bagged first and second prizes. The Department has state-of-the-art equipment worth Rs 1,01,73,464 /- with 10 well established laboratories, 9 Air Conditioned class rooms with LCD projector facility in all the rooms. The Department comprises of two software laboratories and one Research and Project laboratory with 150 Computers. Software labs and common areas of the department are equipped with CCTV cameras for monitoring and surveillance purpose. In addition to these, the department has additional facilities such as IOT Laboratory, AP Skill Development Centre, Antenna Radiation and pattern plotting system, PCB design tools and equipment, Trainer kits for Micro controllers and embedded systems, Spectrum Analyzer.

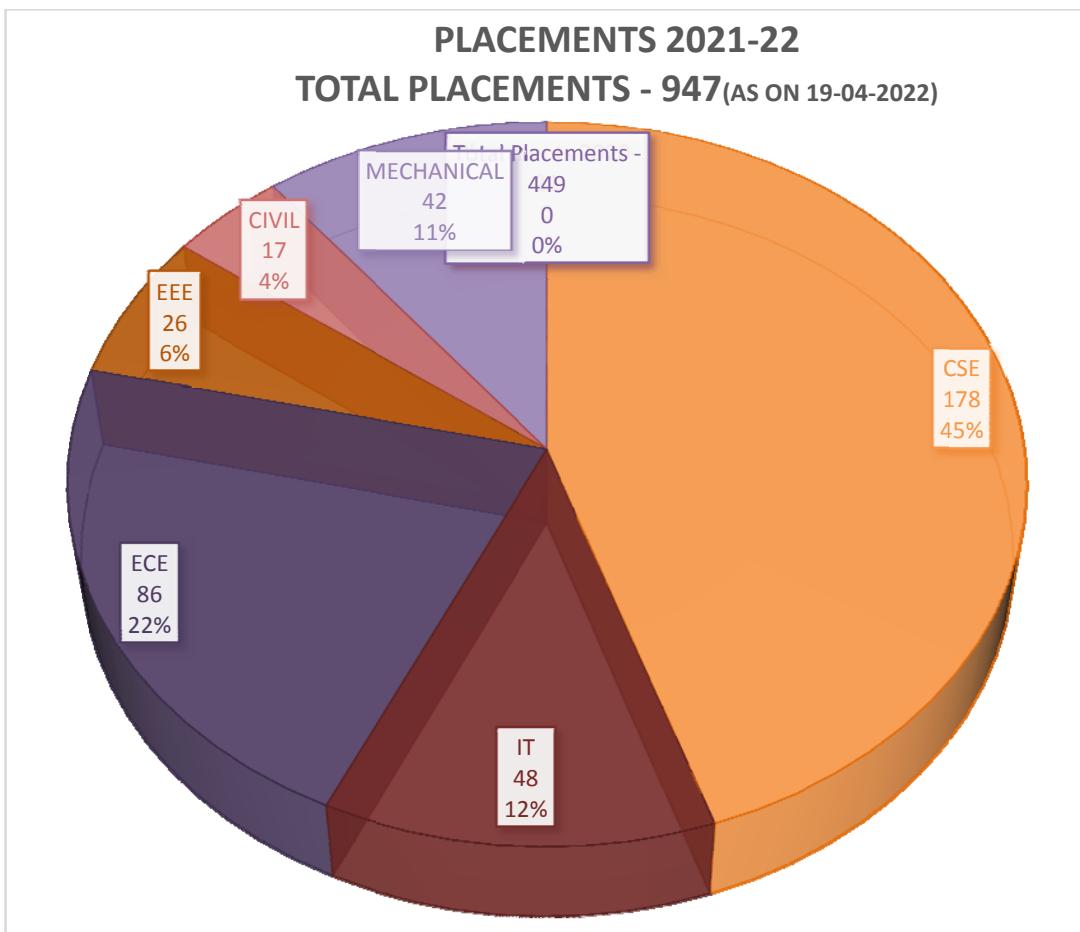
Every year more than 60% of students get placed in MNCs with attractive packages. Many of our students are pursuing post graduation in and abroad the country. Our department signed MOUs with various Industries such as South Central Railways, Microlink Peripherals Limited, SRC Solutions, ARK Info Solutions etc. The department conducts workshops, certificate courses and internships in collaboration with the industry. At Institute level MOUs are signed with various Universities (Viz., New Mexico University, USA, Lincoln University, Malaysia etc.) around the world.

The Department has a student chapter IETE and conducts Guest lectures, seminars, Quiz and Project exhibitions. Nearly 250 students are members in this IETE chapter. Students can choose from a number of academic flexibilities to pursue their career in a field of their interest. The programs are designed with the main objective of making students adapt to latest technologies, specializations and be industry ready at the end of their academic journey with NRIIT. Active Research is going on in, Embedded Systems, VLSI, Image Processing, Communications and Antennas... It is mandatory to our faculty to attend Seminars/Workshops/Faculty Development Programs at least once in a semester. Our students are performing well in academics and they are encouraged in R&D activities and publishing papers in journals. They are participating in symposiums and seminars in various colleges and universities. They won the prizes in these events. Many companies of repute show their interest to visit our Institute for campus recruitment

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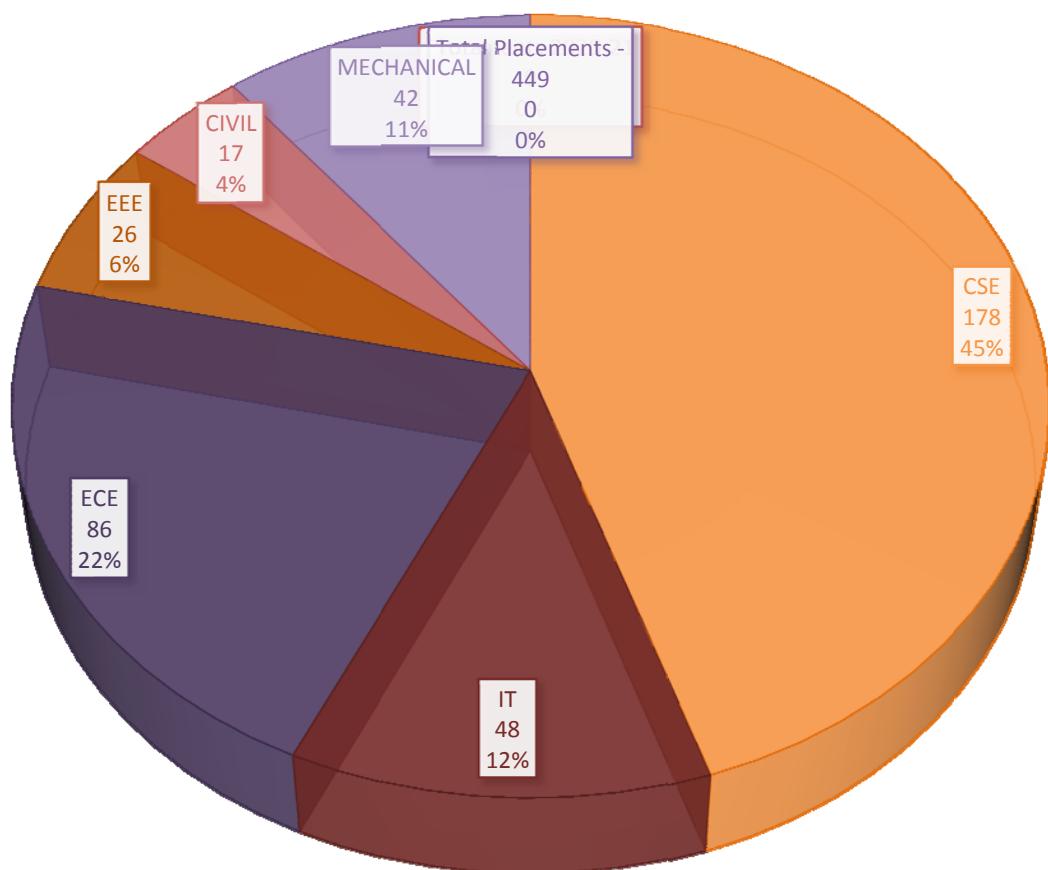
Placement Data

The institute's placement results are exceptional. Every year, a large number of employers come to our campus to recruit students, and the majority of our students get jobs through campus drives. The following piecharts below depict the placement data of the current and previous years.



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PLACEMENTS 2020-21
TOTAL PLACEMENTS - 434



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About the Conference

International Conference on “Research Advancements and Innovations in Computing, Communications and Information Technologies” – ICRAIC2IT is being conducted by Departments of Computer Science & Engineering and Electronics and Communications Engineering, NRI Institute of Technology, Agiripalli, Vijayawada, India during 22 – 24 April, 2022.

The conference is being organized in a grand way, in which a large number of academicians, Research Scholars, Industry professionals and Students from various Technical Institutions/Universities, Research Laboratories across the globe will meet and share their research findings. ICRAIC2IT will afford delegates unparalleled opportunities to communicate with competent professionals throughout the world prompt a tight link between theory and practice and explore different research perspectives and innovations in the interdisciplinary as well as domain specific approaches. Eminent keynote speakers are invited from all over the world to share their experiences, research findings as well as future directions.

We cordially inviteed the participation of all academecians and researchers and requested them to make it a grand success.

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Objectives

The major objectives of the ICRAIC2IT-2021 are as follows:

- Aims to bring together leading academic experts, industry practitioners and research scholars to exchange and share their experiences and research findings on various aspects of Computing, Communications and Information Technology.
- It also provides an interdisciplinary platform for participants to present and discuss the most recent innovations, trends and concerns as well as practical challenges encountered and solutions adopted in the fields of Computing, Communications and Information Technology.
- It provides a few Key note Speeches, multiple tracks of paper presentations and poster presentations.
- Affords delegates unparalleled opportunities to communicate with competent professionals prompt and explore different research perspectives and innovations in the interdisciplinary as well as domain specific approaches.
- Provides an opportunity to network with the renowned personalities.

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Conference Topics for the presentation		
<ul style="list-style-type: none"> • Intelligent Systems • Data Mining • Cloud Computing and Applications • Artificial Intelligence • Augmented Reality (AR)/ Virtual Reality (VR) • Big Data Analytics • Information Systems and e-Governance • Embedded Systems &Applications 	<ul style="list-style-type: none"> • Robotics and applications • Internet of Things (IoT) • Mobile ad hoc Networks • Soft Computing • Ubiquitous Networks • Virtual Reality and Visualization • VLSI/ULSI • Wireless Sensor Networks • Algorithms and applications • Real time systems 	<ul style="list-style-type: none"> • Block chain Technology • Business Intelligence & Analytics • Computer networks • Cooperative Autonomous Systems (UAVs/UGVs) • Cyber Security • Data Sciences and Analytics • Human-Computer Interaction • Image, Speech and Signal Processing

Conference Schedule

Date & Time	22, April2022	23, April2022	24, April2022
10.00 – 11.00	Inaugural Session	Technical Speech – 1 Prof. Y. Vishnu Murthy, VIT University, Vellore	Technical Session S7 (3) Session chairs : Prof. K V Sambasivarao Prof. Ashraf Ali
11.00 – 11.15	Tea Break	Tea Break	Tea Break
11.15 – 12.15	Keynote speech – 1 Prof. J V R Murthy	Technical Session S4 (5) Session chairs : Prof. G Shobana Prof. R Sunitha	Technical Session S8 (5) Session chairs : Prof G Rama Murthy Prof Y Arpitha
12.15 – 1.15	Technical Session S1 (3) Session chairs : Prof. D Sunitha Prof. V Ramesh Babu		
1.15 – 2.15	Lunch Break	Lunch Break	Lunch Break
2.15 – 4.00	Technical Session S2 (4) Session chairs : Prof. K Prathyusha Prof. Ch Surya Kiran	Technical Session S5 (4) Session chairs : Prof. Ch V Muralikrishna Prof. M P Kishore	Technical Speech - 2 Prof T Radha Krishna, Former Professor, J N T U, Hyderabad
4.00 – 4.15	Tea Break	Tea Break	Tea Break
4.15 – 6.45	Technical Session S3 (6) Session chairs : Prof. K V Sambasivarao Prof. S V Rama Rao	Technical Session S6 (5) Session chairs : Prof. P Raghuveer Prof S A Rehaman	4.15 – 5.00 PM Valedictory
		Cultural Session	

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Details of Awards

The idea behind the Presentation of awards is to encourage one's contributions, give motivation for active involvement to conduct better research work in future. Considering the marks given by the evaluation committee and the Conference Chair, the highest scoring presentations shall be recommended for the following awards.

Best Presentation Award

Offered for outstanding presentation considering every presenter of the conference, which is the most inspiring, effective and professional and are delivered through an impressive, authoritative and engaging speaker. Based on the marks given by the evaluation committee for every presentation and Conference Chair's own reading of the papers, Conference Chair decides which presentation will receive the Best Presentation Award.

Session's Best Paper Award

Based on the marks given by the evaluation committee including session chair and two evaluation panel members for an every presentation of an each session, Session Chair decides which presentation will receive the Session's Best Presentation Award.

Best Poster Award

The authors/listeners can present their posters during these sessions meeting the theme of the conference. Best posters will be awarded with appreciation certificates

About Vijayawada

Vijayawada is a city in the southeast Indian state of Andhra Pradesh. It lies on the banks of River Krishna surrounded by the hills of Eastern Ghats known as Indrakeeladri Hills. Vijayawada is the Second Largest city in the state of Andhra Pradesh, located on the banks of the Krishna River. The city is a major trading and business center and hence, it is also known as "The Business Capital of Andhra Pradesh. As of 2011 census, the city had a population of 1,048,240, making it the second largest city in the state with a million plus population and it had an urban agglomeration population of 1,491,202.

This City was declared as Capital of state of Andhra Pradesh by the Andhra Pradesh government. The city has been recognized as a "Global City of the Future" by McKinsey Quarterly. It is one of the commercial hubs of Andhra Pradesh with a GDP of \$3 billion in 2010, and is expected to increase to \$17 billion by 2025. According to Ministry of Urban Development, it is the cleanest city in the state of Andhra Pradesh with a total of 49.060 points. The political, agricultural, industrial sectors are a boon for its recognition. It is the hub of transportation with one of the largest railway junctions in India.

It's known for the ornate Kanaka Durga Temple, which sits atop a hill overlooking the city. It's known for the ornate Kanaka Durga Temple, which sits atop a hill overlooking the city. The Undavalli Caves feature ancient rock-cut temples, carved out of a sandstone hillside and adorned with elaborate statues. The massive Prakasam Barrage stretches across the Krishna River.

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Few attractions in and around Vijayawada:

- Amaravati, The capital City of A.P
- Akkanna Madanna Caves
- Amaravati Shrine
- Bhavani Island
- Gandhi Hill
- Gunadala Matha Shrine
- Hailand
- Hazratbal Mosque
- Hinkar Thirtha Jain Temple
- Kanaka Durga Temple
- Kolleru Lake
- Kondapalli Fort
- Kuchipudi Siddhendra Kala Kshetram
- Mangalagiri Panakala Swami Shrine
- Manginapudi Beach
- Mogalarajapuram Caves
- Pavitra Sangamam
- Prakasam Barrage
- Rajiv Gandhi Park
- Scrap Sculpture Park
- Subramanya Swami Temple
- Undavalli Caves
- Uppalapadu Bird Sanctuary
- Victoria Jubilee Museum

Sponsors of the conference

The conference is sponsored by All India Council for Technical Education, New Delhi and Science Engineering Research Board of DST, New Delhi. The details of the grant-in-aid are given hereunder :

Funding Agency	Name of the Scheme	Amount Sanctioned in Rs.	File No.	Date of Sanction
AICTE, NEW DELHI	Grant of Organizing Conference	2,54,700/-	F.No. 67-26/IDC/GOC/Policy-1/2020-21	27-Apr-2021
Science Engineering Research Board, NEW DELHI	"Assistance to Professional Bodies & Seminar / Symposia Scheme"	1,00,000/-	File Number: SSY/2021/000377	16-Dec-2021



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Abstracts of the selected papers

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Nonlinear Modeling for Prediction of Undrained Shear Strength of Soil

Rahul RamdasWankhade , Dr. P. V. Durge

Research Scholar, Department of Civil Engineering, Prof Ram Meghe College of Engineering & Management, Badnera-Amravati, India ,Professor, Department of Civil Engineering, Mauli College of Engineering, Shegaon, India

Abstract

Shear strength the most important property of soil directly governs stability of structures. It is determined in laboratory using sophisticated equipments and is found to be associated with errors. Alternative such as the empirical correlations are considered to be valid for particular range. With the advent of computational techniques, such as mathematical, numerical and artificial intelligence are explored for determination of shear strength This paper presents the computational study carried out to develop model for estimation of undrained shear strength. Basic index properties such as silt content, clay content, plastic limit, bulk density, liquid limit and depth of soil samples are used for prediction of shear strength.

The geotechnical data set used is obtained from investigation reports of various sites across India. The processed data analyzed for its relevance is used for development of nonlinear least square regression and Multilayer Perceptron networks. The prediction ability of both model is evaluated by Root mean square error, Mean absolute error, correlation coefficient, t-value, coefficient of efficiency, cumulative probability and over fitting ratio. Contribution of each of the basic index property is verified by Garson's algorithm. MLP model is found to be efficient in comparison with the regression model.

Keywords: Neural Network, Shear strength, Statistical analysis

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Paper ID : 05

Identifying the Key Features of the Object

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Abstract

The applications of computer vision are boundless, both in usage and technical impressiveness. For many areas of industry, Real-time object dimensions detection is the major issue. Detecting objects key features like size, shape and color from an image is a difficult task and has many practical applications. The major challenge faced with object dimensions detection are getting accurate results like extracting the exact object boundary. In this research, we proposed a system that detects the key features of an object like size shape and color.

The preferred algorithm is computer vision and it consists of some efficient tools required to find the key features of an object. In this application, we are going to measure the characteristics of an object (size, shape, color) present in the picture. Calculating the distance to the target from the camera is identical to estimating the dimensions of the objects in a photograph. First and foremost, we must determine the pixels per measure value. Inorder to find this value, we have to calculate the Euclidian Distance from between the edges of the object.

Keywords— Camera, Image, Computer Vision, Object size, Size-estimation.

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Paper ID : 06

Dynamic Multiclass Analyzer for Online Reviews Using Machine Learning Techniques

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Abstract

Sentiment analysis is a type of study that uses written language to examine views, sentiments, evaluations, and attitudes. In our daily work, other people's sentiments are really important. When travelling to other locations, the direct technique of dealing with emotional order neglects to accomplish duties. These alternatives include purchasing things or going to see a movie in a theatre, among others. It's simpler to check when the number of views is low, but for most popular goods, customer reviews are in the hundreds, if not thousands. Sentiment Classification for Dynamic Data Features is presented in this thesis as a unique approach (SCDDF). It was decided to test different product and movie reviews that were gathered from various websites. Using Bayesian networks and Natural Language Processing methods, opinions were compiled.

Dynamic data in bulk is preferred over static data. To classify all comments, our technique uses a collection of comments from social networks as input and assigns a ranking to each remark inside each site. In this way, the consumer receives an overall assessment of the product's characteristics. Multiclass organization is an extension of binary classification, which has already been investigated in various languages and fields.

A simple methodology was proposed for obtaining multiclass sentiment labels for each textual statement, taking into account each product function that is included in the comment for each paragraph to find multiple classes for product reviews collected from online shopping carts and using product dynamic features for analysis as we are using feature wise classification on each sentence & finally on each doc. Here, an improved porter stemmer algorithm was created by modifying its rules, and it demonstrated great performance.

Keywords— Sentiment classification, machine learning techniques, feature subsumption, Natural language processing(NLP),sentiwordnet, Support Vector Machine(SVM).

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Paper ID : 08

Detection of Facial Expressions Using Histogram Based Local Feature Descriptors

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Abstract

In the field of computer vision, face detection is a complex task due to illumination variations, pose, and facial expressions. Based on this idea, in this work, we proposed a new framework using local texture and shape features. The proposed system includes three steps: pre-processing, feature extraction, and classification. Among them, pre-processing plays a pivotal role in the enhancement of classification accuracy.

To achieve this, here we analyzed three widely used enhancement strategies such as Histogram Equalization and Adaptive Gamma Correction with Weighting Distribution (AGCWD). Then we extracted relevant texture and shape informative features based on Local Binary Pattern (LBP), and Histogram of Gradients (HoG). Finally, these features are fed to Support Vector Machine (SVM), and AdaBoost. All these experiments are carried out on two publicly available open data sets namely JAFFE, and Cohn-Kanade Dataset (CK+).

Keywords: AGCWD, Facial expression, Histogram Equalization, and Supervised Machine Learning Approaches.

Paper ID : 09

A Novel Method to Secure Cloud Data Using DNA Cryptography

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Abstract

In the era of technological explosion, data plays a vital role and it drastically changes global living. When it comes to data, the place where it resides matters. Data can be stored in Hard Disks, pen drives, and different DBMS components but when you store data on the cloud it is accessible from anywhere i.e. wherever you go your data is with you. Many people have seen a good part of having data on cloud, like a coin has two sides; data also has a second side in terms of security.

Everyone badly needs security to their data and providing security to the data on the cloud is a challenging task. In this article the author suggests adding evolving DNA Cryptography Technology to the data. DNA Cryptography build a strong security wall to the data on cloud and when level of security is satisfiable, it gets the trust of clients and increases utilization number.

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Keywords DNA, Cloud, Security, Cryptography, Encryption, Decryption

Paper ID : 10

Review of Blockchain Technology With Respect To Applications, Platforms and Architectures

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Abstract

Block chain is a underlying technology can be applied for multiple number of domains such as education, government, healthcare, financial facilities and etc. Block chain provides the security services for digital information sharing and transaction. It depends on the DLT and architecture designed in a decentralized form. Blockchain shows the transaction details for all the participants. In this case, discussed the features of blockchain with their platforms and applications. Now a days, Blockchain is mainly used for cryptographic security purposes in a digitalized form. It follows the cryptographic algorithms as hash function. It creates the number of blocks for each records in a database.

Adoption of blockchain is extremely narrow they can be design in an automated software. In this survey, describes the benefits of block chain technology in several facilities. It is efficient compare to other security services and it takes a dominant position in digital transaction and information sharing. In a distributed system block chain promotes traceability in over the network. It is a mechanism in which mutual consent among distributed nodes in the network. Recently market places choosen the blockchain technology and their platforms.

Keywords blockchain; DLT;automatedsoftware;platforms

Paper ID : 11

21st Century Skills in Online Classroom: Contemplations and Experimentations

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Abstract

This paper depicts a framework for the online learning paradigm as the COVID-19 pandemic negatively affected education systems around the world and cast a shadow on the future of education. In-person learning is viable as the core element of social context happens typically. However, purposely consolidating social aspects that form a healthy community and advance critical discourse can make remote learning similarly incredible. In this context, the authors have crafted the online

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learning framework including resources and strategies that will be useful in a virtual setting.

Paper ID : 12

**Flamingo Deep Search Residual Convolutional Neural Network Based Chronic Kidney Disease
Prediction on the Internet of Medical Things Platform**

Tatiparti B Prasad Reddy and Dr.Vydeki Dharmar

Kidney cancer is a fatal disease, the early detection of kidney cancer is a strenuous process in casual hospitality [1]. Because of the presents of various types of cancers, the researchers mainly concentrated on it. These different varieties of cancers caused the medical treatment as delayed [2, 3]. The kidney cancer patients are provided confined treatment in the hospitals for a large period of time, also the life period is reduced to below one year [4]. The technologies provided health diagnosis tools with automatic processing. These machines help the physician to identify the disease of a patient as fast as possible [5]. Most of the tools contain the step known as classification, but in the case of kidney disease identification, it is an impossible task. By using the tools, the difficulties for testing and identification can be minimized. Chronic renal disease (CKD) affects the structure and function of the kidney [6]. The complicated disease causes some physical issues like weakness of bones, damaging the brain cells, high blood pressure, injuries in the vessels of the heart, etc. Glomerular filtration rate (GFR) is the stage, the different level of cancer depends on this stage [7]. Nowadays the public faces lot of chronic diseases like CKD, these disease affects to increase healthcare costs [8]. In some countries, the early prediction of CKD comes an important problem for hospitals due to the increasing cost.

Paper ID : 13

Improving the Strategy Choices of Kabaddi Players Using Game Theory

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Abstract

Decision-making is vital in day-to-day existence. In Kabaddi tournaments, the accessible time available for making decisions is typically a split second. Thus coaches and players must master the art of designing as well as implementing strategies for doing the needful in the available time. Tremendous progress in data analysis as well as other computational techniques implies that these days", coaches and players can utilize these tools for formulating their strategies aimed at improving their prospects of winning [Ahmed, S. (2019), Alamar, B. C. (2006), Auer, B. R., & Hiller, T. (2015), Bowles, R. P., & Ram, N. (2006), Carfi, D. (2012), Carter, V., & Machol, R. E. (1971), Chiappori, P.-A., Levitt, S., & Groseclose, T. (2002), Coloma, G. (2007), Flanagan, T. (1998), Hiller, T. (2015), Hirotsu, N., & Wright, M. B. (2006), Jordan, J. D., Melouk, S. H., & Perry, M. B. (2009), Lin, K. (2014), Palacios-Huerta, I. (2003), Ravi, A., Gokhale, A., & Nagwekar, A. (2021), Rockerbie, D. W. (2008), Romer, D. (2006), Walker, M., & Wooders, J. (2001)].

No endeavor is made till date towards utilizing the Game-theoretic concepts for strategy making in Kabaddi. In this study, an endeavor is made to appropriately utilize Game Theory to deliver a clear-cut strategy for optimization of payoffs of game-play under diverse game circumstances. A large number of videos of actual tournaments are examined for constructing the relevant data set. The data is examined from the Classical Game Theory perspective to create the payoff matrices. The equilibrium solutions are then obtained from these payoff matrices by observing the matrix entry with highest payoff. It will be a future endeavor to use the optimal strategies obtained from payoff matrix constructed using previous matches to Kabaddi matches and see if the likelihoods of winning improve. A Recommendation tool is also built. This model suggests suitable strategies for defenders for a given strategy of the raider so as to maximize the payoff. Thus, a ready blueprint is provided capturing the quintessence of tournament data that makes available the optimal strategies under diverse game situations benefiting both the coaches and the players.

Keywords Coopetitive game, Defender, Raider, Recommendation tool

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Paper ID : 14

Starvation Free and Priority Oriented Resource Sharing in Cloud Computing Environment

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Abstract

Resource sharing plays vital role in cloud computing environments. Load balancing is a widely practiced approach for optimum utilization of resources in cloud computing platform. However, the attainment of resource sharing widely depends on the nature of load balancing algorithm and the way it gets implemented on cloud. The objective of resource sharing and load balancing should not cause virtual machines starve indefinitely. An enhanced load balancing mechanism for resource allocation for cloud computing platform has been presented here.

The suggested technique emphasizes on sharing of cloud resources according to the priority of virtual machines with an objective to avoid starvation by reducing the waiting time. An implementation of the suggested technique has been deployed and tested on the OpenStack cloud infrastructure on an open-source operating system. The results reveal performance improvement by lowering waiting time of starving virtual machines. The mechanism can be extended in future to collaborated cloud platforms.

Paper ID : 15

A New Enhancement In LSB Based Image Steganography Using Seven Segment Display Pattern

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Abstract

Data security is one of the most important parameter in everywhere at any place. Now a days in internet so many interchanges are performed with images and sending secret messages with in a image is a one of the popular technique and most encouragble one and this process is referred as image steganography. Most of the image steganography techniques are based on the utilizing the least significant bit of the original carrier image. In this proposed a new technique for generating the secret key and introduces a new process of embedding secret data as well as retrieving the secret data.

In this process the selection of key for inserting secret data is achieved by using seven segment display and by considering different parameter with various dimension of the seven segment pattern an experimental results provides better than the existing approaches and also it produce highly intensively stego image and it also provide better security for users secret message.

Keywords: Data security, image steganography, seven segment display, hexadecimal number

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Paper ID : 16

An Elaborate Review of the Sustainable Energy Resources and Its Efficacy

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Abstract

The objective meets with the utilization of sustainable energy as to shape the present for securing the future leads with the implementation of renewable energy resources. Not only domestic as well as commercial and industrial acceptance meets the demand.

The renewable energy resource can be the leading power generation in country as well as in the whole world. With the availability, efficacy and uses it fits well in each direction and every prospectus of sustainable development

Keywords— Modelling, Sustainable, HEMS, RES, QSTec, QStp, MCDM, DSM

Paper ID : 17

A Brief Literature Review Based on Induction Motor Power Factor Improvement

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Abstract

This paper shows the comparative analysis of different techniques used for the improvement of power factor of induction motor. The different techniques used are terminal voltage reduction, terminal static capacitor, floating winding with static capacitor etc. Different characteristics like speedtorque, speed-current is observed. All these techniques help considerably for improvement of power factor in order to overcome the effect of initial large current.

Keywords—Terminal reduction of voltage, Static terminal capacitors, Wanless connection, Floating winding capacitor system, Induction motor

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Paper ID : 18

A comprehensive literature review analysis for the various MPPT techniques in PV system

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This paper shows the comprehensive review analysis of different techniques of maximum power extraction (MPPT) of solar PV array. The different techniques used were perturb and observe (P&O), Incremental conductance (IC), fuzzy logic control (FLC), Artificial neural network (ANN), Ripple correction control (RCC). The performance analysis of MPPT is also analyzed under the effect of shading, effect of irradiance etc. it is observed that maximum power is extracted from solar PV array with ANN and also the minimum harmonics (THD).

Keywords—MPPT, FLC, ANN, PO, IC, THD

Paper ID : 21

Design and Implementation of EMC Compatible Device for Gas Level and Leakage Detection

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Abstract

LPG (Liquefied Petroleum Gas) consists of gases like propane, methane, butylene, propylene, and butane which are exceedingly hazardous. They are highly combustible. The proposed system is capable of continuous weight detection of the LPG cylinder. When the weight reaches some minimum threshold, it sends SMS alerts to the user and authorized LPG agent for automatic cylinder booking. The system is also capable of detecting gases such as propane and butane. Whenever there is leakage of LPG gas, the system alerts the consumer with SMS. The system uses Arduino UNO for controlling all the processes. GSM modem is used for sending SMS [4].

Sensors such as fire detectors, load cells, gas leakage sensors are used in the system for the safety of the user. The LCD is used for displaying the output of the sensors and other results. Light Emitting Diode (LED) is used for indication purposes. During the leakage situation, the system can stimulate other processes like switching on the exhaust fan automatically, opening the windows for the safety of the user.

Keywords : LPG, Propane, Butane, SMS, MQ-2 gas sensor, Arduino UNO, GPRS SIM 800L, RTC, Fire Detector.

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Paper ID : 24

**A Survey on Detection of COVID 19 with the Assist of Machine Learning (ML), Deep
Learning(DL) and Artificial Intelligence (AI) approaches.**

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Abstract

The COVID-19 (Corona virus disease 2019) outbreak induced millions of human beings the loss of life, still spread of the disease was unstoppable and was declared a pandemic with the aid of the WHO (World Health Organization). Therefore, human beings across the world are nevertheless getting contaminated every day. Reverse Transcription Polymerase Chain Reaction (RT-PCR) to identify COVID-19 is not feasible in terms of both cost and time of identification, which might cost the patient's life. Therefore, to make identification economical and feasible, researchers were attempting to use clinical images (x-ray and CT etc.,) to detect COVID-19 with the assist of Machine Learning (ML) and Artificial Intelligence (AI) approaches to aid in automating the identification of the pandemic. This paper helps in understanding some ML and AI approaches for detecting COVID-19 from clinical lung images.

The amassed records about accessible research sources and inspected a complete of 30 research papers until august 2021. This paper includes the exploration and analysis of data sets, pre-processing methods, segmentation approaches, feature extraction, classification, and test effects, which can be useful for discovering future lookup instructions in the area of automated analysis of COVID-19 sickness the usage of AI-based frameworks.

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Paper ID : 25

Design & Deployment of a Smart Chatbot Using Emerging Technologies

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Abstract

Chatbots are on the rise these days. The ease of using Chatbots and their quick response technology make them favored among users. In the traditional method to get some information, users need to consult a person via call or email and wait till a reply even for simple queries which is time taking, the Chatbot technology made things quick and easy.

Chatbots are simple computer programs that simulate human conversations in text or audio. Several approaches are available for developing a Chatbot are Rule-based, Ensemble-based, etc. Although we have a Rule-based approach, Deep learning technology is one of the best methods to create effective and perfect human interactive Chatbots because of its self-training ability. From data, deep learning Chatbots learn everything based on human-to-human conversation. It will learn more effectively if you feed it more data. In Deep Learning, Retrieval-based and Generativebased approaches are the best for building interactive Chatbots. Retail and e-commerce, hospitality, travel, finance, banking, and fintech, healthcare, media, and entertainment channels are just a few of the industries where these Chatbots can be used. This paper is aimed at giving a good understanding of various approaches for making chatbots.

Keywords: Chatbot, Deep learning, Retrieval, Generative, Rule-based (key words)

Paper ID : 26

Facial Recognition System Using LBPH Algorithm by Open Source Computer Vision Library

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Abstract

Facial recognition is a way to identify or confirm a person's identity using their facial features, through preconfigured software. This can be done in real-time and also through previously captured videos and images. Facial recognition has a wide range of uses starting from smartphones to Law enforcement uses. It can be categorized under the biometric security form where it detects human faces for security or verification purposes. Facial recognition employs a machine learning algorithm that finds captures and analyses facial features. Initially, the system detects the features of the human face followed by an analysis of the captured features. Then it matches the same with existing images and their features stored in the database. It authenticates the user if a match is found and disallows him/her if a match is not found. Facial recognition systems are very effective and reliable for many purposes, generally used for biometric security, attendance, unlocking smartphones, identifying people, and many other uses.

The proposed system removes the dependence of users on heavy CCTV cameras and instead could be used by any camera, even those built in smartphones. In other words, smartphones could be placed at strategic points instead of installing a CCTV which is usually fixed at one place and could not be removed. The proposed system is much faster in capturing the information and relays the results faster.

Keywords: Facial Recognition, Smartphones, Wake Word, Registration & Database

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Paper ID : 30

**Design and Implementation of Miniaturization of Triangular Shape Dielectric Resonator
Antenna Using AMC Surface for 5G Applications**

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Abstract

A radio antenna is a Dielectric Resonator Antenna (DRA). It is built up of ceramic material into blocks of various forms and is generally suitable at frequencies larger than 1 GHz (microwave frequencies and higher than microwave frequencies). It is attached to a metal surface. The artificial magnetic conductor (AMC) surface is used to miniaturize a triangular shaped Dielectric Resonator Antenna (DRA) in this study. It's installed on a FR4 substrate which has dielectric constant as 4.4. Other key antenna characteristics such as antenna gain, resonant frequency, and efficiency will not be affected. For the Dielectric Resonator Antenna, the frequency range in which downsizing is achieved is 3-5GHz. The Artificial Magnetic Conductor surface reduces the antenna size by about 85%. On the FR4 substrate, an Artificial Magnetic Conductor and a Dielectric Resonator Antenna are installed. There are nine tiny copper patches on the Artificial Magnetic Conductor (AMC) surface. There is a minor amount of gap between these patches when they are first introduced. On the AMC surface, a Dielectric Resonator (DR) is placed. As a result, the overall volume of DRA is significantly diminishing.

The surface of the Artificial Magnetic Conductor is shorted with ground metal using tiny metallic vias. There are three primary aspects in this design: (a) Impedance matching using a Parasitic Metallic Strip (b) Design miniaturization with an AMC surface (c) Simple Micro-strip line Feeding This antenna's primary use is in 5G wireless applications. The overall volume of the Dielectric Resonator Antenna size is reduced by 85%. In addition, when compared to the original Dielectric Resonator Antenna without the surface of Artificial Magnetic Conductor, the ground surface is lowered by 15.5 percent.

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Paper ID : 31

A Study of Assistive Technologies for Visually Impaired

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Abstract

The navigation systems are advancing with every possible technology.Researchers are doing there best to improve the navigation system and guidance systems.These advancement in the navigation systems with some modification can be helpful to the visually impaired people to navigate in there day to day life.This paper gives a review of the better technologies present in the society to help the visually impaired.This paper covers the use of different technologies like AI(artificial intelligence),Deep learning,IOTetc in creating useful gadgets for the visually impaired people.

Traditional approaches such as: cane or guide dog,And there are gadgets such as infrared based cane or ultrasonic blind stick with are limited by the distance of identifying the objects.And there are some gadgets which are microcontroller based and microprocessor based.Some of the proposed systems uses the computer vision for object detection,characterrecognition,face detection etc.There are wide range of gadgets involving various technologies to help the visually impaired.The review covers various technologies used in different proposed systems for the visually impaired people and help to develop a better navigating device for visually impaired.

Paper ID : 32

A Technical Review on the Methods of Fall Detection

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Abstract

There is a high risk of falls in aged people due to acute and chronic health impairment. This causes injuries that affect their social life and independent living. Although various existing technologies focus on fall detection with individual sensors, the performance of these systems is still not satisfactory, as they suffer mainly from high false alarm rates. This paper includes a full description of detector technology, which range from accelerometers, pressure detectors, and camera to radar based detectors, as well as their incorporation into a full fall detection system. This describes advantages and disadvantages of several detector fall discovery methods with respect to point birth, bracket, experimental data set and performance.

The primary topics that are not well addressed in the literature are the stoner stiffness, installation difficulty, and power usage of the systems. Finally, the study presents an initial framework for determining the technology for a certain script or position based on the deployment prerequisites.

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Paper ID : 33

Metamaterial Wearable Antenna Design and Analysis for Wireless Applications

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Konuku

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India

Abstract

Wearable antenna that uses metamaterial with low-profile is presented in this research paper which can be used for wireless applications. The antennas that are involved in reliable on-body communications must have requirements, like low frequency, de-tuning, and lowering efficiency . Textile antenna is the integration of a communications system into a garment or wearable object. For onbody communications, the textile antenna can be widely used, yet its performance characteristics can be known by thorough study of the literature; especially during on-body measurements. The MMdesigned antenna has a thickness of 4.6mm and operates at 4.5GHz, 11GHz, and 17.7GHz. To analyze the proposed antenna HFSS software is used .

The gain, directionality are improved by using a MM structure that is observes in simulation data. Using Metamaterial(MM) lowers the specific absorption rate (SAR) for the planned one. The designed model is suited best for UWB and WBAN applications.

Keywords: WBAN, UWB, MM, SAR

Paper ID : 35

CMOS Process Monitor Different Design Approaches

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India,KavitaKhare MANIT Bhopal M.P

Abstract

This paper proposes analysis of set of monitor circuits to estimate process variations. Ring oscillators (ROs) based approach are chosen to sense device process variations. The fabrication for many chips generally lacks with consistent performance, and hence, the specifications need to be measured to assure design for yield (DFY).

The proposed research determines the output frequency of an oscillator to sense the process variation either for an nMOS or for a pMOS device. Main aim is to reduce the sensitivity of opposite device like in nMOS (pMOS) sensor reduce sensitivity of pMOS (nMOS). The proposed method has been designed in a CMOS 18 nm.

Keywords—Ring Oscillator, Process Variation, Delay cel

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Paper ID : 36

Multi-Speaker Recognition and User-Specific Answering System

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K.J. Somaiya Institute of Engineering and Information Technology, Mumbai

Abstract

In our everyday life, we associate and run over voice aides that react to queries that are either speaker-autonomous or connected with the individual who is signed into the system. The most common way of approving the personality of the individual to give admittance to the system by utilizing discourse/voice features is called Speaker Recognition. A significant amount of computation in speaker recognition arises from the likelihood and distance computations of the feature vectors of known and unknown speakers; their dimensionality and the complexity of the speaker models help in determining the identification time. We plan to create a text-independent multi-speaker recognition system to remember each speaker and perform specific tasks for them.

This will be performed in a noisy environment when it could be hard to identify the speaker. The proposed methods include Gaussian mixture models(GMM), vector quantisation, frequency estimation, MFCC, template matching, neural networks, Support Vector Machine (SVM), etc.

Paper ID : 37

An Approach to Forecast Team Dimensions

Balakrishna gudla, Gousia Thahniyath and Venugopalaraao Gundeepogu

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Abstract

Allocating people in a couple of initiatives is an essential trouble thinking about the productiveness of businesses from the standpoint of socialization. The work primarily focuses on determining an optimal number of people with aggressive and passive personality traits . Due to the NP-hard nature of the problem, we recommend using a Genetic-Algorithm to tackle the ensuing optimization problem. Working in a team has also been viewed as a good training for individuals going into business since working in a team allows them to improve their capacity to control and handle project challenges quickly. Most university publications use a group-format to allow students to share their knowledge, improve problem-solving abilities, and improve verbal communication skills. However, not all student groups get along. One of the causes is that the groupings aren't formed in a methodical way. As a result, team building is critical as a starting point for the institution's growth and success. So, keeping the ideal stage of cohesion maintains a group collectively, to be able to convey advantageous influences at the results of a venture.

Approaches to group creation have repercussions that experts have looked into. Self-selection and random assignment of participants are the most common strategies utilised in team building in ordinary exercise. These methods aren't beneficial in the development groups as it will now not accelerate the improvement processes. As a result, the concept's purpose is to ensure that the best possible efficacy in terms of social interaction is achieved. As a result, the offered set of guidelines can be used as a selection tool by managers to create people groups for a variety of projects. Computational experiments with benchmarks were carried out and compared to the exhaustive technique in order to investigate the performance of the suggested technique. The results are encouraging, demonstrating that the set of criteria consistently produces near-perfect results in a short amount of time.

Keywords: Genetic Algorithms, passive, aggressive, team formation

Paper ID : 38

Facial Emotions Recognition For Future Applications With Significance Of Data Diversity

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Abstract

In this paper, we address the problem of detection, classification, and quantification of feelings of textual content in any form. We take a reference of English textual content collected from social media like Twitter, that can offer records having software in a selection of methods, specifically opinion mining. Social media like Twitter and Facebook is complete of feelings, emotions, and critiques of humans all over the world. However, reading and classifying text on the foundation of emotions is a big mission and may be considered as an advanced shape of Sentiment Analysis. This paper proposes a way to categories text into six unique Emotion-Categories: Happiness, Sadness, Fear, Anger, Surprise and Disgust. In our version, we use extraordinary approaches and combine them to efficaciously extract those feelings from text.

The first approach is based on Natural Language Processing, and makes use of several textual capabilities like emoticons, degree phrases and negations, Parts of Speech, and other grammatical evaluation. The 2nd method is based totally on Machine Learning classification algorithms. We have also successfully devised a technique to automate the creation of the schooling-set itself, to be able to put off the want of guide annotation of huge datasets. Moreover, we've controlled to create a massive bag of emotional words, together with their emotion intensities. The suggested methodology uses a soft max mechanism to calculate classification accuracy, and it can also distinguish facial expressions (sadness, pleasure, fear, surprise, disgust) with greater accuracy.

Keyword: Convolutional Neural Network (CNN), Emotion Recognition, Facial Expression, Classification, Accuracy.

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Paper ID : 39

Brain Tumor Detection Using Image Processing

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Abstract

The formation of abnormal cells within the brain is referred to as a "brain tumor." There are numerous types of brain tumors. Some of the brain tumors are cancer causing (Malignant) and others are non cancerous (benign). Magnetic resonance imaging (MRI) is a technology that is used to identify and classify brain cancers. After an MRI establishes the existence of a brain tumor, the most frequent method for determining the kind of tumor is to biopsy or operate on a sample of tumor tissue. Though the first process is done by a really experienced person as brain tumors are a very serious issue and need an experienced person to confirm that. In this whole process MRI can't confirm about any tumor. It shows only the image of the internal image of brain tissue.

Image processing is a very powerful tool to analyze MRI images with the help of different algorithms and using some other data. In this there are many parameters used to finalize whether there is tumor or not some of the parameters are accuracy. This paper discusses the many approaches and procedures used to identify brain cancers, as well as the accuracy of detecting the tumor in the brain using Image processing, which includes steps: Pre-processing, Segmentation, Threshold segmentation, Feature extraction, Classification using SVM (Support Vector Machine).

Keywords: *MRI, CT scan, PET, Image processing, threshold segmentation, SVM*

Paper ID : 41

Secure Edge Computing: Innovations

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Abstract

Computing paradigms transitioned from Cloud Computing to Edge Computing (Fog Computing, Mist Computing, Dew Computing etc). Edge computing is realized to be absolutely necessary to realize Internet of Things (keeping in mind that the delay involved in utilizing Cloud resources is prohibitively large). Motivated by Corona Virus spread, we propose the possibility of design and injection of mutating viruses into the edge computing network infrastructure. Thus edge computing leads to several novel security issues that need innovative solutions. Edge computing leads to several security issues that need innovative solutions. This paper proposes several novel security architectures for Edge computing. Also, biological solutions are proposed to confront security threats on Edge resources.

Index-Terms Cyber Attacks, Edge Resources, Covid19, Cyber Physical System, Immunity Index, Machine Learning, Cryptography, Internet of Things.

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Paper ID : 43

A Review of Methods for Suppression of Muscle Artifacts in Scalp EEG Signals

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Abstract

Electroencephalography (EEG) is a proficient way to record brain activity with the help of electrodes positioned on the scalp's surface. EEG is chosen in many domains, including Neuroscience, Psychology, Clinical Research, etc. Because of its non-invasiveness, low cost, portability, it has a significant impact on the diagnosis of a variety of brain disorders as well as insomnia, epilepsy, Alzheimer's disease, depression, schizophrenia, and dementia.

Despite many advantages, while recording, artifacts always corrupt the EEG signals. Artifacts are false signals produced by sources besides the brain. Artifacts are categorized into physiological (ocular, muscular, and cardiac) and non-physiological (surroundings, electrodes). On the other side, artifacts have an impact on the actual EEG signal. Several approaches have been developed over the years to detect and eliminate this distortion, including regression, filtering, blind source separation, and wavelet methods. Some of these methods require prior information or a reference channel.

We provided an overview of most of the strategies utilized to remove the artifacts in this research.

Keywords—Electroencephalography (EEG), Muscle artifacts, Filtering, Wavelet-Based Methods, Hybrid Methods.

Paper ID : 46

Smart Parking System Using Object Detection

Neha Y, Samyuktha N, Gayathri B, Charith A, Saritha V

Abstract

Nowadays parking of a car has become a great issue in metropolitan cities. Smart parking systems, when implemented correctly, can significantly alleviate many of the difficulties associated with traffic congestion in urban areas. Many modern parking systems will have a fundamental section of Empty Parking Slot Detection. This paper mainly concentrates on smart parking system based on image processing which is developed for open parking plots and many more. It is proposed as an acquisition to new evolving technology by using python programming and OpenCV tools library. Using edge detection and coordinate constrained pixel portions, it is possible to detect unoccupied parking spaces using photos of the parking lot. Edge detection helps in many ways in processing the image by noise reduction, locating the intensity gradient in the image, non-maximum suppression and hysteresis threshold. In the other section, a digital image consists of columns and rows of pixels. A pixel in a particular image can be identified by determining which column and row it belongs to. The graphic system would then transform the image coordinates into pixel coordinates

Keywords: Smart Parking, Edge Detection, Open CV

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Paper ID : 48

Comprehensive overview on the deployment of machine learning, deep learning, reinforcement learning algorithms in Selfish mining attack in blockchain.

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Abstract

Blockchain, a disruptive technology, has many applications in the domain of Finance, banking, real estate, insurance, supply chain, and gaming industry with much more plethora of applications in near future. In spite of the decentralized, distributed, transparent, tamper-proof, data provenance nature of the blockchain, it is subject to a lot of security attacks such as forking attacks and block withholding attacks. One such attack under the forking attack is selfish mining, which targets the reward distribution and the difficulty adjustment algorithms(DAA). An exhaustive survey is done on the existing approaches to detect selfish mining and also on the profitability of selfish mining attacks. This survey is organized particularly around the aspects of selection or exploration of the shortest branch of the blockchain when a fork occurs. We aim to identify the implications of selecting the shorter branch of the fork in the blockchain, especially after 2016 blocks, where a difficult adjustment occurs. Our survey focuses on the deployment of machine learning and deep learning, reinforcement methods on mitigating the selfish mining attacks in the blockchain.

Keywords: *Selfish Mining, Reinforcement learning, hash rate, Difficulty adjustment algorithms, forking attack.*

Paper ID : 49

Emotion Based Media Recommendation System

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Abstract

Emotion is a state of physical arousal, which is both subjective and private to the individual. Human emotions are divided into fear, anger, surprise, sadness, happiness, etc. This emotional umbrella encompasses a wide range of other emotions, including joy and contempt; they are subtle emotions. When it comes to recognizing emotions and present mental states, facial expressions are crucial (i.e., emotional and spiritual). Detecting these emotions can be difficult at times, as even minor variances might result in distinct displays. To detect emotions and produce good results, neural networks and machine learning were applied.

Machine learning algorithms have proven to be very useful in pattern recognition and classification and thus can also be used for mood detection. With the development of digital music technology, it is also necessary to develop a personalized music recommendation system to recommend music to users. Emotions are an essential part of the human psyche. It has many different types, the main purpose of our proposed system is to distinguish them. For this, our proposed system is based on the proposed structure of video content that is related to human emotions. Recommendation system based on user logs or history. The recommendation technique we use is not fully personalized nor is it considered a point of user content. Therefore, the solution to this problem is to recommend personalized content based on emotional characteristics. According to a letter of our proposed system, taking into account aspects such as age, gender, and emotional characteristics, our main motivation is to control the problem of accuracy in applications running.

Keywords: - Face detection, music recommendation, Image Processing, Emotion Detection

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Paper ID : 53

Applications of Bipolar Metric Spaces In Digital Image Processing

G.Adilakshmi1 AND G.N.V.Kishore

Abstract

In this paper initiated the concept of digital bipolar metric space and verified Banach and caristifixed point results. Also verified the results with examples and provided applications to integral equations.

Keywords: Bipolar metric spaces, fixed points, digital images.

Paper ID : 54

Small Scale Semi-Automated System for Hydroponic System towards Smart Home Application

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Abstract

A linear surge of human population with limited availability of cultivation land leads to shortage of food resources causing major crisis in the coming days. One of the major surges of the crisis is due to a large number of rural-urban immigrations causing over population in few areas and leaving the other areas barren. To mitigate this kind of situations, Hydroponics method has been developed where people can grow the plants without the use of soil in a small area with the use of fertilizers and water supply by saving area and the incurring time which could be followed even in urban areas. Based on the future technology, it creates a lot of automated products and latest updated constructions on the ground for their country's development. Due to this, there is no sufficient land for cultivation. There is no cultivation of the plant's it causes to humans, animals, birds etc... For their living lifestyle. Because of this, we use hydroponics which is used to cultivate the crops without using soil. This formation is used for indoor planting and gardening.

We implement the IoT-based semi-automated hydroponic system that controls the hydroponic environment and provides security from unauthorized persons. Since hydroponics does not utilize soil for cultivation, it even allows the farmers to cultivate crops using limited area resources. The main aim of the paper is to provide a comprehensive survey on smart hydroponic systems developed during recent times and provide the same to the research aspirants.

Keywords: Raspberry-pi, Camera, IoT, Temperature sensor, Humidity sensor, LCD

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Paper ID : 55

Social Distance Monitoring Framework for Covid -19 Using Deep Learning

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Abstract

Social distancing measures are important to reduce Covid spread. In order to break the chain of spread, social distancing is strictly followed as a norm. This paper demonstrates a system which is useful in monitoring public places like ATMs, malls and hospitals for any social distancing violations. With the help of this proposed system, it would be conveniently possible to monitor individuals whether they are maintaining the social distancing in the area under surveillance and also to alert the individuals as and when there is any violations from the predefined limits. The proposed deep learning technology-based system can be installed for coverage within a certain limited distance. The algorithm could be implemented on the live images of CCTV cameras to perform the task. The simulated model uses deep learning algorithms with OpenCV library to estimate distance between the people in the frame, and a YOLO model trained on COCO dataset to identify people in the frame.

The system has to be configured according to the location it is being installed at. By implementing the algorithm, the number of violations are reported based on the distance and set threshold. Number of violations reported are one and two for two real time images respectively. The red box highlighting the violations are displayed along with the distance. Reporting efficiency and correctness were validated for more number of samples.

Keywords: YOLO Model, COCO Dataset, OpenCV Library.

Paper ID : 57

**Performance Analysis of Modified Position Responsive Routing Protocol (MPRRP) to Improve
QoS in Wireless Sensor Networks**

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Abstract

In a diversity of applications such as surveillance, army, medical, and fire tracking, wireless sensor networks (WSNs) are regarded to be one of the most widely used technologies. Nodes in a WSN have differing amounts of memory and computational power, and their energy consumption is restricted by the network's overall size and complexity. The lifespan of WSN is influenced by the availability of restricted energy supplies. To build an energy-efficient routing protocol, a cross-layer design technique known as the "Modified Positioning Response Routing Protocol (MPRRP)" was used in this study. MPRRP is meant to reduce the amount of energy spent in every node by (1) the diminution of the amount of time that a sensor network spends in the idle listening state and (2) minimizing the median transmission range throughout the network.

The projected MPRRP's performance was assessed in terms of network energy usage on a per-individual as well as a per-data-packet basis. The findings of the study were examined and compared to the LEACH and PRRP procedures. The findings demonstrate that the WSN has made great strides forward in terms of energy efficiency as well as total capabilities.

Keywords: Energy-efficient, LEACH protocol, Network lifetime, PRRP protocol, WSN.

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Paper ID : 58

Forest Fire Detection Using LoRa

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Abstract

Fire accidents are common incidents all around the world. These fire accidents can occur in any environment such as industries, schools, railway stations, etc. These incidents are unpredictable but some such incidents can be predicted well in advance and necessary actions can be taken to prevent massive damage done to the forests and the wildlife. Taking predictable scenarios into consideration we proposed a model which saves the forest from catching fire and safeguards the wild animals. This proposed model also works fine for unpredictable cases, but we cannot guarantee that it always works fine in detecting the forest fires well in advance but it plays an important role in reducing the massive damage. The Proposed model consists of a Transmission block and a Receiver block.

The communication between these blocks is carried out by LoRa module. Sensors are used for continuous monitoring of surroundings to detect fire. The model proposed in this paper uses Arduino Uno for data processing and controlling the peripherals connected to it. A Camera is used to verify whether the data sent by the sensors is correct or not. The images of the camera are stored in Blynk Server. Blynk App is used to access the image data stored in the server

*Key Words:*LoRa module, Arduino Uno, Sensors, Camera, Blynk Server, Blynk App

Paper ID :59

Leveraging Machine Learning Algorithms to Predict Stock Trends Based on Company Data

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Abstract

Due to the overall continual flow of news, announcements, worldwide data points, and so on, stocks are volatile and unpredictable. This is due to a variety of factors, including market volatility and a variety of other dependent and independent variables that influence the market value of a certain stock. These variables make it extremely difficult for any stock market expert to accurately anticipate the market's rise and collapse.

The primary goal of this article is to forecast future market stock stability. The study focuses on the application of two techniques, random forests and gradient boosted decision trees (using XGBoost), to estimate whether stock prices will rise or decline in the next n days.

Key words -Random forest (RF), Boosted Decision Trees, XGBoost, Machine Learning, Stock Market Prediction, Classification

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Paper ID : 60

Diabetic Retinopathy Classification Using Deep Learning Technique

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Abstract

Diabetic retinopathy is an eye condition that causes damage to the eye's blood vessels. If not identified early enough, DR can result in impaired vision or even blindness. It is a common eye condition that affects diabetics. The severity of DR is automatically determined in this paper. Non-proliferative diabetic retinopathy, which is the early stage of diabetic retinopathy, is characterized by red lesion, cotton-wool patches, and exudates. There are five stages of diabetic retinopathy: mild, moderate, severe, proliferative, and no disease. However, when the illness progresses to the level of proliferative diabetic retinopathy.

The growth of scar tissue and new blood vessel bleeding begins, and total vision loss is unavoidable. In our method using different pre-processing flow and convolution layers with ADAM optimizer gives better results for classifying the DR types.

Keywords: Mild, Moderate, Severe, Exudates, Convolution, Deep Learning, ADAM.

Paper ID : 61

**Computing Technique for the Solution of Higher Order Differential Equation by Using Matlab
Code**

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Abstract

This paper describes a computing technique of numerical method of decic degree B-spline collocation method. Present computing technique for numerical method is evaluated by using MATLAB code. Evaluation of the method to find the solution to tenth order differential equation is more powerful numerical method when compared with FEM and Difference method. These higher order differential equations are more useful to represent the general physical phenomenon of engineering and science problems such as to calculate the movement or flow of electricity, motion of an object to and fro like a pendulum, to explain thermodynamics concepts etc.

Numerical test results show that the present decic degree B-spline basis function which are employed in collocation method as basis are best choice to achieve appropriate solution to the differential equation.

Keywords Decic, Linear differential equations with constant coefficients, Collocation method, B-splines

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Paper ID : 62

Machine Learning enabled IoT based Fire Accident Detection System

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PVP Siddhartha Institute of Technology

Abstract

The proposed system is to atomize the detection of fire or smoke at an early stage and can help in saving lives at home or at workplace. The system is in such a way that it is versatile enough to all types of environments. IOT-based Fire Accident Detection System uses the Sensors, namely, Temperature, Smoke and the Digital Humidity sensor. The micro-controller is programmed to turn on the alert, when any one of the temperature, smoke and humidity reach a threshold value in the air. We are trying to implement Machine learning enabled IoT technology to detect the Fire Accidents. In this system we go for detection and Monitoring of fires through several sensors and send to IoT cloud. Machine learning provides ability to learn and improve from experiences automatically thus provide accurate results. So it can avoid false alarming for the Indian daily events like smoke from incense sticks. It does not decide only on one factor, there are various factors like humidity, temperature, carbon monoxide (CO), carbon dioxide (CO₂), Nitric Oxide(NO), Ammonia(NH₃). Depending upon the sensor values in the cloud if it is greater than the preset values it will turn on the alert.

Continuous monitoring and uploading values to Thingspeak cloud can be achieved. It notifies us through SMS whenever there is a sudden spike in the gases, temperature or humidity around us or whenever there are high levels of such chemicals

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Paper ID : 63

A Relook into the Technical Aspects of Brain Tumor Towards Diagnosis

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Abstract

In recent years, early identification of brain tumors has become a major topic of research. Early detection of a tumor for initial therapy enhances the likelihood of the victim's life span. Computing MRI for prior tumor identification has the dispute of elevated computing due to the more capacity of image input to the computing organization. As a outcome, there was a significant delay and a drop in system efficiency. As a result, the demand for a more advanced detection system that can accurately segment and represent data for quicker and more precise computing has grown in the latest years.

In recent literatures, new methodologies for brain tumor detection based on better learning and processing have been proposed. This study tella a brief information of recent advances in the field of MRI computing for prompt identification and diagnosis of brain tumors, including representation, segmentation and the application of novel Image Processing and Artificial Intelligence (AI) approaches in analyzing. Artificial Intelligence training capability and quality computation have shown an development in present computerized technologies for quicker and more precise diagnosis of brain tumors identification. The present tendency in brain tumor detection computerization, as well as the benefits, limitations, and prospects of existing systems for computer aided diagnostics in the detection of brain tumor, are discussed.

Keywords. Artificial Intelligence, MRI, Image processing, Diagnosis.

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Paper ID : 65

Autism Spectrum Disorder Detection Techniques

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Abstract

Autism Spectrum Disorder(ASD), a neurodevelopment disorder, is frequently accompanied with sensory difficulties, such as excessive or insufficient sensitivity to sounds, scents, or touch. Autism Spectrum Disorder(ASD) is acquiring footing faster than previously. Autism elements can be identified by screening tests, yet they are expensive and tedious. Mental imbalance can now be anticipated at a beginning phase in light of the fact that progresses in computerized reasoning and machine learning(ML).

The purpose of this project is to compare the accuracy and efficiency of several Machine Learning techniques utilized by various researchers, such as SVM (Support Vector machine), Random Forest, Decision Trees, and Logistic Regression

Paper ID : 69

Detection of Face Mask using Sequential Convolutional Neural Network Framework

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Abstract

Many people around the world have been affected by COVID-19. It has caused major economic and trade disruptions. Covering a person's face with a mask has become the accepted norm. Today's world, every public service provider requires their customers to wear proper face masks in order to use their assistance. As a result, the concept of identifying face masks has become a key role in assisting global civilization. A more straightforward approach to achieving this goal is presented in this paper, which makes use of TensorFlow, Keras, OpenCV, and Scikit-Learn, as well as some fundamental machine learning packages. Using this method, you can find the face in an image and then figure out if it's covered by a mask. It should be able to detect a face as well as a mask in motion as part of its monitoring role.

The approach achieves an accuracy of up to 92 percent on the dataset, respectively. The framework of Sequential Convolutional Neural Networks is used to investigate optimal parameter values for detection and identification of masks without overfitting.

Keywords—COVID-19, Machine-learning, face mask, - Tensorflow, Sequential-Convolutional Neural Network, keras, OpenCV

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Paper ID : 70

An empirical investigation of adopting Artificial Intelligence in HR practices: in Indian Context

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Hubli

Abstract

Digitalization, machine learning, and Artificial Intelligence (AI) are changing at a very fast pace, significantly uplifting the role of information technology. The present human resource aspect transpires artificial intelligence-based resolution, are gradually more effective with Human Resource (HR) Process, time-consuming and become a complex task surrounded by the HRM functionalities. This study attempts to investigate the adoption and diffusion of Human Resource Management (HRM) with the phenomenon of AI-based applications. Hence, the study has emphasized the predictors of AI adoptions like competitive pressure, performance expectancy, top management support, strategic partner, employee champion, etc.; moreover how the AI predictors are connected with HR practices. The research sample focused on 207 HR managers and senior managers from various industries

The study is based on a quantitative research technique that encompasses mean, standard deviation, EFA, CFA (AVE and DV). The study's empirical findings show that higher performance expectations and higher management support are both major predictors of AI adoption, whereas competitive pressure did not show a significant relationship with such an intention, and the "employee champion" role has a negative impact on AI adoption. AI diffusion and implementation show a significant research gap. In previous studies, adoption in HRM was overlooked. The study's results provide a comprehensive picture of the situation. The framework and a major contribution to the study of the phenomenon in relation to its possible role in AI's effectiveness and quality in HRM. The research stimulates to inspire a debate among service providers, policymakers, and stakeholders and build an efficient workplace.

Key Words: Adoption, Artificial Intelligence, Diffusion, Empirical Analysis, Information Technology, Human Resource Information Systems.

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Paper ID : 71

Secure Routing Protocol against Internal and External Attack in MANET

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Abstract

A mobile ad-hoc network is a group of mobile nodes that connect with one another via wireless networks to build a temporary network without the use of infrastructure or centralized administration. Secure routing is an important concern in MANET. In this paper, we discuss the existing routing protocol in MANET, security issues while routing, and the existing secure routing protocol.

The second part of the paper focused on a proposed secure routing algorithm (SRA) that provides security by employing an anonymous key establishment method that avoids the involvement of malicious nodes in routing. In MANET, the secure routing protocol protects the network from both internal and external attacks.

Paper ID : 73

Automatic Parking System

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Abstract

Parking has recently become a serious issue, and it is only getting worse as the number of automobiles on the road grows. Traffic congestion is one of the principal issues that Smart cities face. The rate at which the number of automobiles on the road increases much outpaces the rate at which new parking spaces are created. The Automated Parking System is an Internet of Things (IoT)-based system that gives data about available and occupied parking spaces via a web/mobile application. This system provides an IoT-based guidance for the user to monitor the parking space for the vehicle, as well as an intelligent solution for managing and monitoring free parking space.

It intends to implement a smarter and better parking guidance mechanism, which will significantly reduce the difficulty of the conventional parking system. Depending on the number of vacant lots in the park, the system assists drivers in locating an empty parking area. This system includes a mobile app that can be used to locate a free lot. Using IoT technology, this system provides a Automated Parking System solution. The IoT programme monitors the provision of parking spaces through storing real-time data in the cloud and allowing users to access this data via an Android app.

Key Words: Internet of Things (IoT), traffic congestion, android application, cloud

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Paper ID : 75

Importance of IP Packaging and CDA View Generation

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Abstract

With the rapid evolution of integrated circuit (IC) technology to larger and more complex circuits, new approaches are needed for the design and verification of these very-large-scale integrated (VLSI) circuits. A large number of design methods are currently in use. As the complexity depends on number of components being added into the design, the integration becomes singularly challenging. Computer-Aided Design helps in capturing the intricacies and extensive details in an organized format, which could be reused by the SoC integrator for efficient and expeditious progress.

IP CAD views play a critical role in the System on Chip integration process as multi-purpose and multi voltage devices are coming into consideration together on a same yet minute platform. Intellectual Property (IP) Libraries which are generated contain the various circuit description models like electrical and physical model which are used for VLSI SoC Integration. This research paper deals with the various challenges which are faced in the IP and libraries CAD views generation. CAD views generated by using various Electronic Design Automation (EDA) from companies like Cadence, Synopsys, and Mentor Graphics.

Paper ID : 76

Social Distance Monitoring

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In the war against Coronavirus, social distance has proven to be an effective strategy to stop the spread of the disease. In this paper, to reduce the spread of novel Corona virus, a community outreach program is introduced. This system takes video feed from the camera or video and processes frames using the YOLOv3 model to estimate the distance between people. Based on the distance, the system shows the total amount of violations. This monitoring system will play an important role in an area where large people can be expected such as a shopping mall or an airport etc... With the help of this, one can ensure that people follow social distancing at the community level.

Keywords: Corona Virus, Social Distance, Object detection.

Paper ID : 78

Optimal Service Recommendation Using Novel Collaborative Filtering

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Abstract

A web service recommendation is basically a filtering system that seeks to predict and show the web services that a user would like to purchase. It may not be entirely accurate. Quality of service (QoS) refers to the prediction that provides valuable information to select optimal Web service from an existing set of functionally equivalent candidate services. Non-Functional attributes affect the user experience as they define a system's behavior, features, and general characteristics. I

In general, Collaborative Filtering techniques like Matrix Factorization (MF) are implemented for predicting unknown QoS values. Existing MF methods might incur high user's and services biases, and their prediction accuracy will not be good enough in case of such wide-range of QoS data. In this work, investigation of the wide-range characteristic among users was done first and services via real-world Web service QoS dataset, and device a Hybrid algorithm, Truncated SVD and Tf-Idf. Hybrid approach combining collaborative filtering and content-based filtering is found to be more efficient with 0.55 Recall than the other approaches.

Key Words: *QoS, Collaborative Filtering, Content-Based Filtering, SVD, Hybrid Filtering.*

Paper ID : 79

Image Enhancement Using Multiband Decomposition for Single Image Dehazing Strategy

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Abstract

Image processing involves processing the input and extracting the valuable or useful information from the image. Image enhancement is kind of processing technology where the processing is applied to improve the image quality in terms of clarity and quality. In this paper, the image quality is enhanced for the inputs taken from obscure environments by performing multiband fusions techniques. Among the different methods of obtaining dehazed images the proposed model is a combination of model based and fusion based dehazing method strategies along with decomposition methods.

The proposed method improves shading and gray scale pictures with no prior data about the image. Further the use of Laplacian module improves the performance mapping between the layers of image and secures the information gradient in the system. The proposed model is efficient enough to enhance the image quality.

Keywords: *Image processing, Image Enhancement, Laplacian module*

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Paper ID : 80

Wireless Ad-Hoc Network Routing Protocols Classification and Comparison

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Abstract

A wireless ad hoc network (WANET) or mobile ad hoc network (MANET) is a decentralized wireless network. The network is ad hoc because it does not depend on a pre-existing infrastructure, such as routers in wired networks or access points in wireless networks. Nodes forward data information is made dynamically based on network connectivity and the routing algorithm in use. In the Windows operating system, ad hoc is a communication setting allows computers to directly communicate with each other without a router. In mobile ad hoc networks nodes are free to move because they are dynamic.

MANET nodes are free to move randomly according to network topology changes frequently. In this network every node acts as a router, they forward traffic to other destination. The major task in building a MANET is equipping each device to constantly maintain the information required to appropriately route traffic. MANETs consist of a peer-to-peer; self-forming, self-healing network. MANET's circa 2000-2015 connect radio frequencies (30MHz-5GHz). This can be used in road security, extending from sensors for the environs, home, health, disaster rescue operations, air/land/navy defences, weapons, and robots. This survey paper focuses on ad hoc routing techniques and compares the features of routing protocols.

Keywords Wireless ad hoc network WANET, mobile ad hoc network MANET, dynamic networks, node, Router, routing protocols

Paper ID : 81

Reconfigurable Band Switching Antenna for Millimeter Wave Applications

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Abstract

This work gives, a latest frequency reconfigurable antenna that is proposed for Bluetooth, WiMAX, and higher WLAN applications with acceptable reconfigurable radiations. The performance of this structure was examined experimentally using a nonflexible FR4 structure, which is simulated using HFSS simulator.

The proposed antenna uses a T-shaped strip with ON/OFF states at desired frequency operations and has dimensions of an E-shaped slot that are optimal that vary with the ground layer. The prototype is small and light, with switchable millimeter wave applications and frequencies that cover 5G cellular telephony in 24- to 30- GHz bands, as well as UWB operations.

Keywords— UWB, Millimeter wave, Reconfigurable Antenna

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Paper ID : 82

Evolution of Quantum Computing Basics in Engineering Perspective

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Abstract

Uncertain and Complex problem domains remain incomplete in various domain perspectives. Existence of physical elements and the motion of objects in the Universe is still an unresolved problem domain. Classic mechanics deals with small number of inputs and certainty. Current trends in technology and research pave the way towards addressing the uncertain behavior of elements in the real world.

Quantum Computing relates to such a research pathway digging the secrets of existence and movement of various objects in the real world. The current study empowers the upcoming researchers, briefing the inception of Quantum Computing to the current applications and research in Quantum Computing. The focus of study helps in modeling of engineering domain areas to address complex and uncertain problem statements using Quantum Computing.

Keywords—uncertain; quantum; computing; physical; complex

Paper ID : 85

Multi Sensor Based Automatic Control On Inter and Intra Vehicular Communication In NI-Labview

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Abstract

The new world has witnessed ideas that pragmatically changed the way, one lived based on everyday technology. The interconnection between things and making the system smart is one of them. Vehicles connected to the internet and sensors could be game-changing technology. This paper showcases a new idea of an inter and intra connection using the internet furtherly building to the existing IoT connected vehicles. In this work, we described real-time safety protection with a number of conditions and controls with solutions using the NI LabVIEW technology.

Index Terms: Interconnection, game changing, real-time

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Paper ID : 86

Automatic Engine Locking System for Drunken Driver

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Abstract

Automatic engine locking system was devised to prevent drivers from driving vehicles in a boozed up state and helping in the cause to promote “not to drink and drive”. The authors came up with idea of developing a prototype in which a sensor placed in the vehicle will be used to detect alcohol and upon detection, it will trigger a warning for the driver and if the warnings are ignored then it will automatically lock the engine by shutting off its motors.

The MQ-3 alcohol sensor is used to detect alcohol in the vehicle and upon alcohol detection it will lock the DC motor preventing the driver from driving the vehicle in a boozed up state. Simultaneously a buzzer will also be sounded and to restart the engine the system will require a reboot. Furthermore, after detection of the alcohol a GPS location will be send to the registered mobile number so that the location can be traced back to the driver. This project depicts an innovative way to prevent drivers from consuming alcohol while driving as it will ultimately lead to their safety as well as the safety of others around them.

Key words : Alcohol Detection, Micro controller, DC Motor representing as the vehicle engine, Buzzer for signalling an alarm to the driver, MQ-3 alcohol sensor for alcohol detection

Paper ID : 87

A Graph Analytics on Telecom Backbone Networks Using NetworkX

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Abstract

It is important to use graph theory and network science to provide a novel challenge including structural and functional elements of network comparison analysis. We'llanalyze the speed and performance of four major Indian telecommunications networks Airtel, Idea, Jio, and BSNL by looking at how they're interconnected throughout the country's states. Using this functional and structural knowledge, we may better comprehend and navigate network patterns for design and decision-making.

Graph invariant is a notion that we often use in our methods for solving the backbone finding challenge.

Keywords: network science, telecommunications networks, Graph invariant, graph theory

Paper ID : 88

**Deep learning and Swarm Intelligence based System for Smart Agriculture Using Wireless
Sensor Networks**

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Abstract

The WSN (Wireless Sensor Network) based agricultural drainage management system is a convergence technology to enhance agricultural production of crops from storm control, erosion control and water table control. In addition, implementing smart agriculture, through the convergence technology allows to determine the requirement of water resources, real-time monitoring of the field and support farmers in decision process. In addition, sensors help in collecting information on circumstances like level and flow of water in drainage area, soil moisture content and rainfall condition.

We presented the survey about the WSN based smart agriculture and its techniques to future along future enhancement. The work further extends with the deep learning approach of analysing the data collected from the level and flow sensors and camera. The CNN based design can improve the performance of the system. The proposed ideation combines the swarm intelligence and CNN for better performance.

Keywords—WSN, Agricultural Drainage Management System, Automatic irrigation system, Wireless sensor node, Gateway node, Smart Agriculture, Water Resource Management.

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Paper ID : 91

Storing and Securing the FIR Using Block-Chain Technology

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Abstract

In India, we can see that technology has touched in every aspect of our life. There exist technology in all the fields e.g. education, agricultural, business, government etc. and we can also understand how beneficial it is, as it saves the time, money and human power. In spite of being technologically advanced, the system lacks in security perspective. When we talk about today, India has moved to the era of digitalization after the launch of the campaign “Digital India”, the Indian Police Department has replaced the manual system with the centralized online process to register the complaint.

The main objective of this paper is to provide a method to secure the FIR system using block-chain technology. This introduces to the essential principal of blockchain technology and its future in the police department of India. Block-chain technology will also explain to protect the FIR from the malfeasance.

Keywords— Block-chain, FIR, Cryptocurrency, Consortium, Peer-to-Peer Electronic Cash System

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Paper ID : 92

**Feature Extraction Techniques for Genuineness and Spam Detection in Social Media Platforms:
A study**

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Abstract

Today Social media plays an important role in human life. The various messages, views are shared by the users on social media such as Twitter, Facebook and many microblogging sites. The users share the messages, views about people, products and services offered by the various organizations. The internet has an enormous amount of data flow from one end to another end .This information is not always relevant and genuine. The spammers, bot and illegal persons are in search of the type of information and use it to appraise or to degrade the value of product, people or services.

The essence features extraction to extract the features from it and used for various purposes. The various purposes such as spam detection, genuineness views detection, fake news detection and for many other things the features extraction plays a crucial role. In this paper we have through the lights on the most significant features and feature extraction techniques used by the various researchers and performance of the numerous feature extraction techniques.

Paper ID : 94

Network Intrusion Detection Using a Step-Based Deep Learning Approach

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Abstract

Due to the expanding use of the internet and smart devices, various assaults such as intrusion, zero-day, Malware, and security breaches are a constant threat to any organization's network architecture. A Network Intrusion Detection System (NIDS) is required to detect attacks in network traffic. The organisation interruption recognition framework (NIDS) is one of the key difficulties in the accuracy of finding and the rate of lost location in the field of organisation security. A two-initiative network outage recognition technique is proposed in this publication, based on GoogLeNet Inception and deep convolutional organisation (CNN) models. To identify the parallel problem from organisational packaging, the proposed technique leveraged the GoogLeNet start-up paradigm. This distinguishes between the quality of raw parcel data and traffic data. Multiclass breakdowns and organisational package elements are also distinguished using the CNN model. According to the first findings, the proposed technique improves the precision of the identification to 99.63 percent. In addition, the rate of non-identification was lowered to 0.1 percent. The findings show that the recommended technique for improving the unwavering quality of NIDS is well presented.

Keywords Deep convolutional neural networks,Step-based intrusion detection,Network intrusion detection system, GoogLeNet Inception model

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Paper ID : 97

**Sinusoidal Oscillator Using Single Current Controlled Current Conveyor Trans-Conductance
Amplifier**

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Abstract.

This work presents a sinusoidal oscillator design using only one basic building block. The current controlled current conveyor trans-conductance amplifier (CCCCTA) is used as the active element with one resistor and two capacitors to perform the function.

This design provides an advantage of controlling the oscillation frequency as well as the condition of oscillation electronically independently without changing the values of passive components. Also all the passive components used are grounded and not floating. PSPICE simulation using 0.18um process parameters for CMOS technology is performed to confirm the performance of the proposed oscillator circuit.

Paper ID : 98

Apriori Algorithm for Re-Categorization of Railway Stations

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FacultyDept of Computer Science V.S.UNIVERSITY COLLEGE KAVALI-524201

Abstract

In view of Ministry of Railways decision to re-categorize railway stations taking into account earnings, passenger footfall and giving importance to various passenger services and passenger amenities at stations in a more effective and focused manner. It will assist the passenger to have a better experience in relation to travel amenities at stations. In earlier criteria stations were categorized depending on the passenger earnings annually.. Stations were classified into 7 categories like A-1, A, B, C, D, E and F. The categorisation criteria for stations was revised to add footfalls at the stations. The stations were further divided based on the type and combined into 3 groups i.e. nonsuburban (NS), suburban (S) and Halt (H). Further these groups have been put in sub groups like NSG1-6, SG1-3 and HG1-3 accordingly.

In the earlier approach stations with passenger footfalls (handling high number of MST and commuter pass holders etc.) which was high were not added into the higher category stations so that these stations which were eligible for higher level amenities maintains low level amenities. As per the new approach the number of footfalls were included and given equal weightage and considered stations categorization. In this article we explore an efficient apriori algorithm for classification of stations as per the new categorization rules in to three categories.

Keywords: MST, Footfalls, Confidence, Support, Lift

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Paper ID : 99

Review of Microstrip Patch Antenna for Wireless Applications

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Abstract

In modern communication services such as Wi-Fi, WiMAX and Microwave applications very low cost and high performance antennas are required. The microstrip antennas are preferred in such applications due to their very low profile and cost. The electromagnetic simulation of antennas has been carried out using CST, HFSS and with the help of some other soft wares. Through these software Return loss, VSWR, directivity, gain, efficiency and radiation pattern are evaluated. this review paper provides the development of Microstrip patch antenna in the field of wireless Communication technology.

Distinguished researchers have made several efforts to develop Microstrip antenna to satisfy the needs of market. firstly, this paper offers a brief Introduction about wireless technology and Microstrip patch antenna after that a literature analysis is provided to understand the idea of Microstrip patch antenna that's compact in size and has multiband / wideband functions, and is broadly useful in wireless communication. The end result of numerous investigations has been mentioned which can be primarily based on antenna performance factors like patch slot, antenna dimensions, material used, gain etc. For their better understanding these findings delineated within the tabular form and finally conclusion of the overview paper is discussed. Slotted cut in patch antenna increases the current path which increases current intensity and as a result efficiency is increased.

The radiation property of a slotted microstrip patch antenna is also compared with normal rectangular patch antenna designed under identical conditions.

Keywords. *Microstrip patch, antenna. Feed Techniques, Gain, Feeding Technique.*

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Paper ID : 101

**Critical Analysis of Big Data Applications Using Functional Linguistics and Diversified
Integration**

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Abstract

In recent times, the top-down use of big information data analysis and the mechanical manipulation of manmade intellectual abilities has provided the center with specialized means to advance the practical coordination of semantic structure. Potentially related to the great information research of artificial reasoning (AI), the various embodiments of utilitarian phonetics have routinely experienced problems in applications. As a result, it created critical difficulties for the far-reaching improvement of useful etymology. In this unique situation, ideas related to the improvement of useful phonetics and artificial reasoning are explained. Starting from this premise, the useful etymologies of innovative union and internal incorporation are analyzed with respect to the scenario of large-scale information AI research.

In addition, in order to stimulate the useful advancement of phonetics inside and outside, this study makes some proposals, among which are the rationalization of a dispersed group climate, the promotion of a practical phase of information about the language, the assumption of models, modalities of equality of information and the transmission of an equitable preparation of the brain network.

These ideas constitute an initial phase of hypothetical etymological analyzes and capacity for improvement. In addition, some ideas were made to advance the internal and external improvement of the utilitarian etymology, such as structuring a useful linguistic information phase, updating an adequate group climate, preparing the circulating brain network, assuming equal information patterns and modalities to provide a reference to skills development and hypothetical phonetic exploration

. *Keywords:* Functional language; diverse integration; In-depth development; Artificial intelligence;
BigData

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Paper ID : 102

**Users Preference Assessment On Overall Gratification In Asian Tourism Hotels Before And
After Pandemic**

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Abstract

The role of online travel recommender systems has been significant for the past decade in the tourism hotel sector. Travelers around the globe rely on the recommendations offered by their recommenders to stay in hotels. The tourism sector has now been affected by COVID-19. It impacts the travel recommenders associated with hotel management in revenue and employment. Opinions of travelers changed after this pandemic, and they sought from their recommenders about hotels that offer high precautions for a comfortable stay. This study analyzed the priority of the contextual segment ratings before and after the pandemic from the Asian continent tourism city hotels on various classes and trip types ranked by MasterCard and Visa with Context-aware Recommender Systems (CARS) from the TripAdvisor platform. An aggregation-based function methodology with KNearest Neighbour (K.N.N) collaborative filtering, an Ordinary Least Squares Regression (O.L.S) was proposed to identify significant contexts for each hotel class and trip type.

The overall rating is also predicted, which is tested with various regression techniques. Analysis of this study reveals that traveler preferences change after the pandemic helpful for the travel recommenders to make accurate recommendations on hotels.

Keywords: Travel Recommenders, K.N.N. collaborative filtering, context-aware recommender systems, pandemic.

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Paper ID : 103

**Performance Management and Artificial Intelligence: A Conceptual Framework On Future
Role.**

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Abstract

Artificial intelligence (AI) is one of the new technologies that continues to grow and can also be used to increase the competence of human resources in the era of rapidly growing digital transformation. The present competitive scenario demands accurate data that need to collect and analyze for organizational growth. Purpose: The research examines applications and usage of AI on performance management and further analyses the future of PM in the perspectives of AI. Methodology: The study is conceptual in nature, used secondary data where the data were collected from research papers, publications, HR blogs, survey reports, etc. Finding: Employee performance measured and changed perspectives by information technology, big analytics and artificial intelligence. The quality of employee performance perpetually develops with the integration of AI that enables the adoption of predictive analytics in accentuating employee performance.

Research Implication: Digital performance management system leads to transparency and honesty with time, effort and sincerity in employee performance appraisal. It is based on the practical applicability of performance management system. Theoretical Implication: The outcome of the study reflects with HR managers, academicians, IT professionals and practitioners with insight into how AI usage for performance management might look like, and what implications it holds for their functioning. Also, a contribution is made to the connection with the HR devolution theory on performance management and Artificial Intelligence.

Key words: *Performance Management, Artificial Intelligence, Organization, Reliance, Tata Motors, performance evaluation.*

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Paper ID : 106

Quantum Game Theoretic Analysis of Kabaddi

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Abstract

The paper attempts to quantize Kabaddi. The payoff matrices are constructed for Kabaddi using classical game theory. One such sample payoff matrix is chosen. The matrix is found to have multiple pure and mixed strategy Nash equilibria.

To resolve this dilemma and obtain a unique solution of the payoff matrix, quantization of Kabaddi is attempted. It is also shown, how a player can modify the winning of another player by choosing its angles.

Keywords: Nash equilibrium, Pareto optimal, Quantum Game Simulator

Paper ID : 107

Impact of User Reviews and Ratings on Overall ratinginIndianTourism Hotels

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Abstract

Travel Recommender systems role has been vital in the tourism sector for the past two decades in hotel recommendations. Users rely on the recommendations offered by their recommenders on hotel accommodations. In addition, these systems allow users to express their opinions in reviews and ratings on hotel accommodations in multiple segments. Travel recommenders developed several recommender models based on their user views, either on reviews or ratings earlier.

Since the tourism travel industry proliferated with the change in users' livelihood. Every user review is so critical that some users can't express their things adequately in reviews. Therefore, they may seek an easy way. This analysis elaborates the contextual factors that influence overall gratification on reviews and ratings. The outcome of this analysis is that users prefer ratings to textual reviews.

Keywords: Reviews, ratings, collaborative filtering, content-based filtering, context-aware recommender system, backward elimination.

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Paper ID : 108

A New Secured Approach of LSB-Based Image Steganography for Secure Data

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Abstract

Steganography is the one of the popular and dynamic technique for hiding sensitive information or data within a image, video, audio hence the sensitive data is protectable by unwarranted persons. In this technique, it is planned to include number of methodologies to propose a new technique for gray and color images to produce better results with respect to efficiency and payload capacity. In this proposed technique,first we have to obtain codeword with sensitive secret data with the help of its checksum, then the produced codeword is compressed with the suitable compression algorithm before encrypting, then it is added to the header and then inserted into the original image. To embed each byte of data combination of different LSB and MSB of the selected pixels is identified.

The proposed method is evaluated and examined with various types of images of different sizes and it provides better results compared to various existing algorithm. The proposed algorithm produces better PSNR(Peak Signal to Noise Ratio, MSE (Mean Square Error), Average difference(AD), Maximum difference(MD), Normalized absolute error(NAE), Cross – correlation(CC) values for different embedding rates of 10%,30% and 50% and also it produces better PSNR and MSE values with respect to sequential LSB algorithm.

Keywords: **LSB Image Steganography, Encryption, Compression, Checksum**

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Paper ID : 109

**A Study on Prediction of User Overall Gratification in European Continental Tourism City
Hotel**

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Abstract

Recommender Systems (RS) are proven to be very beneficial on e-commerce sites by providing useful information to the customers in the decision-making process. Collaborative RS is the most popular type of these systems and they use ratings, i.e. the opinions of users on specific items, to determine neighborhoods between users. Traditional RS like collaborative, content-based, knowledge-based, and hybrid systems use two-dimensional ratings, i.e. the user and the item itself.

The information about hotels in different destinations, user profiles, and their expressed reviews are extracted to generate a new dataset. Thus, the dataset contains contextual information along with the traditional two-dimensional paradigm, i.e. user and item (hotel). The additional contextual information is represented as additional dimensions thus it became a multidimensional dataset.

*Keywords: Context-Aware Recommender Systems, User and Item-based, Multiple Regression,
Backward Elimination*

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Paper ID : 110

Cybersecurity Challenges in the Healthcare Domain & the Road Ahead

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Abstract

The reliance of humans on technology has exponentially increased in the recent time. Due to its numerous benefits, technology is being integrated into almost every domain, ranging from military defence, to banking, to healthcare. Owing to the COVID-19 pandemic, even the field of education has become digitalized. Not a single electronic device can be seen nowadays at one's home which is not connected to the Internet, due to the advent of state-of-the-art technologies such as Internet-of-Things (IoT). However, with the convenience that comes with technology, there is an imminent cybersecurity risk as well. Cybercriminals have become increasingly advanced in their attack methods to conduct data breaches, and have started changing the industries they target.

The most recent victim of an increased number of cyber-attacks is the healthcare industry. Healthcare institutions have become the preferred target of cybercriminals due to the tremendous sensitivity of the data that can be accessed and the immense financial gains possible owing to the hospital being unable to deliver quality healthcare services, creating a life-and-death situation for the patients.

In this paper, we have conducted a review of the literature at the intersection of cybersecurity and healthcare, spanning to cover the cybersecurity threats in IoT-based Healthcare Systems, Hearing Aids, and Ambient Assisted Living. Section-5 covers various measures employed for improving cybersecurity in the healthcare domain.

Keywords: *Cybersecurity, healthcare, ransomware, SQL Injection, Internet-of-Things, Electrocardiogram, Eavesdropping, HyperText Transfer Protocol, Naïve Bayes, Internet-of-Healthcare Things, Ambient Assisted Living, Privacy, Confidentiality, Hearing Aids, Bluetooth, Blue-Snarfing, Firewalls, Risk Management, Education, Legislation, Electronic Health Records.*

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Paper ID : 111

**Enhancing Medical Data Security Using Tiny Encryption Algorithm and Least Significant Bit
Steganography**

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Abstract

Data is the new oil of today. With this, data security becomes highly imperative. This is even more true for healthcare institutions since patient data is crucial for their correct treatment by doctors. In the absence of patient data, lives cannot be saved and this results in a hospital being unable to deliver quality healthcare services. Medical data in the form of Electronic Health Records (EHRs) contains data including, but not limited to, medical history of patient and family, diagnosis reports such as X-Ray, Ultrasound, Blood Tests, etc., unique identification documents such as social security numbers, passport, and financial information such as bank account number, signature, etc.

In the past, one data breach for a healthcare institution cost upwards of \$2 million on an average. This clearly shows the severity of the issue at hand. However, due to the advancement by attackers in their attack strategies, it is of utmost importance to increase the security with which medical data is being transported. Healthcare institutions usually apply only one security measure such as firewalls, cryptography, or steganography in their system. This is not sufficient in today's scenario.

In this paper, we have proposed a framework for enhancing medical data security using a combination of cryptography and steganography. In Section-1, we have given an introduction to cryptography, steganography and their types. In Section-2, we have explained the working of the Tiny Encryption Algorithm (TEA), the code for the same written in C and results using known test vectors. In Section-3, we have described our proposed framework for enhancing medical data security, employing TEA and Least Significant Bit (LSB) Steganography to achieve the same. The programming for the same has been performed in Python.

Keywords: *Cryptography, Steganography, Tiny Encryption Algorithm, Python, Structural Similarity Index Measure, Embedding Capacity.*

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Paper ID : 112

JTAG TO AHB BRIDGE

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Abstract

Design complexity of a chip is increasing day by day and because of which cost of testing is also increasing exponentially in terms of time and money and the remedy of this problem is DFT – Design for testability which plays an important part in the ASIC design flow by reducing testing time and providing high fault coverage. Testing can be of two type Intest and Extest. In order to perform extest, we have to perform the boundary scan and for that we have an IEEE standard in DFT known as JTAG – Joint Test Action Group. JTAG is basically a design which we add as an additional circuitry to the system which makes input as controllable and output as observable. In DFT, we commonly use internal scan for testing but in some cases such as board-level test and diagnosis, test on-board interconnect among chips and test on-chip system logic makes boundary scan important which leads to JTAG as important part of DFT.

This paper is primarily focused on the study of the logical functionality of JTAG. We are going to do this by including JTAG into a design structure. The structure includes a master and a slave. Master have the JTAG for interface similarly slave have AHB for interface. Now, for communication we need a common bridge in-between.

The data flow through the JTAG in order to perform are the sole purpose of this paper. We are going to design this structure in AMD Xilinx VIVADO 2019.2 and for the analysis and understanding purpose of the design, we will also perform the RTL analysis, Synthesis analysis which will create the netlist and at last we will use the netlist to generate the power report also.

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Paper ID : 113

A Taxonomical Review of Developments in Digital Storage Oscilloscope (DSO)

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Abstract

A Digital Storage Oscilloscope (DSO) is an indicative apparatus than can rapidly record/capture or display signals. It can also be used to store waveforms, which later can be changed or compared using a function generator or other devices.

In this paper, we review a Digital Storage Oscilloscope and its history and also discuss the various types of DSO's. Moreover, the different advancements in its design, along with the models used presently and its applications, are also discussed and elaborated in the paper.

Keywords—Digital Storage Oscilloscope (DSO), bandwidth, frequency, Cathode Ray Oscilloscope (CRO)

Paper ID : 114

Group Chat Application Using MERN Stack

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Engineering,Galgotias University Greater Noida,India Computer ScienceEngineering,Galgotias
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Abstract

As technology advances, something must change to keep people linked, and in order to do so, we must introduce an application that makes this dream a reality. This application greatly aids people in staying in touch and completing duties, and anyone may simply transcend traditional forms of transportation and embrace technology to interact with one another. It is necessary to create something that is both technologically advanced and userfriendly in order to achieve this. From concept to fully operating cloud service, this dissertation recounts the development of a chat application for developers. We've built a real-time platform that allows project members to have a group discussion, share code, and stay up to date on the latest repository developments. It has helped him have a better understanding of Express JS and Web Sockets, React.JS, NoSQL databases (MongoDB), REST JSON API's using Node, and other topics.

Online chat is a technology that allows users to communicate in real time via easily accessible online interfaces. It is a sort of Internet online chat described by its ease of use and accessibility to users who do not want to spend time installing and learning how to use specific chat software that allows you to meet new people, learn about their cultures, and learn about them at your leisure. This also relieves tension and keeps people's minds quiet, which can help them be more productive at work. No one has time to talk with their relatives in today's fast-paced and sophisticated environment .Through the infrastructure we've established, this application will help to reduce global distances by bringing individuals closer together.

Keywords: Multi-perform, Real-time conversation, Nodejs

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Paper ID : 115

ROLE OF MACHINE LEARNING IN THE FIELD OF NANOFUIDS

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Abstract

The poor thermal conductivity of the liquids utilized for thermal energy transmission is the major restriction, ensuing in modest heat transport rates. The thermal conductivity of these fluids can be improved by distributing solid particles of nano size. The fluids thus obtained are termed as nanofuids. Experiments to investigate the properties of nanofuids are time-consuming and difficult. Various empirical correlations are available in the literature to find properties of the nanofuids. Despite the fact that several models were proposed, some of them did not match the experimental results. Furthermore, it was unclear which model would best predict the properties of nanofuids. Unified equations for property estimate of a wide range of nanofuids still require a lot of study. Machine learning techniques are increasingly being used to replace mathematical approaches in the estimation of nanofuid properties. This peper brings out details on recent research into estimating nanofuid thermal conductivity and viscosity using machine learning algorithms.

Keywords: Nanofuid; Correlations; Regression; Machine learning.