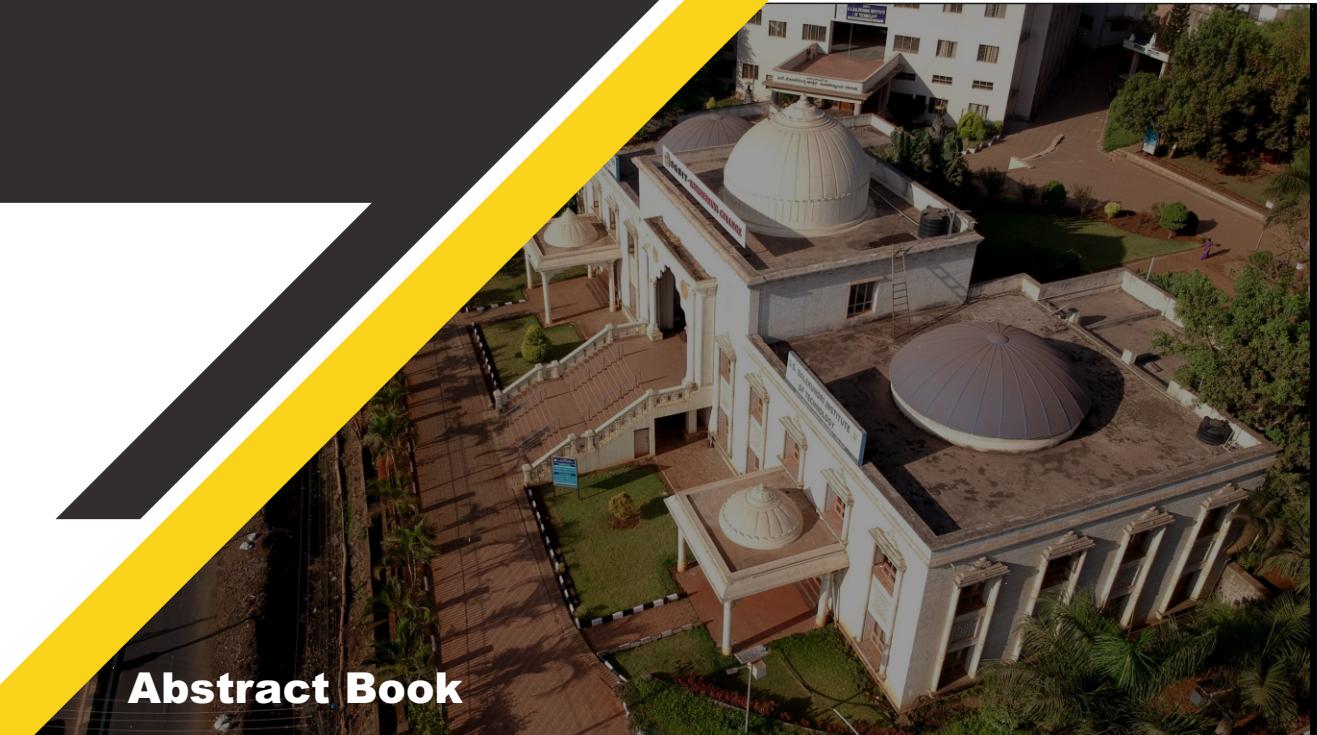


International Conference on Futuristic Technologies

25th to 27th Nov 2022

INCOFT 2022



Venue

S.G.Balekundri Institute of Technology
Shivabasava Nagar, Nehru Nagar,
Belagavi - 590 010 Karnataka, India.

Technically Co-Sponsored by
IEEE Bangalore Section



Organised By
S.G.Balekundri Institute of Technology



2022 International Conference on Futuristic Technologies (INCOFT)

25th – 27th Nov, 2022

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Message



Dr. Allamprabhu Swamiji

President,
SSET, Belagavi

Greetings to all,

I am pleased that our SGBIT Institute's CS&E, ECE, and EEE departments are organizing the "International Conference on Futuristic Technologies: INCOFT-2022" from 25/11/2022 to 27/11/2022. The SGBIT always strives to contribute to and address the challenging issues of society. SGBIT has created a forum to share and explore the numerous opportunities in various domains of Engineering Science & Technology. This opportunity will help all stakeholders exhibit and explore themselves in the challenging world. I appreciate and acknowledge the organizing committee's enormous efforts to make this INCOFT-2022 reality. I wish all the representatives a tremendous scholastic and enlightening experience at the Conference.

Dr. Allamprabhu Swamiji

Message



Dr. F. V. Manvi
Chairman,
SGBIT, Belagavi

I am happy to welcome you all to the “International Conference on Futuristic Technologies: INCOFT-2022”, organized by SGBIT Institute’s CS&E, ECE and EEE departments from 25/11/2022 to 27/11/2022. This forum incorporates insight and learning of the latest developments in the field for the participants. It also helps to facilitate and encourage delegates to explore multidisciplinary domains. This conference promotes the exchange of creative ideas, current trends, and technical expertise for technological advancements in Engineering and Technology. The participants will benefit from knowledge sharing, expert talks, optimized solutions, and fruitful discussions. I recognize the organizing committee’s persistent efforts in organizing INCOFT-2022. I wish all stakeholders great success and an influential conference.

Dr. F. V. Manvi

Message



Dr. B. R. Patagundi

Conference Chair
Principal, SGBT, Belagavi

We are delighted and privileged to conduct the first “International Conference on Futuristic Technologies (INCOFT-2022)” at SSET’s S. G. Balekundri Institute of Technology, Belagavi. I am delighted to welcome all the delegates to the conference. This conference offers a forum to explore scholarly work in interdisciplinary futuristic technologies in the engineering field. This conference brings multidisciplinary scholars, researchers, and experts to discuss and get optimized solutions for issues in Engineering domains. The learnings from the program help to conduct and manage sensibly in a team. The eminent speakers will share their valuable experiences and challenges in futuristic technologies in this rapid technological development. I acknowledge the sincere efforts of participants to participate in this conference and wish them all success. I congratulate Convener and organizing committee members for their continuous efforts to make the INCOFT-2022 and wish them great success.

Dr. B. R. Patagundi

Message



Dr. B. S. Halakarnimath

Conveor, and
Head, Dept. of CSE, SGBIT

We are privileged to host the first “International Conference on Futuristic Technologies (INCOFT-2022)” at SSET’s S. G. Balekundri Institute of Technology, Belagavi. I am honored to be a part of this conference and welcome all the delegates. The conference brings Researchers, Scholars, and Experts from various domains to discuss multiple science and technology issues on a unique forum. The INCOFT-2022 forum is the platform for the experts to share their experiences and views to acquire fruitful outcomes in various futuristic technologies. The proceedings express the worldwide research scholars’ innovative, pragmatic contribution to the science and engineering field. This conference will address the current trend issues and achieves intelligent solutions. All the participants will have a beneficial and wonderful experience. On behalf of the entire INCOFT-2022 team, I thank all the keynote speakers, authors, reviewers, and sponsors for their seamless support and cooperation. I thank the organizing committee for their committed efforts in conducting the INCOFT-2022.

Dr. B. S. Halakarnimath

Speaker



Mr. Suman De
SAP LABS

Suman is a Product Manager for S4 Product Insights & Experience, having joined SAP in 2015 as a Scholar and holds a Master's degree in Software Engineering from BITS Pilani. He has previously worked as a Full-Stack cloud developer, Research Mentor, and Scrum Coach for several SAP solution areas. He is also a part of the Managing Director's Office at SAP Labs India for various people and strategic topics while helping Early-stage growth startups to co-innovate with SAP as part of SAP Startup Studio. As a researcher, he has published over 30 works in International journals and conferences of IEEE, Springer, and Elsevier, including 4 book chapters, and is currently pursuing his Ph.D. from IIT Kharagpur under the department of Computational and Data Science. Suman has been associated with multiple conferences and journals of International repute as a Reviewer, TPC Chair, and Session Chair while focusing his Guest Lectures at Academic Institutions on bridging gaps between Academia and Industry for the latest trends. Suman's work has won Best paper awards and Pitching challenges, and he has also been a Thought Leadership Champion for his research contributions.

Speaker



Dr. Jayprakash Thakur

Dr. Jayprakash Thakur, PhD, Senior IEEE Member, obtained his M. Sc degree in Electronics and Telecommunication from Devi Ahilya University, Indore and PhD in Microwave Electronics from Delhi University, India in 1997 and 2004, Correspondingly. He joined as Research Scholar at Defense Research Organization, Delhi, India from 1998 to 2003 and worked on the process characterization of 40 GHz GaAs-MMIC technology. He pursued his post-doctoral research at Kookmin University, Seoul, South Korea from 2005 to 2007, there his research topic was UHF RFID reader antenna design. He later turned to industrial organization and joined Amphenol at Shanghai, China as an RF Engineer and completed several mobile phone antenna design projects from 2007 to 2009. He then went back to academic research and joined the Gwangju Institute of Science and Technology, South Korea, as a research professor, where he became engaged in mm-wave quasi-optical image sensing radar antenna array design.

He joined Intel Technology, Bangalore in 2011 as Antenna design engineer and currently, he is working as a Principal Engineer in Antenna design and wireless system integration. He drives antenna architecture, innovation, and wireless integration into client systems for Intel's advanced PC design platform, helping Intel Evo Vision deliver optimal wireless performance. His depth in antenna technologies and breadth in EMI/EMC, Materials Science, PCB Technology, Mechanical system design Millimeter Wave Antenna Array Technology has made him well to contribute to many wireless products such as mobile phones, tablets, IoT devices, and PC Subsystems. He has developed several patented antenna solutions for 5G, WLAN internal antenna and published its placement guidelines for various formfactor PC systems.

He has nearly 24 years of exposure in research and industrial product design at renowned universities, research organizations and reputable mobile product companies, including 11 years at Intel. He (co)authored over 40 technical journals and conference papers. He filed about 35 US patents, Six of them have already been granted.

Speaker



Dr. Yang Yue
Xi'an Jiaotong University, China

Yang Yue received the B.S. and M.S. degrees in electrical engineering and optics from Nankai University, China, in 2004 and 2007, respectively. He received the Ph.D. degree in electrical engineering from the University of Southern California, USA, in 2012. He is a Professor with the School of Information and Communications Engineering, Xi'an Jiaotong University, China. Dr. Yue's current research interest is intelligent photonics, including optical communications, optical perception, and optical chip. He has published over 200 journal papers (including Science) and conference proceedings with >10,000 citations, five edited books, two book chapters, >50 issued or pending patents, >200 invited presentations (including 2 tutorial, >40 plenary and >50 keynote talks). Dr. Yue is a Senior Member of IEEE, Optica and SPIE. He is an Associate Editor for IEEE Access and Frontiers in Physics, Editor Board Member for four other scientific journals, Guest Editor for >10 journal special issues. He also served as Chair or Committee Member for >100 international conferences, Reviewer for >60 prestigious journals.

Conference Committee

General Chairs:

His Holiness Jagadguru Dr. Tontada Siddharama Mahaswamiji, Dambal-Gadag

His Holiness Dr. Allamprabhu Mahaswamiji, Nagnur Rudrakshi Math Belagavi

Dr. Vidyashankar S, Vice-Chancellor, Visvesvaraya Technological University, Belagavi

Dr. F . V. Manvi, Chairman, Governing Council, SGBIT, Belagavi

Conference Chair

Dr. B. R. Patagundi, Principal, S. G. Balekundri Institute of Technology, Belagavi

Convenor:

Dr. B. S. Halakarnimath,

Head of Department,

Computer Science & Engineering,

S. G. Balekundri Institute of Technology, Belagavi

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Dr. Supanna S. Shirguppe, Head, Dept. of Electrical & Electronics Engineering

Dr. S. B. Akkole, Head, Dept. of Electronics & Communication Engineering

Publication Chair:

Dr. Karuna C. Gull,

Associate Professor, Dept. of Computer Science & Engineering.

Coordinators:

Dr. Jagadish Jakati,

Assistant Professor, Dept. of Electronics & Communication Engineering, SGBIT, Belagavi.

Mrs. Shaheen Mujawar

Assistant Professor, Department of Computer Science & Engineering, SGBIT, Belagavi.

Mrs. A. O. Lalitha Darbha

Assistant Professor, Department of Electrical & Electronics Engineering, SGBIT, Belagavi.

INCOFT 2022 Programme Schedule

International Conference on Futuristic Technologies - INCOFT 2022			
Technical Co-Sponsored By:			
IEEE Bangalore Section			
Venue: - S G Balekundri Institute of Technology(SGBIT),Belagavi, Karnataka , India.			
25 th -27 th November 2022			
Conference Main Schedule			
	Time	Events	Place
Day 1: 25 Nov 2022	8.45 am -10.45am	Session -I	Auditorium
	10.45am - 10.50am	Sarwati Vandana	
	10.50am – 10.55am	Welcome and Release of Conference Proceedings	
	10.55 am -11.05 am	Brief about Conference by General Chair -Dr. B R Patagundi, Principal, SGBT, Belagavi	
	11.05 am -11.10 am	Speech By : Dr. F V Manvi, Chairman, SGBT, Belagavi	
	11.10 am -11.15 am	Speech By : Dr. Allamprabhu Swamiji , President ,SSET, Belagavi.	
	11.15 am -11.25 am	Address by Chief Guest – Dr. Jayprakash Thakur, (Principal Engineer, Intel Technology ,Bengaluru)	
	11.25 am -11.30 pm	Vote of thanks by Dr. B S Halkarnimath (Convener)	
	11.30 am -12.15pm	Keynote By – Suman De (SAP Labs , Bengaluru)	
	12.15 pm -12.45 pm	Keynote By – Dr. Jayprakash Thakur (Intel , Bengaluru)	
	12.45 pm- 1.30 pm	Lunch	
	1.45 pm - 3.45pm	Session –II	
	4.00 pm - 6.00 pm	Session –III	
Day 2: 26 Nov 2022	8.45 am - 10.45am	Session -I	Auditorium
	10.45 am -11.00 am	Tea break	
	11.00am - 12.00 pm	Keynote By – Dr. Yang Yue (Xi'an Jiaotong University, China)	
	1.05 pm – 1.45 pm	Lunch	
	1.45 pm - 3.45 pm	Session –II	
	3.45 pm – 4.00 pm	Tea Break	
	4.00 pm - 6.00 pm	Session -III	
Day 3: 27 Nov 2022	8.45 am -10.45am	Session -I	

INCOFT 2022 Programme Schedule

Technical Co-Sponsored By					
IEEE BANGALORE SECTION.					
Venue: - S. G. Balekundri Institute of Technology (SGBIT), Belagavi , Karnataka , India.					
Session Schedule					
25th NOVEMBER 2022					
CONFERENCE ORAL SESSIONS SCHEDULE					
Time : 8:45 AM - 10:45 AM TRACK- A1: Computational Intelligence / Blockchain / AI / ML / IOT / Cloud Computing					
Hall Name : CS-1					
Session coordinator: Prof. Santosh Raikar					
Session Chair : Dr. Shantanu Agnihotri					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	8	Sharma, Divya*; Kang, Sandeep S	Analysis of Credit card fraud detection techniques using Machine Learning	8.45 AM	9.00 AM
2	12	Duvvuri, Kavya*; Kanisettypalli, Harshitha; Kunisetty, Jayawanth; H.N., Vishwas	Application of Needleman-Wunsch Algorithm in Image Comparison	9.01 AM	9.15 AM
3	37	ghule, Gauri*; Deshpande, Dr. Pallavi D; Ratnaparkhi, Archana; Habbu, Shraddha; Rathi, Snehal	A Coherent Way of detecting pupil's emotions via live Camera using CNNs along with Haar -Cascasde Classifier	9.16 AM	9.30 AM
4	84	Prabhu, Akshatha *	Machine Learning Applied in Identification of Anthracnose and Stem End Rot in Mangoes - Alphonso Cultivar	9.31 AM	9.45 AM
5	94	B, Gopala; M, HANUMANTHAPPA; Kumar, Manish*	Dual Mode Host-Based and Cloud-Based Smartphone Intrusion Detection System	9.46 AM	10.00 AM
6	132	S L, Ananthu Suresh*; Philip, Anu Susan	Multiple Botnet and Keylogger Attack Detection Using CNN in IoT Networks	10.01 AM	10.15 AM
7	136	Mohammad, Afroze Hussain*; GULLAPALLI, OOHA SHREE; Vasavi, S; Jayanthi, SC	Updating of GIS maps with Change Detection of Buildings using Deep Learning techniques	10.16 AM	10.30 AM
8	140	Bharadwaj, Sanjana R*; N, Shobharani	Towards Understanding the COVID-19 Specific Patterns in Lung CT Scan Images using Deep CT-NET Framework	10.30 AM	10.45 AM

INCOFT 2022 Programme Schedule

Time : 11:30 AM- 1.30 PM TRACK A2: Computational Intelligence / Blockchain / AI / ML / IOT / Cloud Computing					
Hall Name : CS-1 Session coordinator: Prof. B. S. Hugar Session Chair : Dr. Snehal Rathi					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	153	Dixit, Sonora*; Panigrahi, Basanta K.; Shukla, Soorya Prakash Dr.	CLASSIFICATION OF LINE TO GROUND FAULT IN TRANSMISSION LINE USING ARTIFICIAL NEURAL NETWORK	11.30 AM	11.45 AM
2	157	Jhawar, Shrihari M*	Predicting Tennis Matches Outcomes	11.45 AM	12.00 PM
3	169	B S, Poojashree *; Duth P, Sudharshan	HUMAN ACTIVITY DETECTION USING POSE NET	12.00 PM	12.15 PM
4	172	Rathod, Gopal S*; Tiple, Rani ; Jajulwar, kapil	Intelligent Accident Detection and Alerting System based on Machine Learning over the IoT Network	12.15 PM	12.30 PM
5	195	Pande, Nivedita A*; Pusdekar, Ritik; Mitra, Kajal	Classification of Lung CT Scan Images using Machine Learning	12.30 PM	12.45 PM
6	196	Shah, Darshil*; Churamani, Nityam; Dashora, Mahim; Badri Prasad, V R	Stock Price Prediction using LSTM-ARIMA Hybrid Neural Network Model with Sentiment Analysis of News Headlines	12.45 PM	1.00 PM
7	224	Raheja, Vaibhav*; Patel, Purav Ashok; Shetty, Mayank; Shah, Viraj N; Tiwari, Manisha	Multi-Disease Prediction System using Machine Learning	1.00 PM	1.15 PM
8	243	Anil Kumar, Chevella*; Kancharla, Anitha Sheela; Naveen, Vodnala	Analysis of Emotions from Speech using Hybrid Deep Learning Network Models	1.15 PM	1.30 PM

INCOFT 2022 Programme Schedule

Time : 1.45 PM- 3.45 PM TRACK- A3: Computational Intelligence / Blockchain / AI / ML / IOT / Cloud Computing

Hall Name : CS-1

Session coordinator: Prof. K. C. Hanchinal

Session Chair : Dr. N Shobha Rani

Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	161	SHAIKH, NAUROZ ZAMAN NAIEEM*; Das, Siuli; Salunkhe, Shamal	Classification of Diabetes using Machine Learning	1.45 PM	2.00 PM
2	209	B, Hemachandran*; Chirla, Pavan Rakesh Reddy; D, Harsha Vardhan Reddy; R, Kannadasan	Comparative Study of Clustering Algorithms in Parallel and Serial Environments	2.01 PM	2.15 PM
3	217	Jain, Naitik D*; Shah, Samveg; Ranade, Ameya Mahesh; Dhage, Sudhir	Identification of Potholes using Yolov4 and Darknet	2.16 PM	2.30 PM
4	246	Hnamte, Vanlalruata*; Thangkhanhau, H; Hussain, J.; Lalnunmawii, Chawngthu; Tlaisun, Laldinsangi; ruata, Vanlal	Mizo to English Machine Translation: An Evaluation Benchmark	2.31 PM	2.45 PM
5	248	Sahu, Bibhuprasad *; Pattnaik, Swarupa; Ravindra, JVR; Pani, Sasmita	Detection of Disease Through Clinical Data Using Light Intensity Based Firefly Algorithm	2.45 PM	3.00 PM
6	253	Patil, Bhavani V*	Implementation of Voice Based E-Mail System for Visually Challenged	3.01 PM	3.15 PM
7	255	Patkar, Gaurang Sitaram*; chakkaravarthy, Midhun	EXPLORATION OF WINE FEATURES USING DATA ANALYSTICS	3.16 PM	3.30 PM
8	258	Nath Boruah, Arpita*; Debnath, Saswati; Biswas, Dr. Saroj kr	A Transparent Rule-Based System for Parkinson's Disease Management	3.31 PM	3.45 PM

INCOFT 2022 Programme Schedule

Time : 4:00 PM - 6:00 PM TRACK- A4: Computational Intelligence / Blockchain / AI / ML / IOT / Cloud Computing					
Hall Name : CS-1 Session coordinator: Prof. Lalitha Darbha Session Chair : Dr. Shweta Sharma					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	261	S, Keerthana*; V, Mouna Rangeetha; K, Kaveena; D, Devi	Human Activity Recognition Using Machine Learning Technique	4.00 PM	4.15 PM
2	266	Ananth, Gokul; RADHAKRISHNAN, ANURADHA*	Yoga Posture Classification using Deep Learning	4.15 PM	4.30 PM
3	274	Barve, Yashoda N; Saini, Dr. Jatinderkumar R.*	Misinformation Detection Using Unsupervised Approach on CoAID Dataset	4.30 PM	4.45 PM
4	294	Patil, Bhagyashree*; Khot, S. R.	Contrast enhanced visual cryptography	4.45 PM	5.00 PM
5	306	Kaur, Jasleen; Saini, Dr. Jatinderkumar R.*	A Novel Soft Voting Based Hybrid Approach to Detect Fake News in Hindi	5.00 PM	5.15 PM
6	308	B R, Dr. Prakash*; Halkundi, Chidananda; K V, Nagaraja ; Kumar, Mohan	Streaming Analytics For Shipment Monitoring System	5.15 PM	5.30 PM
7	309	Sripathi, Satwik Reddy*; Nadella, Venkata Sai Pradyumna; Akula, Dhanush; R, Subramani	Drug Recommendation System Using Lda	5.30 PM	5.45 PM
8	311	Lal P, Rithik*; Duth P, Sudharshan	Paddy Leaf Disease Classification Using Machine Learning And Deep Learning Techniques	5.45 PM	6.00 PM

INCOFT 2022 Programme Schedule

Time : 11.30 AM- 1.30 PM TRACK- B2: Computational Intelligence / Blockchain / AI / ML / IOT / Cloud Computing					
Hall Name : CS-2 Session coordinator: Prof. Mallikarjun Bhagawathi Session Chair : Dr. Ashwini Kodipalli					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	360	Pandya, Darsh C*; Shah, Harsh; Panchal, Krish; More, Nilkamal	Classification of Machine and Deep learning Techniques for Financial Fraud Detection of Healthcare Industry	11.30 AM	11.45 AM
2	378	P.V, Kavitha*; Manoranjani, LN; Mithra, V; Monal, P	Flight Delay Prediction using Machine Learning Model	11.45 AM	12.00 PM
3	388	Venati, Sudharsan Reddy*; Nagulapati, Sai Prakash; C, Vishal; J, Amudha	Autonomous Driving Mobile Robot using Q-learning	12.00 PM	12.15 PM
4	389	B K, Priya*; r v, subramanyam; Srinivas N, Jyothi; Peddina, Nagendra	A Smart Social Distance Monitoring System	12.15 PM	12.30 PM
5	398	NAIK, NABIN KUMAR; SETHY, PRABIRAJ KUMAR*	Roasted Coffee beans Classification based on Convolutional Neural Network	12.30 PM	12.45 PM
6	400	AR, Akash; s, chithra*; P, Vasuki; T, ShanmughaPriya; M G, Nivas Muthu	Towards Privacy For Android Applications	12.45 PM	1.00 PM
7	401	M, Senbagavalli*; M, Senbagavalli	Improving Patient Health in Smart Healthcare Monitoring Systems using IoT	1.00 PM	1.15 PM
8	402	Harish, Neha*; Gundala, Yashwanth; B, Eshanya; H, Likith; Krishnaswamy, Narayan; G L, SUNIL	Stock Index Probability Prediction using the FB Prophet Model	1.15 PM	1.30 PM

INCOFT 2022 Programme Schedule

Time : 1:45 PM - 3:45 PM TRACK- B3: Computational Intelligence / Blockchain / AI / ML / IOT / Cloud Computing					
Hall Name : CS-2 Session coordinator: Prof. Shilpa Bhairanatti Session Chair: Dr. Bhagyashri R Hanji					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	408	Reddy, Sudhakara M*; Mishra, Dr. Nidhi	Novel Machine Learning based Cancerous Tumour Diagnostic Model Design	1.45 PM	2.00 PM
2	410	R, Ranjith*	Customer Following Trolley using ESP32	2.01 PM	2.15 PM
3	415	Anil A, Anagh*; mr, sharan	Classification Of Medicinal Leaf By Using Canny Edge Detection And Svm Classifier	2.16 PM	2.30 PM
4	417	Raju, Kushal Kumar N*; Khatua, Avinash; S, Tarun; Subashini, Monica	Breast Cancer Classification Using Ensemble Approach, Machine Learning And Deep Learning	2.31 PM	2.45 PM
5	421	Miah, Md Sanaullah S*; Islam, Md Saiful	Big Data Analytics Architectural Data Cut off Tactics for Cyber Security and Its Implication in Digital forensic	2.45 PM	3.00 PM
6	429	Shekhawat, Abhay Pratap Singh*; Chaurasiya, Pawan; Chaurasiya, Abhishek	Realization of Smart and Highly Efficient IoT-based Surveillance System using Facial Recognition on FPGA	3.01 PM	3.15 PM
7	430	Kenekar, Prathmesh Bhagwan*; Khobragade, Vallari ; Bhosle, Priyanka ; Pal, Prashant ; Kumar Singh, Shashank	Smart Navigation System Assistance for Visually Impaired People	3.16 PM	3.30 PM
8	431	Bathe, Nikhil S*	Heart Murmur Detection from Phonocardiogram Recordings using Deep Learning Techniques	3.31 PM	3.45 PM

INCOFT 2022 Programme Schedule

Time : 4:00 PM- 6.00 PM TRACK- B4 : Computational Intelligence / Blockchain / AI / ML / IOT / Cloud Computing					
Hall Name : CS-2 Session coordinator: Prof. Sidramayya Mathad Session Chair : Dr. Amit Jain					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	432	HEGDE, KANTHI*; K V, PARESH; SRINIVASAN, NITIN; RAJ P, GAUTHAM; VARMA, JAI	An Efficient, Low-cost Plant Disease Detection System using IoT	4.00 PM	4.15 PM
2	433	Krishnan, Hari*; Naik, Akash; Patil, Ganesh; Pal, Prashant; Singh, Shashank Kumar	AI Based Autonomous Room Cleaning Bot	4.15 PM	4.30 PM
3	440	Kumar, Dev*	Comparative study of movie recommendation system using feature engineering and improved error function	4.30 PM	4.45 PM
4	444	Reddy, Sudhakara M*; Mishra, Dr. Nidhi	Machine Learning Based Improved Automatic Diagnosis Of Soft Tissue Tumors (STS)	4.45 PM	5.00 PM
5	446	Tiloo, Indraneel*; Bhingarkar, Sukhada	Cardless Cash Withdrawal Using Palm Vein Technology	5.00 PM	5.15 PM
6	454	Parameswarappa, Priya; Sunkari, Saideep*; Bejgam, Rahul	Twitter Sentimental Analysis for Businesses Using Python Web Services in Salesforce Cloud	5.15 PM	5.30 PM
7	460	M, Nirmala*; Angelina, Jane Rubel	An Efficient Detection of Driver Tiredness and Fatigue using Deep Learning	5.30 PM	5.45 PM
8	465	Kumar, Mandeep*; Kaur, Gagandeep	An Empirical Study of Genomic Sequencing Workflow in the Cloud	5.45 PM	6.00 PM

INCOFT 2022 Programme Schedule

Time : 8.45 AM- 10.45 AM TRACK- C1: Computational Intelligence / Blockchain / AI / ML / IOT / Cloud Computing / CN					
Hall Name : CS-3 Session coordinator: Prof. Anita Patil Session Chair : Dr. Manohar N					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	469	Saini, Lekhraj*	Language Identification System : Employing n- gram to improve accuracy and efficiency	8.45 AM	9.00 AM
2	473	Dhuri, Amey V*	IOT Smart Stand for Smart Phones	9.01 AM	9.15 AM
3	476	GUNTREDDI, Dr VENKATARAMANA; Muni, Dr. T Vijay*; Subbarayudu, Chilukuri Bala Venkata ; Parimala, V; Suneela, B; E, Fantin Irudaya Raj	Improving the Maximum Power Point Tracking in Wind Farms with PID and Artificial Intelligence Controllers for Switched Reluctance Generators	9.16 AM	9.30 AM
4	481	Mamoon, Mohd*; Saim, Mohammad; Shah, Ilma ; Samad, Abdus	E-Voting via Upgradable Smart Contracts on Blockchain	9.31 AM	9.45 AM
5	491	Roy, Dharani Kanta*; Kalita, Hemanta Kumar	A TAXONOMY OF STATE OF THE ART IN INTRUSION RESPONSE SYSTEM	9.46 AM	10.00 AM
6	492	Sonawane, Harshal Amol*; Patil, Manasi A; Patil, Shashank Lalit; Patil, Bhavin Ratansing; Thakur, Uma Devidas	Middleware Device for Advertisement Blocking	10.01 AM	10.15 AM
7	493	Shishodia, Bhavya Singh*; Nene, Manisha	Data Leakage Prevention System for Internal Security	10.16 AM	10.30 AM
8	501	R, Nandakrishnan*; Tharian, John; C K, Jayadas; A V, ARUN; sajesh, saurav	Automatic Emotion Recognition System using Tinyml	10.30 AM	10.45 AM

INCOFT 2022 Programme Schedule

Time : 11:30 AM - 1:30 PM TRACK- C2: Computational Intelligence / Blockchain / AI / ML / IOT / Cloud Computing / CN					
Hall Name : CS-3 Session coordinator: Prof. Shankargouda Patil Session Chair : Dr. Ambika Umashetty					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	502	Srivastav, Shivam*; Bharadwaj K, Nithin; R, Kumaraswamy; Saurabh, Saurabh; Rishabh, Rishabh	The Human Assistant System	11.30 AM	11.45 AM
2	503	Dhawale, Omkar S*; Shelke, Sandhya; Dhokane, Rutuja; Urkudkar', Ketan; Sahane, Prema	Spoofing URL Detection	11.45 AM	12.00 PM
3	523	Gujanatti, Rudrappa B*; Rayar, Vijay B; Jadhav , Sushant ; Manage, Prabhakar ; TIGADI, Dr.Arun; Shirol, Suhas	Comparison of Machine Learning Approaches for Classification of Cardiac Diseases	12.00 PM	12.15 PM
4	525	D, GOWRI SHANKAR *; R, Jayaparvathy	SUGARCANE DISEASE CLASSIFICATION USING SOFT COMPUTING ALGORITHMS	12.15 PM	12.30 PM
5	535	Datta, Jayanta*	Deep Neural Network aided Sparse Bayesian Learning for Wireless Access Channel Estimation in mm-Wave Massive MIMO Cloud Radio Access Network Systems	12.30 PM	12.45 PM
6	543	Kulkarni, Mukund; Chaudhari, Archana K; Shegokar, Shekhar V*; Rudrawar, Krushna; Joshi, Shaunak; Tibile, Shruti; Tayade, Isha	FRUIT FRESHNESS DETECTION USING CNN	12.45 PM	1.00 PM
7	545	Choudhury, Amitava*; Gadhe, Kalpita; Soni, Dhruvil ; Doshi, Bhavya	Machine Intelligence Based Web Page Phishing Detection	1.00 PM	1.15 PM
8	549	R, Uma Mageswari*; SV, Vasantha ; g, Shiva Kumar Reddy	Emotion detection using facial image for Behavioral Analysis	1.15 PM	1.30 PM

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Time : 1:45 PM- 3.45 PM TRACK- C3: Computational Intelligence / Blockchain / AI / ML / IOT / Cloud Computing / CN					
Hall Name : CS-3 Session coordinator: Prof. Siddarth Bhatakande Session Chair : Dr. Virupakshappa					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	554	Kotha, Sudharsan *; Keluth, Hari Sankara koteswara lal; Kandlakunta, Venkata Nageswararao; Talluri, Anirudh Sai Ram; Venna, Deepa	A Deep Hybrid Learning Model for Classification of Code-Mixed Text	1.45 PM	2.00 PM
2	559	V H, Rahul Kumar*; V H, Shrishti; P A, Sridhar	Corn Plant Disease Classification System using a combination of Machine Learning and Deep Learning	2.01 PM	2.15 PM
3	561	S S, sree nandha; V P , Athish; D, RAJESWARI*	Train Track Crack Prediction Using CNN with LeNet - 5 Architecture	2.16 PM	2.30 PM
4	566	Uplenchwar, Rucha S; Gajbhiye, Pratham; Rathi, Atharva G*; Shah, Shraddha S; Sonawane, Atharva B; Marathe, Abha	Breast Cancer Classification	2.31 PM	2.45 PM
5	575	Gupta, Sachin Kumar; Modi, Aavart; Choudhury, Amitava*	Analysis of Juvenile Delinquency in India	2.45 PM	3.00 PM
6	596	Mali, Mohit Kedar*; Devake, Shubham Rajendra; Kharpude, Satyam Manoj; Kumar, Yogesh; Pal, Prashant; Singh, Shanshank; Bansod, Saurabh	Evaluation and Segregation of Fruit Quality using Machine and Deep Learning Techniques	3.01 PM	3.15 PM
7	601	Yelure, Bhushan S*; Patil, Siddheshwar; Patil, Shobha ; Nemade, Sangita	Solving multi-class classification problem using Support Vector Machine	3.16 PM	3.30 PM
8	604	Joy, Salna*; Chithra, Baby R; M I, Anju ; P S, Neethu	Smart Embedded Framework of Real- Time Pollution Monitoring and Alert System	3.31 PM	3.45 PM

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Time : 4.00 PM- 6.00 PM TRACK- C4: Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing					
Hall Name : CS-3 Session coordinator: Prof. Siddlingesh Hiremath Session Chair : Dr. Sambasiva Rao Naraboina					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	4	Malpure, Shruti Avinash *; Bhivsane, Supriya; Nair, Shruti Shivadas; R, Bindu	Design and Development of Toroidal Core Winding Machine with Digital Interface	4.00 PM	4.15 PM
2	5	Kulkarni, Vikas V*; Kulkarni, Vandana	Performance Optimization of Photovoltaic Systems using Thermoelectric Cooling System	4.15 PM	4.30 PM
3	21	Bansal, Km. Sonal; Joshi, Abhishek*	Integrated Band Stop Frequency Selective Surfaces for 5G Sub-6 GHz applications	4.30 PM	4.45 PM
4	79	Sharma, Somya*; Pahuja, Dr. Roop	Estimating Drought Severity in Maharashtra using Standard Precipitation Index	4.45 PM	5.00 PM
5	80	Hamad Alsaiar, Sultan; alsulami, Saad ; Asiri , Yaser ; KANNAN, NITHIYANANTHAN K*	Smart Meters Based Household Electricity Consumption	5.00 PM	5.15 PM
6	82	Karunakaran, Prashobh*; Osman, Mohd. Shahril; Sabang, Clement Langet ; Karunakaran, Shanthi Prashobh; Karunakaran, Prashanth Prashobh; Karunakaran, Arjun Prashobh; Greve, Dylan	The Technical Problems and Solutions of Providing Water Supply to a Rural Village at the Most Economical Cost	5.15 PM	5.30 PM
7	89	Selvam, Arun Karthick*; K, Nirmala; P, Jayashree ; R, Shanmathi; R G, Varsha	Acquisition And Analysis Of Erg Signal For Retinal Disorders	5.30 PM	5.45 PM
8	110	Siddarameswara, Rajeshwari B*; BS, Rajeshwari	Estimation Of Cardiotocogram Using Fetal Phonocardiogram	5.45 PM	6.00 PM

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Time : 8:45 AM - 10:45 AM TRACK- D1: Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing						
Hall Name : CS-4 Session coordinator: Prof. Abhinanadan M Session Chair : Dr. Sakthi Abirami Balakrishnan						
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time	
1	111	N, Shobha Rani; C H, Nachappa*; Sri Krishna, Arun; B J, Bipin Nair	Multi Disease Diagnosis Model for Chest X-ray Images with Explainable AI – Grad-Cam Feature Map Visualization	8.45 AM	9.00 AM	
2	114	GADGUNE, SWAPNIL Y*; Patil, Ashwini	DC Side Voltage Regulation of Three Phase PWM Rectifier Control Using Sliding Mode Controller	9.01 AM	9.15 AM	
3	116	Farooq, Afaan; Farooq, Sheikh Afaan*	Depression Prediction: A Clinical Questionnaire and Machine Learning Based Approach	9.16 AM	9.30 AM	
4	120	Juvvalapalem, Sumadeep*; K, Vadivukkarasi	VANET Based Drivers' Life Emergency Saver	9.31 AM	9.45 AM	
5	124	Tiwari, Seemant*	Applications of Smart Technologies Regarding Promoting Energy Efficiency and Sustainable Resource Utilization	9.46 AM	10.00 AM	
6	127	Yadav, Ritu*	Effect of deposition of different dielectric materials with different oxide thickness on the performance of square gate all around MOSFET	10.01 AM	10.15 AM	
7	141	SB, Suprathi*; N, Shobharani	An Intelligent Classification Model for Camera Captured Unstructured Handwritten Documents with Intra Class Similarities	10.16 AM	10.30 AM	
8	144	Gutha, Preethi*; Kota, Naveena; Garlapati, Kavya; Mondreti, Yasaswini Swarna; Nair, Aswathy K	Deep Learning Aided Channel Estimation in OFDM Systems	10.30 AM	10.45 AM	

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Time : 11:30 AM- 1.30 PM TRACK- D2: Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing					
Hall Name : CS-4 Session coordinator: Prof. Arpita Patil Session Chair : Dr Manish Gupta					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	151	Sebastian, Steffi Rose; K, Deepika*; M S, Navya; H V, Ramchandra; G, Balaraju	VIRTUAL AIR CANVAS USING OPENCV AND MEDIAPIPE	11.30 AM	11.45 AM
2	155	GADGUNE, SWAPNIL Y*; Kusale, Shreyas; Mallareddy, Chinnala; Mulla, Anwar Mubarak	Series APF control using IRP Theory with Self-Regulation of DC side Voltage	11.45 AM	12.00 PM
3	159	Deshmukh, Gouri Anil*; Rajderkar, Vedashree; Chaturvedi, Pradyumn	Analysis of Cascaded H-Bridge Multilevel Inverter	12.00 PM	12.15 PM
4	160	Deshmukh, Gouri Anil*; Rajderkar, Vedashree; Chaturvedi, Pradyumn	Single phase Cascaded H-Bridge Multilevel Inverter Topology	12.15 PM	12.30 PM
5	163	T N, Jhansi*; Duth P, Sudharshan	TOMATO FRUITS DISEASE DETECTION USING IMAGE PROCESSING	12.30 PM	12.45 PM
6	164	Chaturvedi, Sudha*; Nagpal, Tapsi	EFFICIENT QUERYING AND INDEXING OF MOVING DATA OBJECTS	12.45 PM	1.00 PM
7	168	Sassani (Sarrafpour), Bahman*; Palle, Akarsha; Dhakal, Sujan; Bobuwala, Sanjaya; David, Andrew	Analysis of SSDP DRDoS Attack's Performance Effects and Mitigation Techniques	1.00 PM	1.15 PM
8	189	Mekala, Anjikumar*; G, SNEHALATHA	Stochastic Flash Analog to Digital Convertor Compared with Conventional Resistor ladder Flash Analog to Digital Convertor	1.15 PM	1.30 PM

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Time : 1.45 PM- 3.45 PM TRACK- D3: Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing					
Hall Name : CS-4 Session coordinator: Prof. Namrata Korade Session Chair : Dr. Sriadibhatla Sridevi					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start Time	End Time
1	192	Thiruveedhi, Subha Sri *; P, Radhika; Kamatham, Yedukondalu; Roshini, Arjula	ASIC Implementation and Comparison of Recursive Filter using Different Adders For ECG Application	1.45 PM	2.00 PM
2	199	K, Nirmala*	Study of Microvascular Morphology from Optical Image of Nailfold Capillary using Image Processing Techniques	2.01 PM	2.15 PM
3	205	Sridharan, Anish*; V, Kanchana	SIEM Integration with SOAR	2.16 PM	2.30 PM
4	211	Harish, R.M.*; T, Lokesh; V, Vidyarth; V, Balanagajyothi; K, Prabhakaran	Quantifying relative turbidity levels using image processing techniques	2.31 PM	2.45 PM
5	220	kumar, sujit*	Multi Classification of Rolling Bearing Conditions based on Random Forest Classifier Model	2.45 PM	3.00 PM
6	227	Nagella, Somanadh Reddy*; Makula, Roshitha; R, Tejomai; Vasavi, S; Jayanthi, SC	Water bodies detection and classification from VHRS images	3.01 PM	3.15 PM
7	235	sai, rohit*	Neural Network Optimized Medical Image Classification With a Deep Comparision	3.16 PM	3.30 PM
8	242	A, Samhitha*; Kaganurmath, Sharadadevi; S Rajulu, Swetha	Framework for Near Field Communication Controller Interface Protocol over Virtual IC	3.31 PM	3.45 PM

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Time : 4.00 PM- 6.00 PM TRACK- D4: Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing					
Hall Name : CS-4 Session coordinator: Prof. Santosh Raikar Session Chair : Dr.R.SUJATHA					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start Time	End Time
1	249	Rai, Ashima*	Temperature Sensitivity Analysis of Graded Channel Si-Nanotube FET based on DC and Analog Parameters	4.00 PM	4.15 PM
2	269	Sathe, Pushkar M*; Mahajan, Alka; Patkar, Dr. Deepak; Verma, Dr. Mithusha	A two-stage Computer Aided Diagnostic system for lung cancer detection with pre-screening of other abnormalities	4.15 PM	4.30 PM
3	270	PRABHA, SAKTHI*; M, Vadivel	R-CNN Based Brain Tumor Segmentation Using MRI Images	4.30 PM	4.45 PM
4	282	Mondal, Debasmita*	Disposable filter paper sensor for impedimetric detection of ascorbic acid	4.45 PM	5.00 PM
5	284	R, Raghunadha Sastry *	DIMINISHING THE RIGHT OF WAY (ROW) WITH MULTI VOLTAGE MULTI TERMINAL TRANSMISSION TOWER	5.00 PM	5.15 PM
6	287	R, Bhavani; Muni, Dr. T Vijay*; Tata, Ravi Kumar; Narasimharao, Jonnadula; Murali, K.; Kaur, Harpreet	Deep Learning Techniques for Speech Emotion Recognition	5.15 PM	5.30 PM
7	292	Tadivalasa, Venkatesh*	Controlling of PV fed BLDC Motor using FUZZY and PSO Techniques	5.30 PM	5.45 PM
8	300	V, Swarnamahhalakshmi *; T, Prakash ; V, Bala Naga Jyothi ; B, Muthukumaran	Understanding and evaluating low cost pressure sensor with different technologies for UW vehicles	5.45 PM	6.00 PM

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Time : 11:30 AM- 1.30 PM TRACK- E2: Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing					
Hall Name : CS-5 Session coordinator: Prof. Sidramayya Mathad Session Chair : Dr Murali Kalipindi					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	341	Sonawane, Pratibha Shankar*; Helonde, Jagdish; Burade, Prakash Gajanan Burade Dr	Feature Selection of EEG Signals using Cat Coyote optimization algorithm (CCOA) with Classification	11.30 AM	11.45 AM
2	347	SK, Abhilash*; Nookala, Venu Madhav; Babu, Adithya	A GNN Based Multi-Attribute Pedestrian Recognition Framework for Real World Surveillance Scenarios	11.45 AM	12.00 PM
3	349	agrawal, neetu*	Multiple slotted MIMO antenna for 5G application	12.00 PM	12.15 PM
4	354	Kumar, Rohit; Bharti, Dr. Gaurav Kumar*; Bindal , Ranjit Kumar	Optimization and Comparative Analysis of PhCRR Based Sensor with Distinct Structures	12.15 PM	12.30 PM
5	357	Valsan, Aparna S*; K U, Thoufi	Toxicity Prediction in Peptides and Proteins using Random forest,Decision Tree and Logistic Regression	12.30 PM	12.45 PM
6	358	Barsale, Manisha Narayan*	Network Lifetime Improvement of Wireless Sensor Network using K-LEACH Protocol	12.45 PM	1.00 PM
7	364	Koshe, Saloni Sanjeev; Rajgure, Yash; Adibhatla, Sri Devi*	Novel implementation of low power and high performance 4-2 compressors for approximate multipliers	1.00 PM	1.15 PM
8	367	Bhowmik, Tanmay*; Choudhury, Amitava; Roy, Bishwajit	A Comparative Study on Native and Non-Native English Accent Classifications	1.15 PM	1.30 PM

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Time : 1.45 PM- 3.45 PM TRACK- E3: Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing					
Hall Name : CS-5 Session coordinator: Prof. Anita Patil Session Chair : Dr. Anitha Sheela Kancharla					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start Time	End Time
1	368	Jaswal, Prajwal*; Sharma, Shweta; Bindra, Naveen; Krishna, Rama Challa	DETECTION AND PREVENTION OF PHISHING ATTACKS ON BANKING WEBSITE	1.45 PM	2.00 PM
2	370	Mohamed Umar, Malik ; Raj, Veena*	A Rapid smoke detection in real-time CCTV videos using non-rigid bodies Algorithm	2.01 PM	2.15 PM
3	384	S M, Hari Krishna*; Jahnavi , Konda ; Abdulla , Akula ; H, Sumanth ; Gaur , Akshat ; V, Tejaswini	Reservation System for Charging Electric Vehicles	2.16 PM	2.30 PM
4	385	ADDALA, SATYANARAYANA*	Mitigation of PQP in Distributed Generation using CPD's	2.31 PM	2.45 PM
5	387	Kanabarkar, Radha Narayan*; ANANDHALLI , Mallikarjun H	Performance Analysis of Convolutional Neural Network for Image Classification	2.45 PM	3.00 PM
6	390	Das, Debanjan*; Chandra, Kadali Umesh; Rapolu, Shiva Teja; Arelli, Siri	CattleCare: IoT-Based Smart Collar for Automatic Continuous Vital and Activity Monitoring of Cattle	3.01 PM	3.15 PM
7	392	Hiwarkar, Akshay Ganesh*; Hiware, Rutuja Sudhir	Analysis of a High Voltage Air Circuit Breaker and The Current-zero Phenomenon	3.16 PM	3.30 PM
8	394	Bagathi, Nithul*; Kannan, Rajesh; Yajjavarapu, Jyothi Sai Naga Swaroop; Tatiparthi, Prakash Reddy	Dual Thresholding Based License Plate Recognition	3.31 PM	3.45 PM

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Time : 4.00 PM- 6.00 PM TRACK- E4: Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing					
Hall Name : CS-5 Session coordinator: Prof. Chetan Kudale Session Chair : Dr. Shonak Bansal					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start Time	End Time
1	422	Dushing, Rutika Bhimraj*; Jagtap, Shweta; Kumar, Prince; Patil, Ganesh; Pal, Prashant; Singh, Shashank	Swarm Robotics for Ultra-Violet Sterilization Robot	4.00 PM	4.15 PM
2	423	RAO, SAIKALYAN J*; CHORAGUDI, KANTHISREE; Bansod, Saurabh ; Paidipalli V V, Surya Charan; Singh, Shashank Kumar; pal, Prashanth	AI, AR Enabling on Embedded systems for Agricultural Drones	4.15 PM	4.30 PM
3	427	Pradhan, Janhavi Sanjay*; Sonawane, Asmita Pandit ; waghmare, vaibhavi; Kesari, Saurabh; Singh, Shashank; Pal, Prashant	Complete Data Transmission using Li-Fi Technology with Visible Light Communication	4.30 PM	4.45 PM
4	475	Bhukya, Hari Krishna*; Vanukuru, Kranthi Kumar; Subbrahmnyam, JBV	Design of a New Transformer based Multilevel Inverter with Single Source for PV Application	4.45 PM	5.00 PM
5	478	PRAJAPATI, CHANDRA PRAKASH*	Volt/VAR Optimization and Control of Smart-Grid Enabled Distribution System using CVR	5.00 PM	5.15 PM
6	490	Eragamreddy, Gouthami*; Gopiya Naik, Dr S	Modeling and Simulation of Solar Energy Storage System for Electric Vehicle	5.15 PM	5.30 PM
7	497	Singh, Mona*; Kumar, Suneel; ., Ruchilekha; Singh, Manoj Kumar	A comparative study of feature extraction techniques and similarity measures for image retrieval	5.30 PM	5.45 PM
8	499	MISHRA, RIDHIMA*; Jaiswal, Nishtha ; Prakash, Rishi; Nath Barwal, Paras	Transition from Monolithic to Microservices Architecture : Need and proposed pipeline	5.45 PM	6.00 PM

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International Conference on Futuristic Technologies - INCOFT 2022 (IEEE Conference ID: # 55651)					
Technical Co-Sponsored By					
IEEE BANGALORE SECTION.					
Venue: - S. G. Balekundri Institute of Technology (SGBIT), Belagavi , Karnataka , India.					
Session Schedule					
26th NOVEMBER 2022					
CONFERENCE ORAL SESSIONS SCHEDULE					
Time : 8:45 AM - 10:45 AM TRACK- A1: Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing Hall Name : CS-1 Session coordinator: Prof. B. S. Hugar Session Chair : Dr. Dibyendu Roy					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	505	BHATTACHARYA, SHEERSHENDU*; BISWAS, MANOTOSH	Resonant Frequency of Equilateral Triangular Cavity Using Trilinear Transformation	8.45 AM	9.00 AM
2	510	Roy, Pulakesh*; Batabyal, Debojyoti; Biswas, Priyanka ; Halder, Niladri; Sarkar, Partha Pratim ; Banerjee, Rajib; Roy, Dibyendu	Optimization of a Fifth Generation Communication Based Dual-Band Microstrip Antenna	9.01 AM	9.15 AM
3	511	M, Bhavya*; M R, Anala	Deep Learning Approach for Sound Signal Processing	9.16 AM	9.30 AM
4	512	Dogra, Sankalp*; Nene, Manisha	INTELLIGENCE GATHERING ON AN EDGE NETWORK BY USING DNS APPROACH	9.31 AM	9.45 AM
5	524	GAJENDRA, BHARTI *; MALICK, PRAVAKAR; PAL, MILAN KUMAR	Design of H-Plane Horn Antenna with Bandwidth Enhancement using Linear Tapered Curve	9.46 AM	10.00 AM
6	527	Anasune, Aditya *; Suresh, Aditya ; Bande, Abhilasha; Adhav, Swapnil; Baranjalekar, Ishwari; Gaikwad, Vijay	License Plate Recognition using OpenCV	10.01 AM	10.15 AM
7	528	Nagaraju, Samala; Bethi , Chandramouli; Kumar, K Vinay ; Muni, Dr. T Vijay*; Virat Varma , N Supreeth; Kumar, Pandala Rathnakar	Dynamic Voltage Restorer Based Solar PV System Connected Grid Utilizing UPQC with Fuzzy	10.16 AM	10.30 AM
8	532	Thomas, Neville*; Patil, Shailaja	Checking Trustworthiness of Data in IoT Crowd Sensing Environments	10.30 AM	10.45 AM

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Time : 11:30 AM- 1.30 PM TRACK A2: Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing					
Hall Name : CS-1 Session coordinator: Prof. K. C. Hanchinal Session Chair : Dr R Senthil Ganesh					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	536	Waghmare, Komal R*	Impact of Renewable Energy Resources and Energy Storage Device on Transmission System	11.30 AM	11.45 AM
2	540	M R, Mithun*	Document Signature Recognition and Verification Using Neural Network	11.45 AM	12.00 PM
3	544	Behal, Anil*	Constrained Application Protocol(COAP) Implementation on Contiki OS For Anatomization of Low-Power and Lossy Networks In IOT	12.00 PM	12.15 PM
4	550	Singh, Indu ; Srivastava, Pranjal; Bhatnagar, Pranav*; Roy, Neil	Hybrid Dragonfly-Cat Swarm Clustering algorithm with Closed Sequential Pattern Mining for Detection of Malicious Transactions	12.15 PM	12.30 PM
5	568	Shiva, Javvadi*; Joga, S Ramana Kumar; V, Sudhakar; Kumar, Vijay; Jami, Deleep Kumar; m, HemaLatha	A modified ANFIS controlled Unified Power Flow Controller for Power Quality Improvement in Transmission System	12.30 PM	12.45 PM
6	571	Patel, Khushbu*; Pandav, Subhasish ; Behera, Santanu Kumar	Compact Hexagonal Monopole Antenna using Defected Ground Structure (DGS) for S and C-Band Application	12.45 PM	1.00 PM
7	577	AP, Abhilash*	Frequency Selective Surface (FSS) Loaded, CPW-fed, MIMO antenna with Wider Bandwidth and Enhanced Gain for sub 6 GHz 5G Applications	1.00 PM	1.15 PM
8	584	Dey, Mrinal Kanti*; Chanana, Saurabh	Short-term forecasting of a univariate time series load using LSTM based RNN model	1.15 PM	1.30 PM

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Time : 1.45 PM- 3.45 PM TRACK- A3: Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing					
Hall Name : CS-1					
Session coordinator: Prof. Lalitha Darbha					
Session Chair : Dr. Lakshmi S					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	585	Darade, Shreyas Kailas*; Meshram, Krish ; Satpute, Sarvesh; Chaudhari, Sheetal	Dynamic Traffic Scheduling Using Emergency Vehicle Detection.	1.45 PM	2.00 PM
2	588	Chandra Sekhar, B K B S*	Design of J-Pole Antenna for Receiving ADS-B Signals	2.01 PM	2.15 PM
3	589	Shekhawat, Abhay Pratap Singh; Chaurasiya, Abhishek*	Realization of OpenCL based CNN Implementation on FPGA using SDAccel Platform	2.16 PM	2.30 PM
4	590	Agnihotri, Shantanu*; Chandra, Prakash ; Mistry, Khyati; Paneliya, Shreya	Fabrication and Characterization of Mixed-Metal Oxide/Conducting Nanocomposites for Hydrogen Generation	2.31 PM	2.45 PM
5	637	Dampella, Anand Jaya Raj*; BAIDYA, KAUSHIK; Paidipalli, Surya Charan; Bansod, Saurabh; Kumar Singh, Shashank; Pal, Prashant	Pesticides Spraying Using Non-GPS-Based Autonomous Drone	2.45 PM	3.00 PM
6	639	Singh, Sarishti*; Panda, Geetanjali	Singular Value Decomposition of Matrices with Uncertain Parameters	3.01 PM	3.15 PM
7	640	Khairnar, Kunal R*; Gavani, Madhukar I; Nalawade, Satyajeet J	Design and Control of Swerve Drive Robot Using Kinematic Model	3.16 PM	3.30 PM
8	413	Mohammad Naveed Hossain,Nafim Ahmed,S. M. Wazid Ullah	Traffic Flow Forecasting in Intelligent Transportation Systems Prediction Using Machine	3.31 PM	3.45 PM

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Time : 8:45 AM- 10.45 AM TRACK- B1: Computational Intelligence / Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing					
Hall Name : CS-2					
Session coordinator: Prof. Shilpa Bhairanatti					
Session Chair : Dr. Shilpa Chalgeri					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	46	J, Dharman*,Abhishek Joshi, Shaik Vaseem Akram	Multifactor authentication scheme for privacy preserved data security	8.45 AM	9.00 AM
2	55	J, Dharman*,Anita Gehlot, Rajesh Singh	Execution of market basket analysis and recommendation systems in physical retail stores to advance sales revenues	9.01 AM	9.15 AM
3	56	J, Dharman*,Anita Gehlot, Rajesh Singh, Devendra Singh	Classification of HLHS Anomaly images using ANN	9.16 AM	9.30 AM
4	69	J, Dharman*,Nalla Akhila ,Aswadhati Sirisha,P. Dass ,Dr P M Dinesh,T Sujatha,Dr.Amit Kamalakar Gaikwad	Mobile application for water management and monitoring system in residential building	9.31 AM	9.45 AM
5	606	J, Dharman*,Suresh Kumar N, Mr. Raju,	An Analysis of Methods for Processing Large Numbers of Unstructured Data	9.46 AM	10.00 AM
6	608	J, Dharman*, Michael Raj TF, Mr. Yaduvir Singh,	An Exploration on Big Data Analysis and Data Mining Methods	10.01 AM	10.15 AM
7	609	J, Dharman*,S Srinivasan,Mr. Ashutosh Kumar Singh,	A Comparative Study of Artificial Intelligence and Machine Learning In 5G Innovation	10.16 AM	10.30 AM
8	614	J, Dharman*,Mr. Parth Batra,Dr. Vikas Sagar, Mr. Kanishk Kandoi,	An Evaluation of Intelligent Network Data Analytics Based on Machine Learning In 5G Data Networks	10.30 AM	10.45 AM

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Time : 1:45 PM - 3:45 PM TRACK- B3: Computational Intelligence / Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing					
Hall Name : CS-2					
Session coordinator: Prof. Abhinanadan M					
Session Chair : Dr. Raju Rastogi					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	631	J, Dharman*,Deeksha Verma, Ms. Garima Sharma,	Massive Data Management in Healthcare Systems using Edge Computing and Internet of Things	1.45 PM	2.00 PM
2	632	J, Dharman*,Meenakshi Garg,Mr. Krishan Kumar Sharma,	Trust-Aware Certificateless Signature on IIoT Sensors using Blockchain Technology	2.01 PM	2.15 PM
3	633	J, Dharman*,Harsimran Kaur,Mr. Manish kumar Goyal	Secure Data Communication in Vehicular Networks for Disaster Rescue	2.16 PM	2.30 PM
4	634	J, Dharman*,Kushnain Kaur,Ms. Aarti Yadav,	Physically Unclonable Function for Authentication of IoMT Systems using Hybrid Cryptography	2.31 PM	2.45 PM
5	635	J, Dharman*,Harmandeep Kaur,Mr. Jitendra kumar Katariya,	Healthcare Monitoring and Concurrent Medical Service Consultation using Deep Learning and Optimization Techniques in IoMT	2.45 PM	3.00 PM
6	641	J, Dharman*,Dr. PREETAM SINGH GAUR, Deependra Rastogi,	Analysis of the Integration of 5G with Artificial Intelligence	3.01 PM	3.15 PM
7	642	J, Dharman*,Dr Hoshiyar Singh,K M Balamurgan,	Implementation of privacy and security in the wireless networks	3.16 PM	3.30 PM
8	644	J, Dharman*,Rachana Yadav, S Prakash,	An Analysis of how Computer Graphics and Image Processing Are Used in Art Design	3.31 PM	3.45 PM

INCOFT 2022 Programme Schedule

Time : 8.45 AM- 10.45 AM TRACK- C1: Computational Intelligence / Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing					
Hall Name : CS-3					
Session coordinator: Prof. Namrata Korade					
Session Chair : Dr. Lalan Kumar					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	655	J, Dharman*,Dr. Sanjay Pachori, Rashid Khan,	An Investigation into a grid-linked solar–wind hybrid electricity–Internet of things system	8.45 AM	9.00 AM
2	656	J, Dharman*,Mr. Sunil Dubey,Altaf Hasan Tarique,	Cost functions for efficient electric vehicle drive systems	9.01 AM	9.15 AM
3	661	J, Dharman*,Dr. Deepankar Sharma,Kaushalendra Kumar Dubey,	An Examination of Energy Storage Methods and Its Influence on the Development of Future Power Systems	9.16 AM	9.30 AM
4	662	J, Dharman*,Ravi Prakash Upadhyai, Lokesh Garg,	An Integration of the SVC and STATCOM Technologies into Wind-Based Power Systems	9.31 AM	9.45 AM
5	663	J, Dharman*,Upasana Rani,Aanchal Vij,	An Instructional Approach to Power System Operations Utilizing Load Flow Simulations	9.46 AM	10. 00 AM
6	665	J, Dharman*,Ravi Prakash Upadhyai, Aarti Neema,	An Analysis and Development Plan For Photovoltaic Power Systems Both Off-Grid and On- Grid	10.01 AM	10.15 AM
7	666	J, Dharman*,Gautam Singh, Dr. Deepika Chauhan,	A Methodology for Analyzing Frequency Droop Caused By Utility-Scale Solar Plants Operating In a Power System	10.16 AM	10.30 AM
8	667	J, Dharman*,Dinesh Singh, Dr. Sanjay Pachori	Planning for Grid Expansion and Maintaining Reliability in the Context of Electricity Storage	10.30 AM	10.45 AM

INCOFT 2022 Programme Schedule

Time : 11:30 AM - 1:45 PM		TRACK- C2: Computational Intelligence / Antennas & Propogation, Control, Instrumentation and Automation/ Power Electronics / Signal & Image Processing			
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	668	J, Dharman*, Sudhir Kumar Singh, Mr. Vivek Kumar Jain,	An Effective Strategy for the Charging Period of the Batteries in Electric Vehicles	11.30 AM	11.45 AM
2	669	J, Dharman*, J.N Singh, Mr. Brijraj Singh Solanki,	Utilization of Computational Intelligence in the Development of a Health Monitoring System for Induction Machines	11.45 AM	12.00 PM
3	670	J, Dharman*, Gitanjali Mehta, Upasana Rani,	Using Different Methods to Deal with Congestion in Hybrid Electricity Markets	12.00 PM	12.15 PM
4	672	J, Dharman*, Yogesh Kumar, Anil Agarwal,	An Analysis of Effective and Efficient Integration of Distributed Power Generation	12.15 PM	12.30 PM
5	673	J, Dharman*, Gautam Kumar, Mr. Mukesh Kataria,	Implementation of Soft Computing-Based Optimization Strategies to Enhance Power System Stability	12.30 PM	12.45 PM
6	674	J, Dharman*, Ganana Jeba Das, Mr. Prashant Kumar Sharma,	Designing Model of Residential Demand Response Programs by Application of Real-Time Pricing	12.45 PM	1.00 PM

INCOFT 2022 Programme Schedule

International Conference on Futuristic Technologies - INCOFT 2022 (IEEE Conference ID: # 55651)					
Technical Co-Sponsored By					
IEEE BANGALORE SECTION.					
Venue: - S. G. Balekundri Institute of Technology (SGBIT), Belagavi , Karnataka , India.					
Session Schedule					
27th NOVEMBER 2022					
CONFERENCE ORAL SESSIONS SCHEDULE					
Time : 8:45 AM - 10:45 AM TRACK- A1: Computational Intelligence / Antennas & Propogation / Control&Systems / Computer Newtworks/ Power Electronics / WSN					
HALL NAME : Computer Seminar Hall Session coordinator: Prof. Jagadish Jakati Session Chair : Dr. S A Angadi					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	34	Savanur, Sandhya R*; R, Dr. Sumathi	ABSADM - Aspect-Based Sentiment Analysis using Distance Matrix	8.45 AM	9.00 AM
2	119	Shilpa M S,Vaibhav Raina , Jayapriya Srinivas	Metaverse - The New Age Empire Relinquishing Our Identity to Acquire Digital Immortality	9.01 AM	9.15 AM
3	202	DSouza, Terin Nisha*; Venkatesh, Shruti; Y H, Shashank; Tantry, Shashidhar S	Detecting Malfunction of Bias Current for Operational Amplifiers	9.16 AM	9.30 AM
4	212	Singh, Abhimanyu *; Nene, Manisha	Aircraft Detection in Satellite Images revisited concept	9.31 AM	9.45 AM
5	264	M, Harshith; Sr, Gagan; Savadatti, Shridhar; G, Surya; Tantry, Shashidhar S*	DDR Controller with Optimized Delay and Access Time	9.46 AM	10.00 AM
6	288	Goyal, Jhanvi*; AV, Omkar; latha, Soumya; Gaikwad, Ranaveer	Analysis of principal component analysis algorithm for various datasets	10.01 AM	10.15 AM
7	359	Budhrani, Akash *; Singh, Dr. Upasna ; Singh, Bhupendra	Analysis of Windows 11 Link File Artifact for Evidence Gathering	10.16 AM	10.30 AM
8	361	Kumar, Sushil*; Kumar, Crs	Drone/UAVs Surveillance feeds Video Object Recognition Using Transfer Learning	10.30 AM	10.45 AM

INCOFT 2022 Programme Schedule

Time : 1:30 AM- 4.00 PM TRACK A2: Computational Intelligence / Antennas & Propogation / Control&Systems / Computer Newtnworks/ Power Electronics / WSN					
HALL NAME : Computer Seminar Hall Session coordinator: Prof. Jagadish Jakati Session Chair : Dr. P Umashankar					
Sr. No.	Paper ID	Corresponding Author Name	# Paper Title	Start time	End Time
1	366	Chauhan, Sandeep*; Nene, Manisha	Energy Efficient Protocols Leach - GWO VS Pegasus Comparison	1.30 AM	1.45 AM
2	411	Manivannan, S*; Venkateswaran, N.	Brain Tumor Segmentation using 3DResUNET34	1.45 AM	2.00 PM
3	445	Salaria, Ajay*; Kumar, CRS; Mishra, Arun	Security Intensification in Restricted Area By Confining Unauthorized Smart Phone Applications	2.00 PM	2.15 PM
4	467	Hermon, Rahul*; Singh, Dr. Upasna ; Singh, Dr. Bhupendra	Anti-Forensic Technique Using Alternate Data Streams for Data Hiding in NTFS	2.15 PM	2.30 PM
5	531	Baby, Sumi*; pradeep, anju	Reduction of Subthreshold Swing in Zener Tunnelling-Tunnel Diode Partially Depleted Silicon On Insulator	2.30 PM	2.45 PM
6	534	Tapadar, Agniv*; Adhikary, Avishek	Optimal Position of Fractional Order Inductor in Fractional Order Hartley Oscillator	2.45 PM	3.00 PM
7	541	Bhajekar, Mugdha P*; Karandikar, Ankur Y; Joshi, Sarang; Chaphekar, Shalaka N; Karandikar, P B; Bhalerao, Mayank	Comparative Analysis of Symmetrical, Asymmetrical and Hybrid Supercapacitors as a Pulse Current Device	3.00 PM	3.15 PM
8	556	Thakkar, Hardik*; Singh, Bikesh; Gupta, Saurabh; Tikka, Sai Krishna; Singh, Lokesh	DGER: Delta Gamma Energy Ratio as a Biomarker for the Identification of Schizophrenia	3.15 PM	3.30 PM

Abstracts

Paper ID: 4

Design and Development of Toroidal Core Winding Machine with Digital Interface

Shruti Avinash Malpure (Fr. Conceicao Rodrigues Inst of Tech)*; Supriya Bhivsane (Fr. Conceicao Rodrigues Inst of Tech); Shruti Shivadas Nair (Fr. C. Rodrigues Institute of Technology, Navi Mumbai); Bindu R (FCRIT)

Abstract: The small size and inherent superior electrical characteristics of a toroid has made it the first choice for many Original Equipment Manufacturers (OEMs). However, the lack of knowledge regarding the toroidal coil winding equipment is still hampering the growth of toroid as the first choice for transformers, inductors and other electrical applications. Additionally, due to Covid-19 pandemic and lockdown situation, small scale companies are lacking skilled manpower for the high precision task of toroidal core winding and taping. Although the machine is readily available in the market, the cost is still very high. Toroidal core winding machine is an equipment used for the purpose of winding toroidal cores which is used in various electrical machines such as current transformers, power transformers, isolation transformers, inductors and chokes, auto transformers, etc. This project aims to develop a low-cost toroidal winding machine with a user-friendly digital interface for selection of winding parameters as per the user input. The winding machine developed in this project is efficient and reliable with high-speed performance and negligible error.

Paper ID: 5

Performance Optimization of Photovoltaic Systems using Thermoelectric Cooling System

Vikas V Kulkarni (AISSMS College Of Engineering, Pune)*; Vandana Kulkarni (Government Engineering college, Aurangabad)

Abstract: A number of variables, such as the temperature of the PV modules, the amount of solar radiation available, and the buildup of dirt on the solar panels, have an impact on the performance of photovoltaic (PV) systems. One of the most difficult problems impacting the operation of solar systems is temperature rise, which significantly reduces cell efficiency and power production, especially in high concentration photovoltaic systems. This problem is addressed by suggesting and researching a cooling method that makes use of a thermoelectric cooling module. In this study, a Microcontroller thermoelectric cooling system for several solar panel types operating in a wide temperature and irradiation range is shown. It takes into account a wide range of temperature and irradiance values as stated in datasheet parameters, obviating the necessity to purchase and test solar panels in the field. The suggested cooling solution aids in preserving the solar PV panels' efficiency under a variety of temperature and irradiance conditions.

Paper ID: 8

Analysis of Credit card fraud detection techniques using Machine Learning

Divya Sharma (Chandigarh University)*; Sandeep S Kang (Chandigarh University)

Abstract: Banks have been dealing with an increasing credit card default rate as the number of credit card customers grows. As a result, data analytics may help solve the current problem and control credit risks. Predicting a client's future status Choosing between defaulters and non-defaulters is a challenging but crucial task for any bank. The primary goal is to lower the number of non-defaulters among defaulters. This is because the bank can afford to treat non-defaulters as defaulters, but not defaulters as non-defaulters,

because the underlying assumption is that the bank has a stringent no-NPA policy. There are three parts to this paper. In the first phase, we analyzed and cleaned our initial data set. The second portion is devoted to data pre-processing, in which we perform one-hot coding on categorical variables to convert them to a machine-readable format. The third component focuses on selecting an appropriate assessment metric, modelling data sets, and comparing them.

Paper ID: 12

Application of Needleman-Wunsch Algorithm in Image Comparison

Kavya Duvvuri (Amrita School of Engineering, Bengaluru); Harshitha Kanisetty (Amrita School of Engineering, Bengaluru); Jaswanth Kunisetty (Amrita School of Engineering, Bengaluru); Vishwas H.N. (Amrita School of Engineering, Bengaluru)*

Abstract: The Needleman-Wunsch algorithm is a global sequence alignment algorithm that has traditionally been used for DNA, RNA, and protein sequencing. Image comparison is used in multiple applications like distorted face image recognition and color identification. In this paper, image comparison has been introduced as a new application of the well-known Needleman-Wunsch algorithm. The global sequencing algorithm has been used to align images using pixel values. Two image comparison applications have been demonstrated, illustrating the use of the Needleman-Wunsch algorithm. First, the Needleman-Wunsch algorithm has been used for distorted face recognition. Next, traffic light color identification has been performed using the alignment technique. This work provides an insight into the Needleman-Wunsch algorithm and establishes a new application for it.

Paper ID: 21

Integrated Band Stop Frequency Selective Surfaces for 5G Sub-6 GHz applications

*Km. Sonal Bansal (Ajay Kumar Garg Engineering College, Ghaziabad); Abhishek Joshi (Ajay Kumar Garg Engineering College, Ghaziabad)**

Abstract: In this paper, 5G Sub-6 GHz mobile frequencies are demonstrated for band stop using circular frequency selective surfaces (FSS). Achieved band-stop frequencies are analyzed and compared using results attained from software-based simulation. Further designing of integrated FSS to decrease the disturbance of communication system. The results generated are presented, analyzed, and discussed.

Paper ID: 34

ABSADM - Aspect-Based Sentiment Analysis using Distance Matrix

Sandhya R Savanur (GM Institute of Technology); Dr. Sumathi R (Siddaganga Institute of Technology)*

Abstract: Sentiment analysis is a natural language processing approach that identifies the emotional tone of a text body. Aspect-based sentiment analysis is a text analysis technique that identifies the aspect and the sentiment associated with each aspect. Different

organizations use aspect-based sentiment analysis to analyze opinions about a product, service or idea. In this paper, ABSADM, a novel method to perform aspect-based sentiment analysis is proposed. ABSADM uses the concept of distance matrix to determine the sentiment associated with each aspect. Distance matrix is constructed to calculate the distance between aspects and the words expressing the sentiment related to the aspect. It works at the sentence level and identifies the opinion expressed on each aspect appearing in the sentence. It also evaluates the overall sentiment expressed in the sentence. The proposed method can be used to perform sentiment analysis of any opinionated text.

Paper ID: 37

A Coherent Way of detecting pupil's emotions via live Camera using CNNs along with Haar -Cascasde Classifier

Gauri ghule (VIIT); Dr. Pallavi D Deshpande (Vishwakarma Institute of Information Technology, Pune); Archana Ratnaparakhi (Vishwakarma Institute of Information Technology); Shraddha Habbu (Vishwakarma Institute of Information Technology); Snehal Rathi (VIIT pune)*

Abstract: In terms of education, a person's emotions influence their knowledge and ability to follow a show. Educators can use automated measurement of a person's emotions to achieve educational goals and personalize delivery. In this study, we present video-based emotion identification technique in virtual learning programs. The main feelings we detect here are disappointment, disinterest, fear, satisfaction, commitment, sadness, and surprise. Continuity of affect, valence and stimulus states extracted from consecutive video frames, together with a new vector of latent affective and behavioral traits, were used to emotion detection. Deep learning-based temporal models and classical machine learning-based non-temporal models are trained and verified on image-level and video-level features, respectively. Images from the facial expression recognition dataset were used. The results show that the vast majority of methods can detect student learning outcomes. The model presented in this paper can provide technical support for the modeling of learners' emotions in the teaching assistant system.

Paper ID: 46

Multifactor Authentication Scheme For Privacy Preserved Data Security

*Dharman J (Agastiyar Research and Technologies)**

Abstract: Cloud computing is a breakthrough advancement that provides ubiquitous services over the internet in an easy way to distribute information offering various advantages to both society and individuals. Recently, cloud technology has eased everyone's life more favorable. However, privacy-preservation is an important issue to be tackled effectively in cloud environment while retrieving data services. Numerous techniques have been developed so far to verify user identity by exploiting authentication factor, whereas such techniques are inefficient and they are easily susceptible to unknown users and attacks. In order to address such problems, a multifactor authentication scheme is proposed using Hashing, Chebyshev polynomial, Key and One-Time Token (HCK-OTT) based multifactor authentication scheme for privacy-preserved data security in cloud. The entities involved in this proposed approach for effective authentication are user, cloud server, and data owner. The model is developed by considering various functionalities, such as encryption, Elliptic Curve Cryptography (ECC), XOR, and hashing function. The proposed HCK-OTT-based multifactor authentication scheme has achieved a minimum value of 22.654s for computational time, 70.5MB for memory usage, and 21.543s for communication cost with 64 bit key length.

Paper ID: 55**Execution Of Market Basket Analysis And Recommendation Systems In Physical Retail Stores To Advance Sales Revenues***Dharman J (Agastiyar Research and Technologies)**

Abstract: In the early months of 2020, pandemic covid-19 hit many parts of the world. Especially developing countries like India observed a negative growth rate in few quarters of last financial year. Retailing is one of the key sectors that contribute to Indian GDP with a share of nearly 10 percent. Hence there is a need for the retail sector to bounce back which is possible with the efficient use of new digital technologies. Market basket analysis is used here to extract the association rules which can be directly used for formulating discount and combo offers. Along with that, these rules can be used to decide the product positioning in the retail store. Items which are bought together can be placed next to each other to increase sales.

Recommendation systems are most commonly used in e-commerce websites like Amazon, Flipkart, etc, and streaming platforms like Netflix to recommend the items that are to be purchased by users. Although recommendation engines are implemented in multiple web and mobile applications, these are not in the implementation stage in offline retail stores due to many implications associated with them like infrastructure, cost, etc. In this project, we have used market basket analysis and recommendation systems to propose a model to implement in retail stores to increase sales revenues and enhance customer experience.

Paper ID: 56**Classification of HLHS Anomaly images using ANN***Dharman J (Agastiyar Research and Technologies)**

Abstract: Congenital Heart Disease (CHD) is one of the severe structural abnormalities which cause neonatal mortality. The severity of CHD depends on the early stage, moderate stage, and advanced stage of diseases. According to the cardiological society of India (CSI), the variation of incidence is about 74/2000 live births present at the time of birth. Among the different CHD's, Hypoplastic Left Heart Syndrome (HLHS) is considered a significant cyanotic heart disease. HLHS is a congenital disability that affects normal blood flow through the heart. The sonographic marker for HLHS identification is the underdevelopment of the left ventricle. Even though ultrasound devices are there to scan the fetus growth, it is still challenging due to the inherent speckle noise, continuous movement of the fetus and low quality of ultrasound devices used for scanning. So, an optimization methodology is still in demand for these kinds of problems. This paper combines different optimization techniques such as fast non-local mean denoising (FNLM) methodology for reducing the speckle noise, active geodesic contouring to segment the left ventricle for sonographic identification of HLHS and ANN with Bayesian Regularization for classifying the normality and abnormality present in the dataset. The dataset consists of 569 four-chamber view (4CV) ultra sound images for training and testing. The five different features used for evaluation are radius, texture, perimeter, smoothness, and symmetry. 80% of the data are used for training, and 20% for testing. The ANN Bayesian model numerically calculates the mean squared error (MSE) of 0.018 and classifies the abnormality with an accuracy of 97%. This model gives a second opinion for medical practitioners and gynecologists.

Paper ID: 69**Mobile Application For Water Management And Monitoring System In Residential Building*****Dharman J (Agastiyar Research and Technologies)****

Abstract: Water scarcity is one of the major threats to human society. Though there are many reasons for water scarcity like water pollution, drought and global warming, overuse of domestic water is one of the major causes of water scarcity. More than one billion people are deprived of clean drinking water and water for other purposes. One of the main solutions that were found to this problem is rainwater harvesting. Many countries encouraged the citizens to collect the rainwater for further uses. Though the rainwater is preserved, another issue named water over usage comes into existence. Most of the time, the water supplied for domestic reasons may undergo several preprocessing like filtration, osmosis, etc. to ensure the cleanliness of the water. When this water is wasted for petty reasons like washing dishes and watering plants, it may lead to the shortage of freshwater for necessary needs like cattle feeding, food production, farming, etc. Many researchers and scientists have found a lot of techniques and processes to minimize the usage of fresh water in households. This project aims the development of a mobile application that constantly monitors the water usage by a house in a community. There will be a prefixed value for the amount of water each house can use. If the water usage exceeds the prefixed value, the inmates of the house are asked to pay a certain fine amount which is calculated by the number of extra liters used and the prefixed fine amount for each liter. If the fine amount was not paid, the water supply to that particular house will be blocked. All of the above-mentioned processes are monitored by this application. Hardware components like multiple sensors, adaptors, motors are used for this purpose. The whole working of the hardware is controlled by a microcontroller namely Arduino Uno.

Paper ID: 79**Estimating Drought Severity in Maharashtra using Standard Precipitation Index*****Somya Sharma (NIT, Jalandhar)*; Dr. Roop Pahuja (NIT Jalandhar)***

Abstract: Drought is a natural condition caused by the long absence of precipitation. One of the most serious major disasters that affect both humans and animals and the effects of this disaster are being made worse by the increase in water demand and the instability of weather conditions brought on by climate change. As an outcome, drought hydrology has drawn strong interest. In this study, the drought severity during the period 1988 – 2021 analysed in the state of Maharashtra, which is in central India and is most prone to periodic droughts. Meteorological stations provide the spatial and temporal precipitation data of the region needed for the analysis of the drought. This study evaluate the short and long-term Standardized Precipitation Index based upon monthly precipitation data obtained from meteorological stations, to monitor dryness in twelve different districts of Maharashtra. The approach is to analyse the Standard Precipitation Index from the monthly rainfall data of these districts from the period 1988 -2021 and evaluate the severity of the drought pattern in these regions. The SPI value of each district for 1, and 3 timescales for short-term drought while 12 and 36 timescales for long-term drought assessment were calculated for the comparison study. According to a seasonal study, there is a higher probability of extreme drought in the Summer and Rabi seasons than during the Kharif seasons. According to the result, Ahmednagar, Beed, Osmanabad, Aurangabad and Jalna were identified as the most drought-prone districts. Among all the districts Ahmednagar district has the lowest precipitation.

Paper ID: 80**Smart Meters Based Household Electricity Consumption**

*Sultan Hamad Alsaiar (King Abdulaziz University); Saad alsulami (King Abdulaziz University); Yaser Asiri (King Abdulaziz University); Nithiyanthan K Kannan (King Abdulaziz University)**

Abstract: The main objective of this research paper is to investigating the impacts on house hold electricity consumption after installing smart meters than the conventional energy meters. The installation of smart meters in the home not only gives real-time data on power use, but also improves customer services. Consumers become more aware of their energy usages as a result of the smart metering system's ability to track it frequently. The smart meter has the capability of communicating data on power use between customers and providers. It also aids in the tracking of daily power use and the understanding of consumption trends in order to save excess consumption for the consumer's advantage. Intelligent Energy Networks are made up of devices that can do their jobs while using less energy. These devices can also connect to each other and be controlled from a distance. Because of this, some of these devices, like smart energy meters, are becoming more appealing for use in the power generation and distribution industries. This brings the Smart Grids idea to life. But there are other problems that need to be solved before we have a smart grid that works well and is safe. Smart meters will have trouble measuring, controlling, communicating, getting power, showing information, and staying in sync. This research goes into more detail about a thorough definition of what smart meters must have and also looks at how smart meters are used in smart grids right now. By the end of this research paper, the reader should have a full understanding of what smart meters can do now and what they will be able to do in the future to help smart grids deal with their problems.

Paper ID: 82**The Technical Problems and Solutions of Providing Water Supply to a Rural Village at the Most Economical Cost**

Prashobh Karunakaran (University of Technology Sarawak (UTS)); Mohd. Shahril Osman (University of Technology Sarawak (UTS)); Clement Langet Sabang (University of Technology Sarawak (UTS)); Shanti Prashobh Karunakaran (Swinburne University of Technology); Prashanth Prashobh Karunakaran (Swinburne University of Technology); Arjun Prashobh Karunakaran (National Institute of Technology, Tomakomai College); Dylan Greve (University of Technology Sarawak (UTS))*

Abstract: Water is one of the basic needs of humans and various technologies have been developed but despite this, 14% of humanity has a severe lack of water. The root cause can be traced to vendors not utilizing the most economical designs or charging too much such that governments cannot afford them. In addition, though IT has enabled a much easier access to knowledge, it has also resulted in a high proportion of youths lacking in hands-on skills. Available designs include manual or no power input systems as with ram pumps. This research has enabled 36 homes of a rural village in Malaysia to have water supply piped to each home at an electric bill cost of only \$0.5 per month per home. Six major technical problems faced in design and built-up of the project are described. The final system is a 3Φ, 4 HP pump placed near the river on two floats. This pump will push water 120m horizontally and 9m vertically to the Pump House located at one end of the Community Hall which is in a central point in the village. Another 3Φ, 4 HP pump is used to send water from this holding tank to individual homes.

Paper ID: 84**Machine Learning Applied in Identification of Anthracnose and Stem End Rot in Mangoes - Alphonso Cultivar****Akshatha Prabhu (Amrita Vishwa Vidyapeetham , Amrita University)***

Abstract: Computer Vision systems are essential in food inspection lines across packaging industries. High speed and accuracy in sorting fruits is essential. Such systems are modled in automated systems. Identifcyng fruit defects is essential in accessing the fruit quality. Vison systems are essential in mango processing industries since India contributes majorly to the export of mangoes world wide. Defects such as anthracnose and stem end rot are similar when processed visually through naked eye.Differentiating them is important as adequate agricultural practices can be induced at every stage of development of the fruit.In the work, images of defected mangoes were collected in the season. The images were preprocessed, GLCM farures were extracted and classifiers such as SVM and KNN have been applied. The system has achieved average accuracy of 96 % and 94 % respectively on th two classifiers.

Paper ID: 89**Acquisition And Analysis Of ERG Signal For Retinal Disorders**

Arun Karthick Selvam (Sri Sivasubramaniya Nadar College of Engineering)*; Nirmala K (Sri Sivasubramaniya Nadar College of Engineering); Jayashree P (Sri Sivasubramaniya Nadar College of Engineering); Shanmathi R (Sri Sivasubramaniya Nadar College of Engineering); Varsha R G (Sri Sivasubramaniya Nadar College of Engineering)

Abstract: The eyes' electrical response to light is measured by an Electroretinography (ERG) test. Specific retinal signalling channels may be scanned and analysed using an electroretinogram, making the retina an approachable model of neuronal connection in the brain (ERG). In existing technology doctors are placing the electrodes on the cornea (in front of the eye), which leads to patient discomfort. To overcome this issue it was proposed to place the electrodes in the lower eyelid to acquire the ERG signal. The ERG captures the retina's change in voltage over time in response to short bursts of light. The ambient illumination affects the retinal pathways that contribute to the ERG; when dark-adapted (DA) in low light, rod photoreceptors associating with rod ON-bipolar cells and horizontal cells drive the signal path. In general, the initial negative a-wave indicates photoreceptor hyperpolarization in response to light, while the subsequent positive b-wave is an indication of depolarizing bipolar cells. These relative contributions from each cell type combine to form the shape of the ERG. In order to validate the metrics that were analyzed, the acquired data are compared with the online available database for healthy as well as unhealthy participants. As a result the considered parameters contributes to identify the presence of any retinal disorders.

Paper ID: 94**Dual Mode Host-Based and Cloud-Based Smartphone Intrusion Detection System**

Gopala B (Bangalore University); Hanumanthappa M (Bangalore University); Manish Kumar (M S Ramaiah Institute of Technology)*

Abstract: Smartphones are one of the most important devices in our daily life. It produces transfers and stores a significant amount of data about individuals such as banking transactions, authentication credentials, location details, call logs, etc. If the security of

smartphones is compromised, it can severely affect the individual's life. As a result, the security system must be both efficient and dependable. We present a novel dual-mode Intrusion Detection System (IDS) that can operate both offline (without internet) and online (cloud mode). It collects application run-time data and analyses it locally on a smartphone or in the cloud, based on the user's configuration, to predict the app's behaviors and detect any intrusion.

Paper ID: 110

Estimation Of Cardiotocogram Using Fetal Phonocardiogram

Rajeshwari B Siddarameswara (IIT Kharagpur); Rajeshwari BS (IIT, Kharagpur)*

Abstract: Fetal phonocardiogram, or the electronic recording of fetal heart sounds, is a safe and easily available signal indicating fetal well-being. However, due to its low signal-to-noise ratio and poor reliability, it is seldom used to monitor the health of the fetus. Instead alternatives like cardiotocography (CTG) and ultrasonographic examinations are the standard of care, which are costly and cumbersome to perform. In the present study, an attempt is made to obtain a fetal heart rate variability graph similar to cardiotocograph. This graph can be used to observe clinically important parameters like average fHR variability, accelerations, and decelerations. Presence of acceleration or deceleration gives an important clue on fetal health and can be used for continuous monitoring of fetal in risky pregnancy in a less expensive way.

Paper ID: 111

Multi Disease Diagnosis Model for Chest X-ray Images with Explainable AI – Grad-Cam Feature Map Visualization

Shobha Rani N (Amrita Vishwa Vidyapeetham); Nachappa C H (Amrita Vishwa Vidyapeetham); Arun Sri Krishna (Amrita Vishwa Vidyapeetham); Bipin Nair B J (Amrita Vishwa Vidyapeetham)*

Abstract: In this work, we have proposed a deep convolutional neural network model with the background of a network as ResNet and a classification block as a faster RCNN model to predict multiple lung cancer abnormalities from X-ray images. Experimentations are conducted on Kaggle image dataset repositories with X-ray images of about 55000 images comprising of 15 different classes. We have proposed a region proposal network capable of autonomously learning from the pre-trained data specifications and applying a bounding box to cancer-affected regions to detect the affected areas. About 80% of samples were considered to conduct training from each class, and 20% were used for testing. The results obtained have an accuracy of about 96% for classification.

Paper ID: 114

DC Side Voltage Regulation of Three Phase PWM Rectifier Control Using Sliding Mode Controller

Swapnil Y Gadgune (PVPIT Budhgaon); Ashwini Patil (PVPIT Budhgaon)*

Abstract: In applications where power modulation is required, rectifier is used as front end converter. It directly integrates system to the

grid. The Rectifier should provide constant voltage to DC load without introducing harmonics into the power system. The power factor should be maintained unity. For this closed loop control technique is required. In this paper, performance of Sliding Mode Controller based DC link voltage regulation technique is analyzed. The MATLAB /Simulink software is used to prepare the simulation. The results of simulation are also presented.

Paper ID: 116

Depression Prediction: A Clinical Questionnaire and Machine Learning Based Approach

*Afaan Farooq; Sheikh Afaan Farooq (CUK)**

Abstract: Depression is specified as a mental health disease that leads to continual gloomy mood and detached interest in daily tasks, which a person was able to do easily and showed much interest normally, thus crippling a person's daily life. It's important to identify the symptoms of mental health problems early in a person as there are many conditions for which effective treatments work best during the early stages thus preventing the aggravation of the disease. Over the past decade, Machine learning techniques have become immensely popular for examining the medically available data and identifying the root issue. In this work, we also use a machine learning based approach to propose a response-based classifier that uses just a quick questionnaire to diagnose and predict the early onset of depression in a person being screened. The questionnaire used in our approach has been designed strictly based on the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5). In particular, our approach uses the responses made by the person being screened to predict depression, using a non-linear support vector machine (SVM) classifier. In general, the classifier is straightforward, computationally lightweight, and can predict depression with 83.87% accuracy. We also test our proposed method on a Kashmir-based dataset.

Paper ID: 119

Metaverse - The New Age Empire Relinquishing Our Identity to Acquire Digital Immortality

Shilpa M S (SAP Labs India Pvt. Ltd.); Vaibhav Raina (SAP Labs); Jayapriya Srinivas (SAP Labs)*

Abstract: Metaverse or the real world and after. Metaverse is the post-reality universe, an environment merging physical reality with digital virtuality as an evolving paradigm of the next-generation internet that aims to build a fully immersive and self-sustaining virtual shared space for humans to play, work, and socialize. It is based on merging technologies like virtual reality (VR) and augmented reality (AR) that enable multisensory interactions with digital objects, virtual environments, and people. Hence, the Metaverse is an interconnected and unified web of social, networked immersive environments in persistent multiuser platforms.

In this paper, we see Metaverse from a broader perspective, and we present our holistic view by relating the evolution of the Metaverse to the rise and fall of any empire. A series of fundamental challenges can arise in Metaverse security provisioning due to the Metaverse's intrinsic characteristics, which can compromise individual identity. We elaborate on how data privacy will be a concept of the past as we deal with the more serious aspect of identity manipulation or identity loss. We dive deeper into how Metaverse can entice humans to the fantasy of Immortality and, in the process, lose our identity and individuality. Thus, relinquishing our complete control to machines. We will explore the aspect where extreme immersiveness, combined with an autonomous or a self-sustaining virtual universe, can be extremely dangerous to humans if not handled responsibly.

Paper ID: 120**Vanet Based Drivers' Life Emergency Saver*****Sumadeep Juvvalapalem (SRMIST)*; Vadivukkarasi K (SRM INSTITUTE OF SCIENCE AND TECHNOLOGY)***

Abstract: The automobile industry is undergoing a radical transformation to bring out a safe self-driving car that can detect and navigate itself to a destination. The Healthcare industry on the other hand is finding ways to make reliable health parameter monitors through wearables that can monitor vital health parameters, detect abnormalities and communicate to the health care professional for remote management. This paper is an approach concept paper to define mechanisms to integrate wearables with autonomous cars. In this concept, a heart monitoring wearable worn by a lone driver in a vehicle would monitor the heart rate continuously and on detection of pre-programmed abnormal conditions, the micro-controller which is connected to both the sensor and the vehicle's navigation and control system would trigger the car to reprogram the navigation system, identify the nearest hospital and re-route itself towards the specified destination. The microcontroller is also linked to a mobile communication system to alert the concerned stakeholders (family, doctor, etc) about the emergency and the course of action initiated by the system.

Paper ID: 124**Applications of Smart Technologies Regarding Promoting Energy Efficiency and Sustainable Resource Utilization*****Seemant Tiwari (Southern Taiwan University of Science and Technology, Tainan City, Taiwan)****

Abstract: Smart pieces of machinery are probable to perform and progressively indispensable besides valuable character in lecturing today's foremost populace concerns besides arranging the underpinning aimed at an additional sustainable society. The fundamental problem nowadays is alleviating the impressions of climate change, although confirming societal social prosperity remains sustainable. Strong coordination amongst all relevant engineering specialties is required to develop interdisciplinary linkages and thus transcend complicated technical challenges. Extensive experimental activities are aimed at equitable capacity utilization, sustainable power-associated requirements, renewable energy organization incorporation, appropriate responses to empower a corporate sustainability foundation, effective performance assimilation, and perhaps other things that matter to that same inhabitants. Increased competition, effectiveness, a shortage of information essential for optimal allocation, and shifting price and quantity trends pose problems to the energy market. AI technology is incorporated into renewable technology, including predicting electricity, power efficiency, and availability. Choosing the ideal customer to respond again for traits but also needs affordable pricing, planning, controlling infrastructure, rewarding power storage members, and rewarding people evenly and financially are all ways to tackle various issues. This article introduces fresh concepts and examines current difficulties and problems that must contribute to a more sustainable tomorrow based on intelligent technology. The primary outcomes of such an introductory article are a conversation of numerous products and approaches that will direct to more advancement on a variety of topics, including improved efficiency, sustainable and efficient strategic planning, pollution prevention ideas, as well as a conversation of possible steps that will contribute to a healthy long term.

Paper ID: 127**Effect of deposition of different dielectric materials with different oxide thickness on the performance of square gate all around MOSFET****Ritu Yadav (PTU)***

Abstract: In this paper, by varying the oxide thickness and depositing different dielectric materials on p type and n type square gate all around MOSFET (SGAA) is studied. Dielectric engineering and downscaling oxide thickness plays a vital role towards improving the performance of the device. The impact of depositing different dielectric materials such as SiO₂, Si₃N₄ and HfO₂ respectively, on different oxide thickness from 2nm to 5nm and keeping same work function (4.6eV) in both p and n type SGAA MOSFETs is observed. Further performance of SGAA MOSFET is analyzed with different device performance metrics such as ON current, OFF current, threshold voltage, sub threshold slope and DIBL. It is observed that by depositing high-K (HfO₂) on 2nm oxide with 30nm channel length exhibits excellent performance in terms of increased threshold voltage (0.34V), decreased leakage current 10-20A, optimized subthreshold slope and declined DIBL effect.

Paper ID: 132**Multiple Botnet and Keylogger Attack Detection Using CNN in IoT Networks**

Ananthu Suresh S L (Mar Baselios College of Engineering and Technology)*; Anu Susan Philip (Mar Baselios College of Engineering and Technology)

Abstract: Modern electronic devices are developed to be wireless and smart. These devices can communicate with each other and their host servers all day. Constant connectivity helps the user to have a real time knowledge about his/her environment. These devices are called IoT devices. With advancement in technology, cyber threats have also evolved. Latest malwares target IoT networks to steal user information for illegal activities. We are proposing a detection technique to identify most of the modern IoT network threats using CNN and machine learning. Then we are providing an evaluation on its performance by calculating Precision, Recall, Accuracy and F1score. Botnet and Keylogger attacks are considered for this project. Botnet attacks find vulnerabilities in an IoT device and then take control of its operations. Keylogger attacks target the user privacy and confidential credentials like bank records, passwords, etc. The model was able to produce an accuracy of 90%. Finally, we provide a hardware demonstration to show how the IoT devices can detect intrusion attempt when under a botnet attack using Raspberry Pi and Node MCU (ESP8266).

Paper ID: 136**Updating of GIS maps with Change Detection of Buildings using Deep Learning techniques**

Afrose Hussain Mohammad (Velagapudi Ramakrishna Siddhartha Engineering College)*; Ooha Shree Gullapalli (V R Siddharta Engineering College); S Vasavi (VR Siddhartha Engineering College); SC Jayanthi (NRSC, ISRO)

Abstract: In this rapidly developing world, most of the significant growth can be seen in the urban settlements. To keep a record of the extent of this growth, change detection of buildings in the urban areas can be done. With the advent of technology, access to very high resolution satellite images became easier and two temporal images of the same location can be used to detect changes. GIS

mapping transforms geographical data into digital maps that help in easily identifying patterns, trends and relationships. In the proposed methodology, deep learning model such as STANet will be used in which features will be extracted from the bi-temporal images. Residual Neural Network (ResNet) acts as a backbone to this model. The first module will focus on the change detection, calculation of built-up areas changed between the bi-temporal images. The second module will update GIS maps with the changes detected.

Paper ID: 140

Towards Understanding the COVID-19 Specific Patterns in Lung CT Scan Images using Deep CT-NET Framework

Sanjana R Bharadwaj (Amrita School of Arts and Sciences, Mysuru Campus); Shobharani N (Amrita School of Arts and Sciences, Mysuru Campus)*

Abstract: Automated diagnosis of COVID-19 based on CT-Scan images of the lungs has caught maximum attention by many researchers in recent times. The rationale of this work is to exploit the texture patterns viz. deep learning networks so that it reduces the intra-class similarities among the patterns of COVID-19, Pneumonia and healthy class samples. The challenge of understanding the concurrence of the patterns of COVID-19 with other closely related patterns of other lung diseases is a new challenge. In this paper, a fine-tuned variational deep learning architecture named Deep CT-NET for COVID-19 diagnosis is proposed. Variation modelling to Deep CT-NET is evaluated using Resnet50, Xception, InceptionV3 and VGG19. Initially, grey level texture features are exploited to understand the correlation characteristics between these grey level patterns of COVID-19, Pneumonia and Healthy class samples. CT scan image dataset of 20,978 images was used for experimental analysis to assess the performance of Deep CT-NET viz., all mentioned models. Evaluation outcomes reveals that Resnet50, Xception, and InceptionV3 producing better performance with testing accuracy more than 96% in comparison with VGG19.

Paper ID: 141

An Intelligent Classification Model for Camera Captured Unstructured Handwritten Documents with Intra Class Similarities

Suprathi SB (Amrita School of Arts and Sciences , Mysuru Campus); Shobharani N (Amrita School of Arts and Sciences,Mysuru Campus)*

Abstract: The overall aim of this study is to classify camera-captured handwritten document images with intra-class similarities and unconstrained layouts. We investigate at a dataset of real-time handwritten notes that are frequently utilised for academic assessment in higher education institutions. For the classification of handwritten document images, we introduce a deep learning-based methodology. The models used for integration into the proposed workflow for document classification are ResNet50, MobileNetV2, and Inception ResNetV2. A database of 11676 samples from twelve different classes and three different scripts has been obtained for the purposes of experiments. Depending on the subjects, each class of documents is established by determining keyword-based characteristics. The learning performance of deep learning models is analysed in terms of training, validation, and test sets, which are sampled in the ratio of 80 to 20. The results show that document classification is effective with MobileNetV2, with an accuracy of roughly 99 percent for training and validation datasets and 92 percent for test datasets, with average precision and recall of 86 percent and 82 percent for twelve categories, respectively.

Paper ID: 144

Deep Learning Aided Channel Estimation in OFDM Systems

Preethi Gutha (Amrita); Naveena Kota (Amrita school of engineering); Kavya Garlapati (Amrita school of engineering); Yasaswini Swarna Mondreti (Amrita school of engineering); Aswathy K Nair (Amrita school of engineering)*

Abstract: Orthogonal frequency-division multiplexing has become broadly employed in modern communication technology with wireless systems. It subdivides a radio channel together into a significant number of clustered subchannels to provide more reliable data transmission at high rates of speed. Our project is to approximate the communication channel medium using deep learning in OFDM systems. Deep learning has been shown to play a critical role in increasing system performance and lowering computing complexity in today's wireless communication networks. The efficiency of the deep learning model is exploited to conduct channel estimation in the wireless medium. the proposed model is built on the network of Long short-term memory(LSTM) model associated with LS estimates. The profile of the channel estimated using least square (LS) and linear minimum mean square error (LMMSE) through pilot symbols is compared with the proposed model based on LSTM and evaluated using bit error rate (BER) and signal to noise ratio. This study focussed on using fewer pilots to estimate the channel and thereby increasing the spectral efficiency and data rate. The results provide evidence that a deep neural network guarantees a promising channel estimation in comparison with classic algorithms.

Paper ID: 151

Virtual Air Canvas Using OPENCV And Mediapipe

Steffi Rose Sebastian (CMR University); Deepika K (CMR University); Navya MS (CMR University); Ramchandra H V (CMR University); Balaraju G (School of Computing and Information Technology, Reva University)*

Abstract: With the development of Artificial intelligence, the digital world can now be controlled by human gestures. Gestures are non-verbal information used to improve computer language understanding. Virtual Canvas is an application in which we can draw by capturing the gesture of hand and fingers through webcamera. The techniques used in this project is OpenCV and Mediapipe under the category of Computer vision. The language used in this project is Python since it is easy to make use of the syntax and understanding the basics as well as it can be implemented in any OpenCV supported languages. The project works by monitoring to determine the landmarks of hand, then the id's of finger tips are taken for modes like selection, drawing and clearing the canvas.

Paper ID: 153

Classification Of Line To Ground Fault In Transmission Line Using Artificial Neural Network

Sonora Dixit (BIT Durg); Basanta K. Panigrahi (SOA University Bhubaneswar); Soorya Prakash Dr. Shukla (Bhilai Institute of Technology Durg)*

Abstract: This paper focuses on Artificial Neural Networks (ANN) based technique to find out the line to ground faults in a transmission line. Modelling of transmission line is modelled using MATLAB software. For the proposed method data collection, single line to ground

(LG) faults with various sets of load power, the suggested fault classification technique is followed. ANN provided correct classification up to 92.6%. The extracted voltages from point of common coupling are taken out for the training and testing of the classifier. To classify faults on the transmission line, ANN technique uses voltage magnitude as training data. The ANN tool can accurately classify and identify faults. The outcome of the simulation displays the accuracy of the suggested method in a transmission line. The performance of the suggested method is showing good accuracy which is validated by performance plot and confusion matrix. The simulation results indicate that this method is extremely reliable and accurate in the system's tested operating conditions.

Paper ID: 155

Series APF control using IRP Theory with Self-Regulation of DC side Voltage

SWAPNIL Y GADGUNE (PVPIT BUDHGAON)*; Shreyas Kusale (PVPIT BUDHGAON); Chinnala Mallareddy (FTC, Sangola); Anwar Mubarak Mulla (Annasaheb Dange College of Engineering & Technology, Ashta)

Abstract: In Recent years use of converter-based energy efficient devices is tremendously increased. This injects current and voltage harmonics in to the power system. Series APF is used to mitigate voltage harmonics. In this paper, a new control technique is presented. It is able to mitigate harmonics and charge DC side capacitor by itself. It does it without using any battery or any other source. Instantaneous reactive power theory is used to control the Series APF. MATLAB/Simulink is used to prepare simulation. Simulation results are presented, which validates the proposed scheme.

Paper ID: 157

Predicting Tennis Matches Outcomes

Shrihari M Jhawar (IEEE)*

Abstract: Tennis is one of the most popular and most followed game on earth, especially singles tennis. As per the scoring rules of the game and the players style of playing and the location, there can be a wide approach on predicting the outcome of the game. In this research one such predictive approach has been explored. Using various statistical tools like multi-output regression and standard machine learning algorithms like random forest, this research tries to analyse and in turn predict the outcomes of a singles tennis match. This research also aims to analyse and study the various techniques and parameters used to determine the outcome of a tennis match and evaluate the results thus obtained after the application of the proposed methodology. Towards the end the research also aims to analyse and understand the application of this methodology and stress on a few more areas where this methodology would be useful.

Paper ID: 159

Analysis of Cascaded H-Bridge Multilevel Inverter

Gouri Anil Deshmukh (G H Raisoni College of Engineering,Nagpur)*; Vedashree Rajderkar (G H Raisoni College of Engineering, NAGPUR); Pradyumn Chaturvedi (Visvesvaraya National Institute of Technology, Nagpur)

Abstract: The multilevel inverter concept improves the quality of inverter over classic two level inverter. The increasing number of output

level reduces the THD, results improved power quality. Based on the comparative benefits of the popular multilevel inverters, Cascaded H-bridge (CHB) inverter is selected for the analysis purpose. In this paper, considering the ease of sinusoidal pulse width modulation (SPWM) control techniques, both phase shifted (PS-SPWM) and level shifted (LS-SPWM) are used for generating the pulses for the considered inverter. The CHB inverter topology is generally apply for moderate and high power applications. The detailed construction and operating states for single phase 5 level, 7 level and 9 level inverter are presented. The device counts are observed, which shows the complexity for higher levels. But the simulation results for the same carried in MATLAB software depicts the lower Total Harmonic Distortion (THD) for higher level inverter.

Paper ID: 160

Single phase Cascaded H-Bridge Multilevel Inverter Topology

Gouri Anil Deshmukh (G H Raisoni College of Engineering,Nagpur); Vedashree Rajderkar (G H Raisoni College of Engineering, NAGPUR); Pradyumn Chaturvedi (Visvesvaraya National Institute of Technology, Nagpur)*

Abstract: The concept of multilevel power electronic converters is introduced and later widely accepted for medium and high power applications. The numerous multilevel converter topologies are being used as a power converter in various existing applications. Among the widely accepted conventional topologies, the Cascaded H-bridge (CHB) multilevel inverter is investigated in this paper. The CHB inverter with equal as well as unequal DC sources is studied in detailed manner; and the comparative analysis is done for the same. The MATLAB simulation results for CHB multilevel inverter with equal DC sources are presented. The in-phase Sinusoidal Pulse Width Modulation (SPWM) methodology is considered here as a control technique.

Paper ID: 161

Classification of Diabetes using Machine Learning

Nauroz Zaman Naieem Shaikh (Ramrao Adik Institute of Technology); Siuli Das (Ramrao Adik Institute of Technology); Shamal Salunkhe (RAIT Nerul Navi Mumbai)*

Abstract: Iris image analysis is the most productive painless analysis technique which helps to decide the well-being status of organs in clinical diagnosis. Although it is difficult to get an appropriate and timely diagnosis, it is vital for medical science. This study investigates the area of diagnosis. In medical science, various diseases can be distinguished with the assistance of Irido-diagnosis. At first, the images of the eye are captured with the help of a high-resolution iris scanner, and then, the data set is made. The evaluation is based on mapping that utilizes a Jensen diagram. Since each organ is located close to one other during the iris mapping process, it is challenging to distinguish between an organ's normal and abnormal characteristics. Subsequently, the liver condition is diagnosed by using the process of iris mapping and the texture features are discovered using the Gray level co-occurrence matrix method. We have carried out a supervised machine learning algorithm, the k-Nearest Neighbour (KNN) model in the iris recognition framework to classify diabetes. Data is organized into coherent groups by KNN. It divides and groups the freshly entered data based on how closely it resembles previously trained data. The KNN is an effective algorithm and is widely used for classification prediction.

Paper ID: 163

Tomato Fruits Disease Detection Using Image Processing

Jhansy T N (Amrita School Of Arts And Sciences)*; Sudharshan Duth P (Department of Computer Science, Amrita School of Arts and Sciences, Mysore Amrita Vishwa Vidyapeetham, India)

Abstract: Utilizing photographs and machine vision to accurately determine and categorize fruits throughout growing is critical, not only for reducing employment human morphology data evaluations also for optimizing harvest tasks. Computer learning-based approaches have been introduced as the province in several picture classification tasks, and they show a great deal of promise in demanding sectors like farming, in which they can cope with Great Dividing Range in background includes than classic machine vision approaches. The Upgraded KNN and SVM classification techniques were used to recognize tomato fruit illnesses and maturation phases in images taken in a conservatory. Even though the current work's performance measures were obtained utilizing high resolution photos, experimental data on disease diagnosis of tomato fruits employing photos held captive in greenhouses with an Authentic Perception camera have been gathered, and the construction project delivery greater accuracy of disease diagnosis recognition and segmentation of tomato ripening process employing ESVM (Enhanced SVM) with 94.036 percent accuracy.

Paper ID: 164

Efficient Querying And Indexing Of Moving Data Objects

Sudha Chaturvedi (Fair Isaac Corporation(FICO))*; Tapsi Nagpal (Lingayat Vidyapeeth, Faridabad)

Abstract: Spatio-Temporal database deals with the change in position of moving objects over time. In order to ease the capturing and storing of the information about moving object, a new data type has been defined which stores the position and time as a single entity. This data type forms the basis for defining some Spatio-temporal predicates. As some Spatio-temporal queries are very difficult to write in SQL, there is need to extend SQL by defining some Spatio-temporal predicates, to make the queries simple and easier to write. To execute the queries efficiently, there is need to implement proper indexing technique. We also described about Spatio-temporal indexing techniques which is made on Spatio-temporal data type. Performance and comparisons shown by Spatio-temporal indexing technique with spatial and temporal indexing on different attributes.

Paper ID: 168

Analysis of SSDP DRDoS Attack's Performance Effects and Mitigation Techniques

Bahman Sassani (Sarrafpour) (Unitec Institute of Technology)*; Akarsha Palle (Unitec Institute of Technology); Sujan Dhakal (Unitec Institute of Technology); Sanjaya Bobuwala (Unitec Institute of Technology); Andrew David (Unitec Institute of Technology)

Abstract: A Denial of Service (DoS) attack is an attempt to prevent a legitimate from accessing a machine or network resources using various methods, including consumption of network resources by flooding the target machine with a massive number of packets and delaying or denying the legitimate packets to go through, or disruption of configuration or state information.

Paper ID: 169

Human Activity Detection Using POSE NET

Poojashree B S (Amrita school of Arts and science); Sudharshan Duth P (Department of Computer Science, Amrita School of Arts and Sciences, Mysore Amrita Vishwa Vidyapeetham, India)*

Abstract: Human detection and tracing is the particular key study region that has attracted a many attention in recent years. Despite the fact that commercially available technologies for human identification and counting are now available, further experimentation is required in order to address the challenges. Abnormality detection, commonly called automated video surveillance, is the way of noticing and describing human behaviour and interactions in a crowded setting. People must be discovered and tracked in order to maintain reliability, welfare, and site management. Object identification is a critical stage in abnormality detection and automated video surveillance. Background subtraction is a technique for detecting human actions in video segments. The frequent technique for distinguishing moving objects from motionless images Background subtraction is the technique of detaching foreground objects from the background in a sequence of video frames, as the label implicit. In this scenario, the primary purpose of abnormality detection is to recognise and track a moving object using video recorded images and pose net.

Paper ID: 172

Intelligent Accident Detection and Alerting System based on Machine Learning over the IoT Network

Gopal S Rathod (G. H. Raisoni College Of Engineering Nagpur); Rani Tiple (G H Raisoni College Of Engineering Nagpur); kapil Jajulwar (G H Raisoni College Of Engineering Nagpur)*

Abstract: Traffic accidents are increasing daily as the number of automobiles rises. An annual global death toll of 3 million and an injury toll of 55 million are reported. The absence of emergency treatment at the scene of the accidents or the lengthy responding period during the emergency effort are the main causes of deaths. We can reduce waiting time for rescue operation which has the potential to saving several people life's by using a cognitively assistant for detecting accident and make alarm to traffic observer or rescue team. Transportation systems were gaining significant attention in industry and academics because to the increasing demand of intelligence urban centers and were seen as a way to increase traffic security in these areas. This study presented a smart accident detection model for rescue team based on Internet of Things and machine learning. An Internet of Things module is designed that can recognize an accident, gather all accidental data, including location, pressure, force, speed, and more, and transfer all the related data to the cloud. Machine learning model is utilized in the clouds to verify the IoT module data and enable the emergency module after the any accident is recognized.

Paper ID: 189

Stochastic Flash Analog to Digital Convertor Compared with Conventional Resistor ladder Flash Analog to Digital Convertor

Anjikumar Mekala (CVR College of Engineering); Snehalatha G (CVR College Of Engineering)*

Abstract: A group of comparators and a Wallace tree adder make up the stochastic flash analogue to digital convertor (ADC) in this

study. In order to demonstrate how power, speed, and area may be decreased utilizing offset voltage in design, a comparison between stochastic flash ADC and Resistor ladder flash ADC is presented in the study. A resistor string is used to set each comparator's trip point in a standard resistor ladder flash ADC. Random comparator offsets are compressed into digital cells by a stochastic flash ADC. A wide range of comparator offsets are compressed into digital cells by a stochastic flash ADC. A wide range of comparator offset is produced when using comparators that are implemented as digital cells. This is typically seen as a drawback, however in our situation the wide standard deviation of offset is employed to define the input signal range. The reference voltage is lower and the analog signal is always "1" if the input offset voltage of a comparator is greater than the input range of its comparator group. To produce digital output, one uses the Wallace tree adder. In a 90nm CMOS process, a stochastic flash ADC has been implemented.

Paper ID: 192

ASIC Implementation and Comparison of Recursive Filter using Different Adders For ECG Application

Subha Sri Thiruveedhi (CVR College of Engineering); Radhika P (SRM Institute of Science and Technology, Kattankulathur, Chennai); Yedukondalu Kamatham (CVR College of Engineering); Arjula Roshini (CVR College of Engineering)*

Abstract: The design of a recursive FIR filter for Electrocardiogram (ECG) and Digital Signal Processing (DSP) applications is presented in this paper. The electrocardiogram (ECG) is a biological signal that is frequently employed and plays a significant role in cardiac analysis. Noise with electrical or electrophysiological roots can often interfere with electrocardiogram signals. Any portable health monitoring device, including a battery-powered ECG device, must be carefully designed while considering challenges such limited device size, power consumption, and cost. The formal recursive filter removes unwanted noise from the ECG signal, but it uses more power and has more regions, so a different, better power- and region-efficient recursive filter is introduced. The most essential element of any electronic device has traditionally been the arithmetic and logic unit. In the most significant advances, an arithmetic and logic unit requires an effective algorithmic operation, like multiplication and addition, in order to be significant. The design and efficiency of the recursive filter heavily relies on the adder and multipliers. This Paper involves designing a low area and power efficient recursive filter using different adders like Conditional Sum Adder (CSA), Koggstone (KS) Adder, Divide-and-Conquer Tree (DCT) Adder and Fast-Parallel Adder (FP) and a comparison is made among various factors like power, area and slack. All designs are designed using Verilog HDL, simulated using Cadence - NCHDL simulator, synthesized using Genus Synthesis tool and finally GDS II file is taken from Cadence – Innovus tool.

Paper ID: 195

Classification of Lung CT Scan Images using Machine Learning

Nivedita A Pande (YCCE, Nagpur); Ritik Pusdekar (YCCE, Nagpur); Kajal Mitra (NKP Salve Institute of Medical Sciences & Research Center Lata Mangeshkar Hospital, Nagpur)*

Abstract: Timely discovery of COVID-19 may safeguard numerous diseased people. Several such lung diseases can turn to be life threatening. Early detection of these diseases can help in treating them at an early stage before it becomes threatening. In this paper, the proposed 3D CNN model helps in classifying the CT scans as normal and abnormal, which can then be used to treat the patients after recognizing the diseases. Chest X-ray is fewer commanding in the initial phases of the sickness, while a CT scan of the chest is advantageous even formerly symptoms seem, and CT scan accurately identify the anomalous features which are recognized in images. Besides this, using the two forms of images will raise the database. This will enhance the classification accuracy. In this paper the model used is a 3D CNN model; using this model the predictions are done. The dataset used is acquired from NKP Salve Medical Institute,

Nagpur. This acquired dataset is used for prediction while an open source database is used for training the CNN model. After training the model the prediction were successfully completed, with these proposed 3D CNN model total accuracy of 87.86% is achieved. This accuracy can further be increased by using larger dataset

Paper ID: 196

Stock Price Prediction using LSTM-ARIMA Hybrid Neural Network Model with Sentiment Analysis of News Headlines

Darshil Shah (PES University); Nityam Churamani (PES University); Mahim Dashora (PES University); VR Badri Prasad (PES University)*

Abstract: Financial markets are extremely volatile, which ends in people losing their money within the exchange. Our project- Stock Price Prediction using LSTM-ARIMA Hybrid Neural Network Model with Sentiment Analysis of News Headlines, is one amongst the many approaches to unravel the matter and predict accurate stock prices. Due to the noise and volatility of the stock market, timely market prediction is typically regarded as one of the most difficult challenges. We suggest a deep learning-based stock market prediction model that takes investors' emotional tendencies into account to overcome these issues. This paper uses a unique method to predict next day's final stock prices using a combination of Long Short Term Memory (LSTM), Auto Regressive Integrated Moving Average (ARIMA) statistical model and Sentiment analysis. This project will mainly provide an insight to traders and investors about future stock prices, thus helping them make the right decisions. They are going to thus be able to minimize the loss of their money and resources.

Paper ID: 199

Study of Microvascular Morphology from Optical Image of Nailfold Capillary using Image Processing Techniques

*Nirmala K (Sri Sivasubramaniya Nadar College of Engineering)**

Abstract: Nail fold capillary angiography (NFC) is a non-invasive imaging technique used to assess the capillary circulation in the nail fold regions. A disease's diagnosis and prognosis can be improved by characterizing abnormalities in the microvasculature. Capillary angiography is often performed as the primary indication for patients with suspected microcirculatory disorders such as Raynaud's phenomenon. In the areas of pathology assessment and treatment planning, microscopic findings of capillaries based on microcirculation studies might be beneficial. Capillary angiography of the nail folds provides an important assessment of clinical practice and research. The presented work focuses on video nail fold capillaroscopy and the image processing approach for measuring the capillary dimensions in the nailfold region. Using image processing algorithms the optimum enhancement filters and segmentation methods are identified to segment the nail fold capillaries. The wiener and bilateral filter are used to enhance the image and further morphological operations are employed to identify and segment the boundaries of the capillaries. The dimensions of the capillary such as the length, width, and the distance between the two loops are measured which can be used for further particular disease analysis.

Paper ID: 202**Detecting Malfunction of Bias Current for Operational Amplifiers**

Terin Nisha DSouza (PES University)*; Shruti Venkatesh (PES University); Shashank Y H (PES University); Shashidhar S Tantry (PESIT - Bangalore South Campus)

Abstract: Supply chain attacks have evolved from being limited to digital circuitry to now attacking analog circuits since they are easier to reverse engineer. Hackers who know one or two circuit characteristics or parameters can determine the key. The aim of this paper is to accomplish logic locking on analog ICs, locate vulnerabilities, and exploit them for some known analog circuits, causing the circuit to malfunction. The objective is to find or extract a key which enables the circuit to function suitably. This is achieved through performing logic locking on an operational amplifier using an encoder and a resistor switch. The corresponding bias current values are determined based on the 4-bit output code from the encoder and the value of the resistors, and the requisite gain and cut - off frequency can be obtained.

Paper ID: 205**SIEM Integration with SOAR**

Anish Sridharan (Amrita School of arts and sciences)*; Kanchana V (Amrita Vishwa vidyapeetham)

Abstract: The reliance on basic perimeter controls is coming to an end, as it is no longer reliable to rely solely on the firewall, intrusion detection system, or antivirus. Sophisticated cyber threats have emerged as a significant adversary in the cyber space. These advanced cyber threats include "zero-day," social engineering tactics, or advanced evasion techniques to avoid detection. As of now, today's technology has accumulated a large amount of data, which necessitates the use of an effective tool for "control, monitoring, and defense against potential threats. As a result, enterprises have resorted to building SOCs to combat these advanced threats, and as an add-on to the SOC, enterprises

implement SOAR as well, as it has its own benefit of reducing SOC Alert volume by identifying duplicate cases. The SOAR playbook aims to reduce the amount of manual work required, potentially reducing threat and vulnerability response times.

Paper ID: 209**Comparative Study of Clustering Algorithms in Parallel and Serial Environments**

Hemachandran B (Vellore Institute of Technology)*; Pavan Rakesh Reddy Chirla (Vellore Institute of Technology); Harsha Vardhan Reddy D (Vellore Institute of Technology); Kannadasan R (Vellore Institute of Technology)

Abstract: Machine learning has become a core part of computing and has affected countless sectors with better implementations of existing systems. Machine learning algorithms use various methods to organize and learn from data and Clustering is one such method. Clustering as the name suggests, forms different clusters of data from the dataset based on the characteristics. However, clustering datasets could be onerous and might become worse when the number of clusters or if the number of data points is increased. Parallelizing the algorithms is one way by which the time taken can be reduced. Clustering algorithms can be parallelized by optimizing

the algorithm to make use of multiple CPUs or multiple cores of a single CPU by sharing the workload. This paper focuses on the performance analysis of parallelized clustering algorithms and other mainstream clustering algorithms. DBSCAN (Density-Based Spatial Clustering of Applications with Noise), K-Means, Mini-Batch K-Means, Mean Shift are the chosen algorithms from different types of clustering to diversify the comparison. This paper will provide a comparative analysis of the performance between the different clustering algorithms by controlling the environment to either be single or multi-threaded.

Paper ID: 211

Quantifying Relative Turbidity Levels Using Image Processing Techniques

R.M. Harish (SSN College Of Engineering); Lokesh T (SSN College Of Engineering); Vidyarth V (SSN College Of Engineering); Balanagajyothis V (National Institute of Ocean Technology); Prabhakaran K (National Institute of Ocean Technology)*

Abstract: Since the past decade, underwater imaging has become an important area of research as it finds widespread applications in the fields of seafloor exploration, resource mapping etc., with the help of Manned and Unmanned underwater vehicles. But the quality of images captured underwater majorly suffer due to light attenuation and scattering, the latter of which is caused primarily due to turbidity. The main objective of this paper is to quantify the relative turbidity present in the acquired underwater image. In this work a three step image enhancement process, which are threshold, contrast limited adaptive histogram equalization and color balancing are carried out. The third stage output is taken as one of the reference images for estimation of turbidity level of the acquired image. The other extreme is created by extraction of an appropriate region of interest from input image whose pixel intensity is averaged and set as the most turbid image. This model is translated into a working user interface application which is tested using different images acquired in varying light conditions over a wide range of depths up to 3000m to validate the efficacy of the proposed methodology. The proposed technique can be used in underwater control systems for navigation and mapping in the given location, where it is impervious to use an appropriate model that is best suited for the water conditions.

Paper ID: 212

Aircraft Detection in Satellite Images revisited concept

Abhimanyu Singh (Defense Institute of Advanced Technology); Manisha Nene (Defense Institute of Advance Technology, Pune)*

Abstract: Object detection is one of the key areas for all the researchers in the field of computer science. The research is to find the types of objects in the image and provide their temporal and spatial characteristics. In the recent times there have been a lot of improvements in the field of satellite image detection with varying data sets being available and has left high impact on the performance of such analysis. A number of algorithms have evolved over a period of time in object detection and analysis namely different versions of YOLO, CNN, DETR etc. There is a need to deploy a study which enables the performance comparison of different versions of these algorithms on specific data set to understand their efficacy. The study in the paper contributes to understanding, evaluating and analyzing the performance characteristics of YOLO v7 algorithm with varying parameters.

Paper ID: 217**Identification of Potholes using Yolov4 and Darknet**

Naitik D Jain (Bharatiya Vidya Bhavan's Sardar Patel Institute of Technology)*; Samveg Shah (Sardar Patel Institute of Technology); Ameya Mahesh Ranade (Sardar Patel Institute of Technology); Sudhir Dhage (Sardar Patel Institute of Technology)

Abstract: Potholes and other pavement distresses are a matter of concern. Potholes not only cause harm to the vehicles but also endanger the lives of the people driving the vehicles. These potholes not only cause accidents that take lives but also cause minor back injuries that can become serious over a period of time. In India, as reported by the Ministry of Road Transport and Highways (MoRTH) around 5000 passengers are killed every year in road accidents caused by potholes. Pothole identification has been dependent upon manual detection, which is neither cost-effective nor time efficient. In this research study, we aim to accurately detect potholes with the help of two open-source datasets. We also intend to explore and compare various deep learning models to determine the optimum approach to detecting potholes in this work. After randomly mixing datasets to produce a combined dataset, we implemented variations of the YOLO model to improve efficiency.

Paper ID: 220**Multi Classification of Rolling Bearing Conditions based on Random Forest Classifier Model**

sujit kumar (NIT Nagaland)*

Abstract: In rotating machines, roller bearings have always been an important mechanical component and are prone for frequent inner race or outer race damages. Therefore, accurate and automatic classification of bearing conditions becomes significant for effective maintenance of machines. Traditionally, vibration features from raw data are extracted, faults are diagnosed and then classification is made. However, capture of dynamic information in vibration data during different operating conditions using traditional methods has been a serious challenge which leads to necessity of intelligent ingestion and processing of vibration data for classification of bearing conditions. The intelligent fault classification of rolling bearing faults based on Random Forest is proposed in this paper. The proposed model correctly classifies the different types of faults at different running conditions in real operation conditions, and the results are compared with existing techniques. The performance of the model is evaluated with various performance metrics such as Precision, Recall, F1- score and Accuracy. Better results are obtained from the proposed Random Forest model than from the existing work.

Paper ID: 224**Multi-Disease Prediction System using Machine Learning**

Vaibhav Raheja (NMIMS)*; Purav Ashok Patel (NMIMS); Mayank Shetty (NMIMS); Viraj N Shah (NMIMS); Manisha Tiwari (NMIMS)

Abstract: Chronic diseases are depicted as conditions that require proceeding with medical consideration, limit everyday exercises, or both. Chronic diseases, for example, heart disease, pneumonia, kidney disease and diabetes are the main sources of death and disability on the planet. It is a critical challenge to detect these diseases by regular clinical data analysis. Early prediction of these chronic diseases would help in saving multiple lives. Machine learning models bring effective solutions for accurate predictions and decision making. Machine learning techniques have shown huge development in the medical industry. The paper attempts to do the predictive analysis

of chronic diseases using machine learning. Chronic Kidney Disease will be predicted using Logistic Regression and Random Forest, Diabetes can be predicted using Logistic Regression (LR) and K-Nearest Neighbour (KNN), Heart Disease can be predicted using Random Forest Regression and Decision Tree and finally for Pneumonia can be predicted using a Convolutional Neural Network (CNN) on chest x-rays. An integrated model of the listed algorithms is proposed to predict the listed chronic diseases.

Paper ID: 227

Water bodies detection and classification from VHRS images

Somanadh Reddy Nagella (Velagapudi Ramakrishna Siddhartha Engineering College)*; Roshitha Makula (Velagapudi Ramakrishna Siddhartha Engineering College); Tejomai R (Velagapudi Ramakrishna Siddhartha Engineering College); S Vasavi (VR Siddhartha Engineering College); SC Jayanthi (Velagapudi Ramakrishna Siddhartha Engineering College)

Abstract: The detection of water bodies from satellite imagery has many applications, paving the way for a variety of innovative research that contributes to the efficient use of natural resources in sustainable development. The extraction of water mass data from the range of satellite images such as pixels, MODIS images, SAR images and LANDSAT TM images has been explored by several researchers during the past decade using statistical algorithms, methodological and rule-based. Nevertheless, extracting and detecting water body data from high-resolution satellite images is still a persisting problem because of artificial features, the shadow effect of buildings, fake features. Water body detection in high-resolution satellite images is a challenging task due to the changing interference caused by multiple imaging conditions and complex land backgrounds. The prominent aim of this work is to identify water bodies and classify the various water bodies such as lakes, ponds, rivers etc from VHRS using deep learning algorithms.

Paper ID: 235

Neural Network Optimized Medical Image Classification With a Deep Comparison

rohit sai (CMR College Of Engineering And Technology)*

Abstract: Before releasing an item, every news website organizes it into categories so that users may quickly select the categories of news that interest them. For instance, I frequently visited news websites and click on the technology section because I want to read about the most recent technological developments. You might prefer to read about politics, business, entertainment, or even sports if you don't enjoy reading about technology. The content administrators of news websites currently classify the news stories by hand. However, in order to save time, they can also incorporate a machine learning model on their websites that reads the news headline or the news's content and categorizes it. Information from high-profile sources as well as inadvertent and unconscious mechanisms, people to apply to any news that is detrimental to their viewpoints. In this project, we'll create an LSTM model to determine whether a particular news item is authentic or not. Based on information in the dataset. Data will be gathered using the " pandas-datareader " package with an API to ensure that the data is current and we are not left behind. TheLSTM module is subsequently trained using the preprocessed data. The output of the test data will then be predicted and plotted. The authors main aim is to do a comparison between the LSTM method and the GRU method and find which performs better.

Paper ID: 242**Framework for Near Field Communication Controller Interface Protocol over Virtual IC*****Samhitha A (R V College of Engineering)*; Sharadadevi Kaganurmath (R V College of Engineering); Swetha S Rajulu (NIELIT)***

Abstract: Near Field Communication (NFC) is a short-range wireless connectivity technology used to transfer various types of information quickly and easily between two NFC-enabled devices, when held close to each other. NFC host software or middleware software (software that connects the host application to the NFC system) testing involves interaction with the NFC hardware system. In unit testing, developers often deal with software artifacts that have many dependencies while writing automated unit tests. In these cases, one has the option to instantiate the dependencies or use mock objects to simulate the expected behavior of the dependencies. The proposed NFC Mock Framework is a software application that is used to mimic the behavior of an NFC Controller and also eliminate the hardware dependency for handling various NFC use cases like the positive, negative, and error cases for Middleware testing. Middleware or Host software testing can be made feasible even in the absence of an NFC Controller by replacing the transport layer of NFC with a Mock Framework.

Paper ID: 243**Analysis of Emotions from Speech using Hybrid Deep Learning Network Models*****Chevella Anil Kumar (VNR Vignana Jyothi Institute of Engineering and Technology)*; Anitha Sheela Kancharla (Jawaharlal Nehru Technological University Hyderabad); Vodnala Naveen (VNR Vignana Jyothi Institute of Engineering and Technology)***

Abstract: In today's advanced digital world, Emotion plays an important role for communication to understand better each other in virtual environment and for Human to Machine Communication. Research has revealed the powerful role that emotion plays in shaping human social interaction. This has opened up a new research field called Automatic Emotion Recognition, having basic goal to understand and retrieve desired emotions. In the past several biometrics have been explored to recognize the emotional states such as facial expressions, speech, and physiological signals, etc. However, several inherent advantages make speech signals are good source for affective computing. The primary objective of this study is to assess various emotions from speech using Deep learning algorithms (CNN and LSTM). Traditional/Machine Learning approaches rely on manual feature extraction before classifying the emotional state, whereas Deep Learning networks widely used for emotional classification due to their advanced feature extraction mechanisms. In this implementation, we will use the most advanced hybrid deep learning models 1-D CNN+LSTM and 2-D CNN+LSTM, to extract features and classify seven distinct emotions based on their input data. Using the Emo-DB standard dataset, we trained and test the proposed network model and achieved a maximum accuracy of 91.51% and 95.52% for 1-C CNN+LSTM and 2-D CNN+LSTM respectively.

Paper ID: 246**Mizo to English Machine Translation: An Evaluation Benchmark*****Vanlalruata Hnamte (Mizoram University)*; H Thangkhanhau (Govt. Zirtiri Residential Science College); J. Hussain (Mizoram University); Chawngthu Lalnunmawii (Mizoram University); Laldinsangi Tlaisun (Mizoram University); Vanlal ruata (Mizoram University)***

Abstract: Speech is the most natural method for people to convey emotions and communicate. Traditional input techniques are used for machine communication. Communication across distinct regional languages is always unavoidable and takes significant technological effort to make meaningful and effective understanding. Methods of Machine Translation (MT) have been developed in an effort to circumvent this obstacle. Neural Machine Translation (NMT) is one of the projects that has lately seen a significant improvement in terms of human judgement compared to traditional methods such as phrase-based machine translation (PMT) and statistical machine translation (SMT). Therefore, developments in NMT have an influence on the perceived difficulty of humans. Numerous internet translation and mobile application solutions, such as Google Translate, etc., were created to solve this issue. However, such simple translation methods are not accurate for the parallel Mizo-English languages. In this research, we have attempted to improve language translation by using the superior capacity of NMT to boost the Mizo-to-English translation in the BiLingual Evaluation Understudy (BLEU) measure and achieved 42.65 BLEU Score on the 4 grams. Publicly available Mizo-English corpus was developed.

Paper ID: 248

Detection of Disease Through Clinical Data Using Light Intensity Based Firefly Algorithm

Bibhuprasad Sahu (Department of Artificial Intelligence and Data Science, Vardhaman College of Engineering (Autonomous), Hyderabad); Swarupa Pattnaik (Gandhi Institute for Education & Technology, Bhubaneswar, Odisha); JVR Ravindra (Vardhaman College of Engineering); Sasmita Pani (Balasore College of Engineering and Technology)*

Abstract: In this study, we presented a hybrid gene selection model based on a novel multi-filter(MF) ensemble technique and light intensity difference-based Firefly Algorithm. A multi-filter (ReliefF, Fisher Score, SU (Symmetrical Uncertainty), CFS (Correlation-based Feature Selection)) is applied to the original micro-array dataset to evaluate the best-ranked feature subsets individually. Ensemble multi-filer coupled with light intensity difference based firefly algorithm to achieve the optimized feature subset and at the last performance, evaluation is done using Support vector machine (SVM) by considering three different kernel parameters. From the experimental analysis, it is noteworthy to assure that the proposed methodology performs better than the existing approach. In this paper ensemble, a multi-filter method is used by implementing the concept of correlation-based redundancy, and a Modified firefly algorithm (FA) called Light Intensity Difference Based Firefly Algorithm(LFA) is used as a wrapper to identify the optimal high-ranked feature subsets. So the selected subsets will be more robust for classification purposes. The correlation-based redundancy approach is used for the multi-filter case, where the top n genes of individuals are identified and a new dataset is prepared, which will be considered as input for the wrapper method. The main drawback behind considering this single filter may be trapped into the local optimum and may increase the complexity of the wrapper which may reduce the performance of the proposed model. Using multifilter(MF) not only considers all possible combinations of feature subsets by considering more than one filer but also provides a better opportunity to achieve better classification accuracy.

Paper ID: 249

Temperature Sensitivity Analysis of Graded Channel Si-Nanotube FET based on DC and Analog Parameters

*Ashima Rai (NIT Delhi)**

Abstract: Nanotubes have been found out to have better gate controllability than nanowire FETs. Hence, in this paper we analyze the behavior of nanotube based graded channel device at varying temperatures (250K and above). The results depict very slight changes in the DC parameters and for the analog parameters the device is seen to perform better at lower temperatures however, even at higher

temperatures its performance is still adequate. The suggested graded channel nanotube FET has shown to be a good competitor for low-power and high-frequency applications at the nanoscale.

Paper ID: 253

Implementation of Voice Based E-Mail System for Visually Challenged

*Bhavani V Patil (RVCE)**

Abstract: The advancement of technology and its infinite possibilities have made it unavoidable for current generations to fully utilise Internet technology. Email, as one of the most extensively used features of the Internet, serves as a basic requirement. Despite the availability of various screen readers, visually impaired users face challenges when using the internet. The research intends to provide them with voice assistance. The goal of Voice Based Email for the Visually Impaired is to provide easy and efficient access to emails. Anyone can use this application, which is based on the usage of speech and text recognition modules, to manage their email accounts and conduct useful functions like reading and sending using only their voice. The device's output voice commands to the user, and the user will respond. Speech and text recognition technologies are thus used in this work. The Speech Recognizer, also known as Automatic Speech Recognition, transforms audible words into text, making email composition simpler. The system reads out the message's received with subject and body of the mail through the Text recognizer.

Paper ID: 255

Exploration Of Wine Features Using Data Analytics

Gaurang Sitaram Patkar (Lincoln University College); Midhun chakkaravarthy (Lincoln University College)*

Abstract: The quality of wine is very important for business owners and customers. The wine quality using the traditional method is time-consuming and not accurate. Machine learning algorithms are frequently used to replace human grading. There are various factors that can be used to find/predict the wine quality, but not all of them are significant for improved prediction. As a result, the focus of this article is on which wine characteristics are critical for achieving a favorable result. We employed five methods to create the classification model and evaluate the important features: decision tree, random forest, Gradient Boosting, XGBoost, and AdaBoost. Finally, it is demonstrated that the random forest and XGBoost perform better than the decision tree, Gradient Boosting, and AdaBoost in terms of prediction results.

Paper ID: 258

A Transparent Rule-Based System for Parkinson's Disease Management

Arpita Nath Boruah (Alliance University); Saswati Debnath (Alliance University); Dr. Saroj kr Biswas (NIT Silchar)*

Abstract: Modern living styles and a failure to maintain one's health can cause a person to develop the medical problem known as

Parkinson's disease. A little region of the brain that controls a person's posture, movement, and emotions is affected by this disorder. Although PD typically affects the elderly, it has evolved over time into a chronic condition that can affect anyone. Numerous studies have been conducted to control the disease in light of its severity, and it would be a significant accomplishment if an expert system could pinpoint the main causes of PD. As a result, this paper suggests a system of experts called the Risk Factors Analysis for PD (RFA-PD), using the rules produced by a decision tree to find the main risk factors for PD. RFA-PD encompasses of 5 stages: Class-Balance, Generate-Rules, Select-Rule, Prune-Rule and Identify-Risk Factor. The positive class to negative class ratio in the PD data may be highly skewed, necessitating the adoption of class imbalance remedies. In the Generate-Rules stage, decision rules are derived from a decision tree, and in the Select-Rule stage, transparent decision rules are selected. In the subsequent Prune-Rule stage, the unnecessary and ineffective rules from the rule set are removed and consolidated into a single rule. The primary cause(s) of PD are determined in the final phase. The testing is based on the UCI Parkinson's Disease Speech dataset.

Paper ID: 261

Human Activity Recognition Using Machine Learning Technique

Keerthana S (Sri Krishna College of Engineering And technology); Mouna Rangeetha V (Sri Krishna College of Engineering And technology); Kaveena K (Sri Krishna College of engineering and technology); DEVID (Sri Krishna College of Engineering And technology)*

Abstract: COVID has made education shift towards online mode. In online mode, instructors have a hard time keeping track of their students. Students' performance in online classes falls considerably below the level of learning due to a lack of attention. This initiative aids in the supervision of students during online classes. Artificial Intelligence (AI) models are being developed to better recognize student activities during online sessions. Many applications rely on determining an individual's mental state. When evaluating which subtask is the most challenging, a quantitative measure of human activity while executing a task can be helpful. Thus, the goal of this research is to create an algorithm that uses EEG data gathered with a Muse headset to measure the amount of cognitive intelligence of students during online classes. The data collected by the Muse headset is multidimensional, and it is pre-processed before being fed into machine learning algorithms. Using feature selection, the dataset's dimension is now reduced. The model's precision and recall were calculated, and a confusion matrix was created. The Support Vector Machine produces better outcomes in the experiment.

Paper ID: 264

DDR Controller with Optimized Delay and Access Time

*Harshith M (PES University); Gagan SR (PES University); Shridhar Savadatti (PES University); SURYA G (PES University); Shashidhar S Tantry (PESIT - Bangalore South Campus)**

Abstract: Memory systems with high bandwidth and density are required by contemporary high-speed networking applications. Making sure that the memory bandwidth does not become a performance bottleneck for the application is highly dependent on choosing the right memory solution. SDRAM is most likely to provide the solution to the demand for high-speed data handling. As the double-data-rate technology advances at a faster rate, we run into more design and validation problems. Using the Verilog HDL and the vivado 2020.2 tool on the Artix-7 board, the general architecture of the DDR SDRAM controller is built in this study, and RTL synthesis and simulations are successfully confirmed. Its architecture and each of its separate sunblock's designs and functions is discussed. Along with its enactment methods.

Paper ID: 266**Yoga Posture Classification using Deep Learning*****Gokul Ananth (Sri Ramakrishna Engineering College); Anuradha Radhakrishnan (Sri Ramakrishna Engineering college)****

Abstract: Human Posture detection using Deep learning techniques are widely useful in many areas like face recognition, video games, virtual reality, animations and many varieties of physical training. In this work, we are applying deep learning techniques like convolution neural networks (CNN) in the field of Yoga. It is a form of physical exercise which helps to improve both the physical and mental state of humans. There are different forms of yoga that combine physical positions, breathing practices, and meditation or relaxation to promote mental and physical well-being. We have used a dataset which consists of five different yoga poses for model training and evaluating the accuracy of the model. The system identifies a yoga pose from a given image using a CNN model and three CNN architectures such as VGG16, VGG19 and MobileNet. In comparison, among the four, VGG19 model attained an accuracy of 99.49% which is higher than the other models.

Paper ID: 269**A two-stage Computer Aided Diagnostic system for lung cancer detection with pre-screening of other abnormalities*****Pushkar M Sathe (NMIMS)*; Alka Mahajan (NMIMS); Dr. Deepak Patkar (Nanavati super speciality hospital); Dr. Mitusha Verma (Nanavati super speciality hospital)***

Abstract: Lung diseases are seen to be on the rise in the last 30 years. While research has majorly focused on the early detection of lung cancer, flagging of other abnormalities is also vital. Interpretation of CT scans continues to be a time-consuming manual process with a risk of subjective evaluation. Currently, the cancer detection modules classify the scans only as cancerous or non-cancerous resulting in a system which marks the other abnormal scans as normal. Further, while the accuracy of the detection system is good it is not able to flag abnormal scans on priority. This may lead to some CT scans belonging to the critical stage getting delayed in the sequential process. This paper proposes a two-level system that helps in pre-screening the scans for abnormality and then checks for the presence of cancerous mass. The first stage of screening prioritizes the scans ensuring that the 'red flagged' scans are at the top of the stack, facilitating faster treatment. Normal lung CT scans were used to train the abnormality detection module and only the abnormal CT scans were further processed to detect malignancy using deep learning techniques. The research was undertaken in collaboration with Nanavati hospital, Mumbai, and both the models were validated on a real dataset obtained from the hospital. The proposed technique gives accurate screening and detection with AUC values of 0.905 and 0.997 for the abnormality detection model and the cancer detection model respectively.

Paper ID: 270**R-CNN Based Brain Tumor Segmentation Using MRI Images*****SAKTHI PRABHA (SATHYABAMA)*; Vadivel M (Vidya Jyothi Institute of Technology)***

Abstract: In human mind, tumours can be found by using a valuable technique called Magnetic resonance imaging (MRI). Breaking down the MRI pictures is done in order to differentiate the different sorting out the tumour and to group the areas into various tumour classes; they are meningioma, glioma, and pituitary. The Deep learning technique is moderately later and a ground-breaking technique mainly used for image grouping errands. In this investigation, a Deep learning technique called Quicker Region-based Convolutional Neural networks (Quicker 11-CNN) is being used and is being executed by means of TensorFlow library. In order for preparing and testing the classifier a dataset that is freely accessible which contains about 3,064 MRI cerebrum pictures (1426 glioma, 930 pituitaries and 708 meningiomas) of about 233 patients has been employed. The quicker R-CNN strategy can yield an exactness of about 91.66% as demonstrated which is said to be higher than the connected work utilizing the equivalent dataset.

Paper ID: 274

Misinformation Detection Using Unsupervised Approach on CoAID Dataset

*Yashoda N Barve (Suryadatta College of Management Information Research & Technology, Pune); Dr. Jatinderkumar R. Saini (Symbiosis Institute of Computer Studies and Research, Symbiosis International (Deemed University), Pune)**

Abstract: COVID-19 has had an impact on everyone's life. People have slowly moved online for information access regarding COVID-19. This resulted in a large amount of misinformation spread among the people. This has a widespread impact on business, economy, education, and various other factors of society. Recent research techniques have developed models to detect COVID-19 misinformation using a mainly supervised learning approach that demands a labeled dataset. Several datasets have been generated since the COVID-19 pandemic using social media and web platforms. However, considering the large amount of information generated online with unstructured, incomplete, and noisy data, it is difficult to obtain labeled data for supervised learning. Therefore, in this research authors have proposed an unsupervised learning technique using k-means with a domain-specific sentimental bag-of-words on the CoAID dataset. CoAID dataset has been created during the initial stages of the COVID-19 pandemic and is popular and widely used. Initially, the authors have done an extensive analysis of the literature based on the CoAID dataset to explore the various techniques developed on this dataset. Further, a k-means clustering algorithm is employed with six different distance measures viz. Euclidean, Squared Euclidean, Chi-square, Canberra, Chebychav, and Manhattan. The Elbow method is used to identify the optimal number of clusters. To evaluate the performance of the proposed model authors have used various metrics like purity, precision, silhouette score, word clouds, and sentiment analysis. The model showed a purity score of 0.96 and a precision of 1 for k=2.

Paper ID: 282

Disposable Filter Paper Sensor For Impedimetric Detection Of Ascorbic Acid

*Debasmita Mondal (BIT Mesra)**

Abstract: A filter paper-based disposable, label-free and low-cost sensor for detection of ascorbic acid in aqueous solution is presented in this work. The fabricated sensor consists of a polyaniline coated Whatman filter paper with parallel silver electrodes for impedance measurement. Use of filter paper substrate reduces the cost of the fabrication and facilitates the development of an environment-friendly sensor. Polyaniline having high redox reaction with ascorbic acid facilitates the oxidation of ascorbic acid at low potentials resulting in generation of H⁺ ions. The presence of H⁺ ions result in protonation of polyaniline and a subsequent increase in its conductivity. Consequently, the overall impedance between the two electrodes decreases. The sensor can detect aqueous solutions of ascorbic acid in the concentration range of 10 µM – 1 mM over the frequencies 20 Hz – 2 kHz. Interfering agents i.e., L-arginine and

L-aspartic acid, when added to ascorbic acid solution, show negligible impedance changes, thus validating the selectivity of the sensor in detecting ascorbic acid.

Paper ID: 284

Diminishing The Right Of Way (Row) With Multi Voltage Multi Terminal Transmission Tower

Raghunadha Sastry R (NIT MIZORAM)*

Abstract: Objective: To mitigate right of way (RoW) with multi-voltage multi-terminal and a multiple circuit transmission tower.

Process/Analysis: A study on electromagnetic fields and structural optimization has to be conducted, to mitigate the right of way (RoW), a. This optimization consists of different aspects like configuration of the conductor, wind loadings, & cross-arm display. Using COMSOL Multiphysics software, the tower is planned & its structure of it is authenticated for a variety of stresses & wind loadings. By preferring optimal phase sequence, electrostatic and magneto static fields in the region of the tower are studied & are dropped to maximum values.

Discoveries: The designed structure resists all the stresses that are allowable. Electrostatic and magneto static fields in this tower's region are 6 and should be enclosed in the required circumscribes stipulated by means of our Indian standards. When a transmission line is taken into account, this layout is created to be economical in relation to RoW. Applications/Enhancements: Narrow base width, which supports the optimization of the RoW, is measured. The designed tower could embrace 6 circuits and 3 voltages (400 kV, 220 kV, 33 kV). The tower's peak was preserved by structural optimization in the normal range.

Paper ID: 287

Deep Learning Techniques for Speech Emotion Recognition

Bhavani R (Kings Engineering College); Dr. T Vijay Muni (Konuru Lakshmaiah Education Foundation)*; Ravi Kumar Tata (Konuru Lakshmaiah Education Foundation); Jonnadula Narasimharao (CMR Technical Campus); K. Murali (Vijaya Womens Ingingeering College); Harpreet Kaur (Lovely Professional University)

Abstract: The identification of feelings sent via one's voice has evolved from a niche field into an essential part of human-computer interaction (HCI). These systems seek to facilitate more natural interactions between humans and machines by favouring direct voice interaction over the use of conventional input devices in order to comprehend verbal information and to make it simpler for human listeners to respond. A few examples include the use of emotion patterns derived from speech in medical applications, dialogue systems for spoken languages such as those used in cell phone call centres, onboard driving systems in automobiles, and the usage of such patterns in other contexts. In the research that has been done on speech emotion recognition (SER), a variety of methods, many of which are considered to be industry standards in speech analysis and classification, have been applied to the process of extracting emotions from signals. The most crucial stages of the speech emotion recognition (SER) process are the phases that deal with the extraction of features and the categorization of features. For the purpose of speech processing, researchers have developed a variety of features, including prosodic features, vocal traction features, and other hybrid features. The second step involves the categorization of features through the application of deep learning methods. These methods have just lately been put up as a potential replacement for SER's more conventional methods.

Paper ID: 288

Analysis Of Principal Component Analysis Algorithm For Various Datasets

Jhanvi Goyal (Reva University); Omkar AV (Reva University); Soumya Iatha (Brindavan College of Engineering); Ranaveer Gaikwad (Reva University)*

Abstract: Principal component analysis (PCA) has been used successfully as a multivariate statistical process control (MSPC) tool for detecting faults in processes with predominantly found variables. However, in machine learning, predicting the result or object hugely depends on the proper dataset. Generally, the available dataset is bulk and consists of redundant information. To make any prediction, we need to have a mechanism to remove unwanted information from the dataset for high accuracy. If we use the statistical method, there is a high chance of enormous data loss while processing. Hence in this paper, we use PCA to reduce the high dimensional data set to a smaller number of modes or the structure. We implemented PCA for a simple 2 X 2 process using python for datasets such as breast cancer, wine data set, Digits, and Iris dataset to understand the impact of PCA on various application datasets. Our results show that the monitoring performance of PCA is vastly better, with 98.15% accuracy for the Wine data set, 91.08% for breast cancer, 75.90% for digits, and 96.90% for the Iris dataset.

Paper ID: 292

Controlling of PV fed BLDC Motor using FUZZY and PSO Techniques

*Venkatesh Tadivalasa (NIT Mizoram)**

Abstract: The goal of this study is to soft start a permanent magnet brushless DC motor and increase the efficiency of an SPV array using a buck-boost converter-driven solar photovoltaic array that is used to pump water. Current sensors, which are typically used to regulate the speed of BLDC motors, are entirely removed. A voltage-source inverter's changing DC-link voltage controls the BLDC motor's speed (VSI). This study examines how the interleaved DC-DC converter, which serves as a transitional DC-DC converter between the solar PV array and soft starting of BLDC motors. The output ripple current of the intermediate converter with semiconductor switches is reduced, and it offers an indefinite region for recording maximum power (MPPT). In this project, the speed of a brushless DC motor has been managed utilising a variety of control approaches, including PI, FUZZY, and PSO Optimization techniques. To get the most efficiency out of the solar array, the system is powered by a solar PV array and the MPPT technology.

Paper ID: 294

Contrast enhanced visual cryptography

Bhagyashree Patil (D Y Patil college of engineering and technology, Kolhapur); S. R. Khot (D Y Patil college of engineering and technology)*

Abstract: One of the problem in visual cryptography is Contrast reduction. The contrast reduction problem is mainly because of the encryption patterns used to encrypt the white and black pixels. To overcome this, we have used "Contrast enhanced visual cryptography Technique" which consists four pairs of basis matrices used for encrypting each pixel of secret image. Also, for matching the size of original image and recovered secret image, resizing of out put is done using a Bi-cubic algorithm.

In visual cryptography the secret image is organised into 'n' number of unrecognizable images using visual cryptography technique. These output unrecognizable images are named as shares or noise. Two or more shares can be generated depending the requirements of user. Output minimum number of shares are printed on the transparent sheets and superimposed for revealing the secret image. The basic visual cryptography technique denoted by "(k, n) VCS", can be interpreted as k stands for minimum number of shares required to regenerate the secret and n stands for total number of shares generated. This technique is becoming famous as it does not require the decryption code to see the secret by human being. The disadvantage of this technique is the poor contrast and size variation of the encrypted output image compared to the original secret image. This paper consists, the contrast enhanced visual cryptography technique which is based on the Naor & Shamir (1994) VCS technique. Also, we overcome the problem of over-sizing of recovered secret image.

Paper ID: 300

Understanding And Evaluating Low Cost Pressure Sensor With Different Technologies For UW Vehicles

Swarnamahhalakshmi V (SRM Institute of Science and Technology); Prakash T (National Institute of Ocean Technology); Bala Naga Jyothi V (National Institute of Ocean Technology); Muthukumaran B (SRM Institute of Science and Technology)*

Abstract: Depth measurement is a very important parameter for any underwater vehicle navigation and precise control in depth-keeping operations. The depth of the vehicle is computed from the pressure value measured by the pressure sensor manufactured using different sensing technologies. In this paper, widely used pressure sensor technologies in subsea industries are envisaged that vary with cost, sensor accuracy and resolution. The sensor selection also depends on the mission requirement and application, where the need of the pressure sensor and accurate depth measurement for low cost vehicles is very essential in the current scenario. With this objective, different denoising algorithms/ filters are applied to three different pressure sensors technologies and analyzed to identify the sensor statistics that could aid in using of low-cost pressure sensors for depth measurement that are equally performing as high accurate sensors. It is found that the computed depth data using these three algorithms is 85% accurate relative to the highly accurate sensor. The statistical parameters derived from denoising algorithms can be used as inputs to the optimal Kalman filter for estimating the depth value during pressure sensor measurement errors and outages which aids the vehicle controllability and stability during heaving operations.

Paper ID: 303

An efficient False Negative Reduction System for the Identification of Intracranial Hemorrhage

Lakshmi prasanna kothala (VFSTR); Sitaramanjaneya Reddy Guntur (VFSTR)*

Abstract: A rapid diagnosis and efficient treatment are required for the dangerous condition known as intracranial hemorrhage (ICH). In the emergency analysis of reports of ICH, computerized tomography (CT) is frequently used as it gives better results when compared to MRI. The treating physician must be knowledgeable in neuroimaging to regulate the origin of the hemorrhage and its location and severity. However, in this paper, a new deep learning method was proposed to improve detection accuracy by reducing false negative cases. We are mainly focused on the reduction of false negative cases as this condition is dangerous. Finally, with the proposed model we achieved an accuracy of 95%, precision of 90.9%, recall of 100%, F1-Score of 95.23%, and specificity of 90.0 on the test data. With a less complex and computationally intensive technique, our results are in line with the state of the art. Finally, our detector could help doctors make better medical decisions, make better use of available resources, and allow us to diagnose ICH more quickly and accurately.

Paper ID: 305**System Reduced DC Voltage and Restart Sequence Analysis for Repeated Line faults on VSC HVDC Transmission system**

Karunakar T (Karunya institute of technology and sciences)*; F T Josh (Karunya University); Diwakar v (Power grid corporation of India Ltd)

Abstract: High Voltage Direct current transmission plays a major role in reliable power transmission for long distances. HVDC Plus and HVDC Light are the two prominent power transmission systems in DC technologies. This paper mainly focuses on reduction of power transmission capacity and their grid disturbances for the multiple line faults with in a particular period of time. The complete study was done as a test protocol for the project PK-2000, a HVDC link in India between the Pugalur station in Tamil Nadu state to Thissur station in Kerala state. The project facilitates the power transmission capability of 2000MW between stations. Multiple line faults, the system behavior and reduced voltage principles, effect on power transmission were mentioned. Because of multiple line faults with in a period, the system will go to DC voltage reduced mode and transmission system coupled state to de-coupled state. The reduced DC voltage mode effects the active power transmission capacity and reactive power transmission capacity in the system at both the stations. The active power and reactive power disturbances and power transmsion disturbaces between the stations mentioned.

Paper ID: 306**A Novel Soft Voting Based Hybrid Approach to Detect Fake News in Hindi**

Jasleen Kaur (PP Savani University, Surat); Dr. Jatinderkumar R. Saini (Symbiosis Institute of Computer Studies and Research, Symbiosis International (Deemed University), Pune)*

Abstract: With the proliferation of internet, more individuals are creating and sharing knowledge due to the growth of social networks. However, many of these pieces of information have little to do with reality. This has led to the rapid dissemination of false information used for various political, personal and business objectives. Finding reliable news sources has become more difficult, thanks to online newspapers. This paper presents an approach to detect fake news headline in the Hindi language. For this work, dataset was manually collected and it comprises of more than 7300 news headlines. After pre-processing the dataset, features were extracted using Term Frequency (TF) and Term Frequency-Inverse Document Frequency (TF-IDF). 12 different machine learning models trained and tested for this research work include Logistic Regression, K-Nearest Neighbour, Support Vector Machine with linear kernel, Multinomial Naïve Bayes, Decision Tree, Random Forest, XG Boost, Bagging, Gradient Boosting, Artificial Neural Network, Convolutional Neural Network, and Long Short-Term Memory. Based on the top-3 performers from traditional model, an innovative Soft Voting Based Hybrid (SVBH) model was proposed. Accuracy reported by the proposed model with TF weighing scheme is 98.26%, which is better as compared to traditional ones.

Paper ID: 308**Streaming Analytics For Shipment Monitoring System**

Dr. Prakash B R (Government First Grade College, Tiptur)*; Chidananda Halkundi (Rao Bahadur y Mahabaleswarappa Engineering College); Nagaraja K V (Government First Grade College, Tiptur); Mohan Kumar (PES College Of Engineering Mandy)

Abstract: In this digitalized world, there is an unfathomable amount of data that is being generated every minute from a number of data sources and this data keeps multiplying at a very fast rate. Most of the companies are shifting towards analyzing the real time data streams to get meaningful insights on how they can influence this data for meeting critical and modern business requirements. It is no longer a good idea to stick with legacy database systems to perform the batch processing where it takes data to be downloaded from these systems in batches before it can be analyzed or interpreted for identifying the business-critical patterns. Today there is a need to analyze the real time continuous stream of data to get insights on wide range of activities such as credit card swipes, location tracking, fraud detection etc., in industries such as ecommerce, financial/investment services etc., This paper describes how to leverage the streaming analytics real time processing capabilities for a logistics industry where the shipments move from base location to the target customer location via various transits. The shipment monitoring system sheds light on the use of real time analytics engine for monitoring the shipment life cycle - from picking up the shipment until the shipment is delivered to the end customer. This will help the operational team to keep track if there are any potential delays in delivering the shipment to the end customer and thus helps to take necessary action to prioritize the shipments which needs attention over millions of other active shipments providing focus to operations resulting with great customer experience.

Paper ID: 309

Drug Recommendation System Using LDA

Satwik Reddy Sripathi (Amrita Vishwa Vidhya Peetham); VENKATA SAI PRADYUMNA NADELLA (AMRITA VISHWA VIDYAPEETHAM); Dhanush Akula (Amrita Vishwa Vidyapeetham); Subramani R (Amrita Vishwa Vidhya Peetham)*

Abstract: These days, people are very much concerned about their health. Many want to lead a healthy and long life. However, studies reveal that errors due to doctor's and pharmacist's experience resulted in many people's death. These medical errors are costing us our lives. Technical algorithms like LDA, PCA and other machine learning algorithms can help in topic modelling that would play a major role in the industry. These technologies can aid in the investigation of medical history and, by being doctor-friendly, can help to prevent medical errors. In this paper, a medicine is proposed based on the review taken from the patient as it would be identified with our model created with LDA. Recommendation system that analyses sentiment analysis of patient review data to discover the best medication for a disease is done in our work.

Paper ID: 311

Paddy Leaf Disease Classification Using Machine Learning And Deep Learning Techniques

Rithik Lal P (Amrita School of Arts and Sciences, Mysuru Campus); Sudharshan Duth P (Department of Computer Science, Amrita School of Arts and Sciences, Mysore Amrita Vishwa Vidyapeetham, India)*

Abstract: Rice is the main food in nearly every tropical and subtropical country on the planet. This demands the care and ensuring of rice fields spanning several hectares. Farmers face a daunting task ahead of them. Some problems go unnoticed by caregivers, and they are unable to complete this massive task of crop maintenance in such a short time. As an exercise, this study provides a way for swiftly sorting rice into infected or unaffected plants as a result of this time-consuming effort. One of the most common paddy illnesses is leaf disease. Identifying rice leaf diseases is time-consuming and arduous for farmers in distant places due to a shortage of expertise. Regardless of the presence of experts in a few areas, disorder detection is executed via the bare eye, which can also result in erroneous identity. The implementation of a computerized method can aid in the resolution of these issues. This study proposes a semi-automated

technique for diagnosing three prevalent rice leaf illnesses (Leaf- Blast, Brown-Spot, and Hispa). The visual content of these disorders is used to classify them (texture, shape, and color). SVM classifier is used to determine the kind of paddy leaf disease.

Paper ID: 312

Simulation Performance of Brushless DC Motor Drive Using Sensorless Back EMF Detection Technique

Sunil V Patil (Shri G.S.Institute of Technology & Science, Indore(MP))*

Abstract: This paper presented simulation performance of Brushless DC (BLDC) motor drive using sensorless back EMF (Electro Motive Force) detection technique. Sensorless technique to control BLDC motor is required for different applications. However these motors require hall sensors to detect rotor position, which will further increase cost. There are different sensorless techniques such as inductance varying, flux linkage varying and back emf sensing. Back emf sensing technique is more effective compared to other techniques. So, back emf technique is considered for performance study of BLDC motor. MATLAB Simulink is used to find performance of BLDC motor. The BLDC motor performance is analyzed from various waveforms like back emf, phase current, speed, torque with respect to time at varying loads. The simulation results obtained are satisfactory for sensorless technique.

Paper ID: 313

Density, Kinematic Viscosity and Cetane Number Prediction of Biofuel Feedstocks from Fatty Acid Compositions

Vijayalaxmi Beeravalli (CQUniversity)*; Nanjappa Ashwath (Central Queensland University); Masud khan (Central Queensland University); Mohammad Rasul (Central Queensland University); Sergio Capareda (A and M University)

Abstract: Stringent emission laws and the depletion of fossil fuels have made biodiesel one of the promising renewable and environmentally friendly fuel alternatives of the future. To get dependable engine performance and safe emission characteristics, it is imperative to know the Cetane number, kinematics viscosity, and density of any fuel. While it is experimentally expensive and requires a continued concerted effort to know the actual properties of a fuel feedstock, recent Machine Learning methods offer wide possibilities to predict with close proximity certain characteristics of biomaterials within well-defined confidence levels. The present paper uses six different machine learning algorithms to predict three basic properties of fifty different biodiesel feedstocks from their fatty acid compositions. The issue of sparsity and anomaly in the data is dealt with through tested methods, following which properties for each feedstock are predicted within good accuracy levels. It is observed that the percentage error is very closely related to the coefficient of variation of a property, which will allow scientists to set variability bounds of predicted values.

Paper ID: 314

Traffic Congestion Management Based On Vehicle Density Using Image Processing Techniques

Sadrisjain B V (Amrita school of arts and sciences)*; Manohar N (Amrita Vishwa Vidyapeetham Mysuru Campus); Anushree T B (Amrita school of arts and sciences)

Abstract: India is one of the world's most densely populated country, with more vehicles being used in urban areas. The ability to follow or track individual vehicles as well as public transport frameworks is useful. We can address complex challenges with effective results using computer vision and machine learning. The major purpose of our project is to deal with the concept of realtime- vehicle tracking is based on video stream by a surveillance camera to track vehicles. We would focus on the type of vehicle i.e., car or bike, Firstly, the software would slice the frames from the streaming video so that would be easier to detect the attributes precisely. Secondly, slice the area of the required part, for instance if we take the frame, the car in it would be cropped for focusing on the required output as correctly as possible. Lastly, the software would store the required data in the database for future usage.

Paper ID: 315

Contiki based Anatomization of Routing Protocols for Low-power and Lossy Networks In IoT

*Anil Behal (chandigarh university)**

Abstract: All devices, including those used for routing, are constrained in terms of processing power, memory, and electricity in Low-power and Lossy Networks (LLNs). owing to the due to the networks' lossy nature, losses can also happen while changing the truth that networks are utilising the problems with the speed of data flow because of restrictions within the devices. In this paper, we will Considered a de facto routing standard inside the net of factors, the Routing Protocol over Low Power and Lossy Network (RPL) implementation is being examined. RPL is a collection of distance vector routing rules that makes use of IPV6. It supports visits from multipoint to multipoint, multipoint to multipoint, and factor to factor interactions. The research on this topic is summarised in this paper

Paper ID: 317

Edit any face – Image Synthesis using GAN's

Sarthak Mishra (Mukesh Patel School of Technology Management & Engineering); Parthak Mehta (Mukesh Patel School of Technology Management & Engineering); Nikhil Chouhan (Mukesh Patel School of Technology Management & Engineering); Neel Pethani (Mukesh Patel School of Technology Management & Engineering); Ishani Saha (Mukesh Patel School of Technology Management and Engineering)*

Abstract: In recent years, Generative Adversarial Networks (GANs) have become a hot topic among researchers and engineers that work with deep learning. Generative Adversarial Networks (GANs) are a class of generative models that were introduced in 2014 by Ian Goodfellow et al [1]. It has been a ground-breaking technique which can generate new pieces of content of data in a consistent way. The topic of GANs has exploded in popularity due to its applicability in fields like image generation and synthesis, and music production and composition. GANs have two competing neural networks: a generator and a discriminator.

We talk about 2 major use case implementations of GANs in this paper – Face Attribute Editing and Motion Copy.

Paper ID: 327**Lempel-Ziv-Welch (LZW) based Horizontally Scalable Route Prediction**

*Sudha Chaturvedi (Fair Isaac Corporation(FICO))**; *Tapsi Nagpal (Lingayat Vidyapeeth, Faridabad)*; *Vishnu Shankar Tiwari (Visvesvarya Technological University)*

Abstract: String sequence indexing is the basis of many applications including compression, route prediction, bioinformatics, text mining, string matching, etc. where the goal is to index huge sequences. Moreover, prediction application requires a probabilistic tree. Probabilistic Lempel-Ziv- is one of the widely used techniques for text compression as well as string sequence indexing. In many applications, it serves as a model for prediction. In this case, demonstrate the distributed computation in the case of route prediction. LZW model construction from the large corpus of historical data by processing sequentially is a challenge in the efficient implementation. Most of the current implementations are based on time-space complexity on a vertical scalability on a single machine. Extending them to distributed parallel execution is still challenging and is very less researched. This work implements the computing on distributed computing clusters which achieves parallelism without sacrificing the accuracy using Hadoop distributed file system (HDFS). The objective is two-fold – first, applies LZW for route prediction, and second, addresses challenges in distributed computation.

Paper ID: 328**Building Structures 3-D Modeling for Indoor Routing**

*Sudha Chaturvedi (Fair Isaac Corporation(FICO))**; *Tapsi Nagpal (Lingayat Vidyapeeth, Faridabad)*; *Vishnu Shankar Tiwari (Visvesvarya Technological University)*

Abstract: The need for modeling the building structures and route planning is well established for different purposes like guiding the visitors, Automatic robot movements, emergency evacuation planning, etc. Node-Edge relational model is the most popular one. The OGC in its report has suggested refined versions of Node-Edge relation model, which is demonstrated through real-world examples in this work. Combinatorial Dual Model (CDM) is an extension of the Node-Relation Model which represents both the adjacency and connectivity relationships between various components of the buildings. CDM does not preserve the geometrical property of the building. For the Hallway like corridors, the Medial Axis Transformation (MAT) is applied to convert into the line feature and to it, nodes corresponding to the components of the building are attached which gives the Geometrical Network Model (GNM) which preserves the geometry. Once the Graph representing the building is constructed, then any of the shortest path algorithms may be applied to plan the routes. We demonstrate the generation of CDM of a real-world example and its transformation to GNM using medial axis transformation (MAT) and also a comparison of GNM (constructed from CDM) and Node-Edge Mode is provided.

Paper ID: 339**Real-Time Word Level Sign Language Recognition using YOLOv4**

R Sreemathy (Pune Institute of Computer Technology); Sneha Sharma (Pune Institute of Computer Technology); M.P. Turuk (Department of E&TC, Pune Institute of Computer Technology, Pune); Jayashree B Jagdale (Pune Institute of Computer Technology); Soumya Khurana (Pune Institute of Computer Technology)*

Abstract: Sign Language is a communication language for hearing and speech impaired people. To establish communication between hearing/speech impaired people and normal people using, there is a need for an efficacious translation system. This paper proposed a real-time, vision-based sign language recognition system for translation from sign language to text based on deep learning. To achieve real-time recognition and translation, The proposed methodology uses You Only Look once version 4 (YOLOv4), a single stage detector to achieve real-time recognition and translation. For experimentation Indian Sign Language Dataset for Continuous Sign Language Translation and Recognition Dataset (ISL-CSLTR) is used. This dataset is extended further by adding images from additional two signers to increase the already available dataset. Pre-trained network is employed and fine-tuned on the extended ISL-CSLTR dataset. Data augmentation is also employed to increase the accuracy of the system. This proposed method achieves a mean average precision (mAP) of 98.4% and real-time translation. Thus, making the system applicable for real world applications which is the main aim of this experiment. The results obtained makes the system applicable for real world applications which is the main aim of this experiment.

Paper ID: 340

A Monocular Camera Depth Estimate Approximation using Deep learning

Rajanna K (Reva University); Rashmi Agarwal (Reva University); Dr. Jay Bharateesh Simha (Reva University)*

Abstract: In numerous applications, such as collision detection, Robotic handling, Robotic-based manufacturing facility, and Advanced Driver Assistance Systems (ADAS), depth estimation is crucial and the most significant task. Radar, Ultrasonic, Lidar technologies both operate by reflecting radio or sound wave or laser beams respectively. Stereo cameras used for depth estimation are costly and increase the cost of the system. There are a few Monocular camera depth estimate approaches that have evolved using mathematical calculation. One approach uses pixel to depth estimate mapping and the other uses the geometry of the road, the contact point of the vehicle on road, and camera properties. The proposed solution would implement depth detection using a monocular camera with deep learning. The objective of the proposed solution is to detect the depth from a monocular image and calibrate it with the actual depth. The pixel to distance data which derived from camera properties is used to run through varied hidden layers and nodes to conclude the implementation using Deep Learning (DL). Evidently, train and test data learn and converge more quickly on the deeper models which has more hidden layers and nodes.

Paper ID: 341

Feature Selection of EEG Signals using Cat Coyote optimization algorithm (CCOA) with Classification

Pratibha Shankar Sonawane (Sandip University, Nashik); Jagdish Helonde (Sandip University, Nashik); Prakash Gajanan Burade Dr Burade (Sandip University Nashik)*

Abstract: An EEG signal-based communication system that uses brain activity to command computers or other external devices. The purpose of BCI research is to enable communication for persons with neurological neuromuscular conditions such amyotrophic lateral sclerosis, brain stem stroke, or spinal cord damage or who are completely paralyzed. A BCI system captures brain signals, classifies them using machine learning methods, and then executes a computer-controlled action. The impacts of feature selection for Electroencephalograph (EEG) signals are examined in this study. Additionally researched are feature extractions using the Walsh Hadamard Transform (WHT) and feature selection using the Principal Component Analysis (PCA). The Cat Coyote Optimization algorithm (CCOA) is suggested for feature selection. Bagging and decision tree classifiers are used to categorize the features.

Paper ID: 345

Exploring ECA Rules With Quantum-Dot Cellular Automata

Bhumika Sikdar (NMC)*; Rajagopal Kabilan (Nehru Memorial College); Mousumi Saha (National Institute of Technology, Durgapur)

Abstract: The Quantum-dot Cellular Automata (QCA) is considered to be the emerging nanotechnology for future logic design. Logic implementations with QCA now become the most promising area of research. Further, the inherent cellular structure of QCA can be a natural choice for QCA implementation of Cellular Automata (CA), the computing tool that can perform universal computation. This work proposes realization of elementary CA (ECA) rules in QCA structures. The target is to design the CA based solutions for future QCA designs. It is developed around the QCA tiles and the majority/minority gates. The QCA structures thus implementing a set of ECA rules employed for cache coherence protocol processor design, memory testing and other applications are simulated in QCADesigner for verification.

Paper ID: 347

A GNN Based Multi-Attribute Pedestrian Recognition Framework for Real World Surveillance Scenarios

Abhilash SK (PathPartner Technologies)*; Venu Madhav Nookala (PathPartner Technology Pvt.Ltd.); Adithya Babu (PathPartner Technology Pvt.Ltd.)

Abstract: Due to low resolution images, ongoing image modifications, and the different spatial distribution of unbalanced qualities, predicting a list of pedestrian attribute from surveillance videos is a highly difficult challenge for computer vision (CV).The extensively-used convolutional neural network(CNN) and Transformers process the image as a sequence or grid like structures.They are not tensile enough to process complex and occluded objects.Hence it is preferred to enhance recognition performance by modelling the label connections between different attributes since every pedestrian often possesses a variety of qualities in real time . In this paper, we discuss pedestrian using multi-label categorization of attributes with an unique model based on the graph neural networks (GNN). We implement and demonstrate the comparison with CNN models and Attribute GNN (AttrGNN) architecture which is used to extract graphical level features for visual tasks.We construct our AttrGNN model to alter and communicate data efficiently among all the nodes based on the graphical representation of images. Then we use feature transform to help AttrGNN generate features between the nodes. This paper actively compares between the pyramid architectures of CNN and GNN by extensive experiments on pedestrian attribute recognition(PAR) datasets to prove that GNN outperforms CNN architectures and also illustrate that AttrGNN can be used as an architecture to perform general visual tasks.

Paper ID: 349

Multiple slotted MIMO antenna for 5G application

Neetu Agrawal (Gla University, Mathura)*

Abstract: In this article, a low-profile multiple-slotted compact MIMO antenna is presented for the 5G application. Three rectangular slots and a hexagonal slot is included in radiating elements. The resonance frequency of the proposed two elements antenna is 3.6 GHz and the -10 dB bandwidth is 100MHz. The operating band is 3.55-3.65GHz. The performance parameter of MIMO antenna like isolation, return loss, Envelope Correlation Coefficient (ECC), Diversity gain (DG), and far-field gain is considered. The polarization diversity isolation technique is presented here. The achieved isolation < -10 dB and ECC <0.03 in whole operating band. The return loss is -16 dB and the far-field gain is 1.46 dB at 3.6 GHz. The reported antenna is designed on low-cost FR4 material and the total size is 84x43x1.6 mm³. The CST tool is used to design prototypes and simulate all results.

Paper ID: 350

Automatic Detection of Sleep Apnea from Single-lead ECG Signal Using Machine Learning

Amit Bhongade (Indian Institute of Technology Delhi); Rohit Gupta (Indian Institute of Technology, Delhi); Tapan Kumar Gandhi (IIT Delhi)*

Abstract: Sleep apnea is a common disorder that reduces sleep quality which can lead to serious health consequences. It is identified by a pause in breathing during sleep. At present, polysomnography (PSG) is used to diagnose sleep disorders at sleep centers. PSG is non-invasive but expensive and inconvenient as a clinician needs to observe the subjects overnight. Therefore, development of low-cost and most comfortable techniques is being developed by the researchers. This research presents an implementation of a classification algorithm for identifying sleep apnea episodes using an electrocardiogram (ECG) signal. It also provides a comparison of the accuracies achieved by different classifiers and a comparison between the performance of individual features. A Sgolay filter was utilized for baseline correction and denoising the ECG signal and used to calculate the Heart Rate Variability (HRV) sequence using RR intervals. Ten features were extracted from the ECG and HRV signals, and the performance of the proposed algorithm has been estimated for five classifiers, support vector machine (SVM), linear discriminant analysis (LDA), K-nearest neighbor (KNN), random forest (RF) and decision tree (DT). For the ECG signal, the average accuracies depicted by SVM, LDA, KNN, RF, and DT are 86.01 ± 1.16 , 68.16 ± 0.76 , 84.99 ± 1.24 , 87.00 ± 1.40 , and 82.56 ± 1.05 , respectively. Further, for the HRV signal, the average accuracies depicted by SVM, LDA, KNN, RF, and DT are 83.53 ± 1.36 , 72.69 ± 2.06 , 82.60 ± 1.07 , 85.10 ± 1.44 , and 78.60 ± 1.15 , respectively. This research highlights the significance of selecting the appropriate classifier for a given issue and establishing and using the most relevant characteristics to achieve a higher level of accuracy. The effectiveness of the suggested model was evaluated alongside the performance of other methods already in use for the detection of sleep apnea.

Paper ID: 351

Performance Comparison of Artificial Intelligence-Based Recommendation Systems based on Healthcare Dataset

*Gauri Sood (MMDU, MULLANA)**

Abstract: Recommendation system assist to provide trustworthy results to users. Hence, Recommendation systems are becoming very popular in Healthcare also. This article analyses an intelligence-based recommender system that uses classification or prediction methods to offer recommendations to HD patients in a telehealth environment. The system offers patient choice support regarding the need for medical testing based on analytics of each patient's medical test results in records. Artificial intelligence technology-based systems might positively impact the human lifestyle of patients grief from CD (chronic diseases) by giving helpful HRSs (health recommendation

systems). This article has analyzed hybrid-CNN and SVM models that give heart patients HD prediction and medical advice. The fuzzy in CNN is used to detect disease levels and helps generate recommendations. The initial section's primary objective at developing a classification method that can verify the HD of a patient and predict it into different output classes like; silent ischemia, angina, chest pain, etc. The main motive of this research is to construct an AI-based recommendation system for HD patients. The simulation analysis for the research system is shown on a clinical database gathered through discussion with medical specialists from an identified hospital. The evaluation of the researched recommender model is calculated by accuracy, RMSE, SP, and SN as calculation events. The HRSs are created based on data gathered from a knowledge-based generated with the help of doctors. The research outcomes of the detection and recommender models are calculated and given accuracy with a Hybrid-CNN of 94.3 per cent.

Paper ID: 353

Deep Learning based Malignant Melanoma Detection in Dermoscopy Images

Saujanya Nath Tiwari (Birla Institute of Technology, Mesra); Naman Deep (Birla Institute of Technology, Mesra); Shreya . (Birla Institute of Technology, Mesra); Sudhansu Kumar Mishra (BIT Mesra)*

Abstract: Skin Cancer, particularly Melanoma, has a very high fatality rate globally, and if diagnosed at an early stage, is highly curable. However, melanoma recognition by visual inspection of dermoscopy images by clinicians is an arduous task owing to the high perceptible resemblance between malignant and benign samples. This work proposes a two-stage integrated deep learning-based Computer-Aided Diagnosis (CAD) system for early-stage melanoma detection comprising a skin lesion boundary segmentation and a skin lesions classification stage. Based on the experimental results, a comparative analysis of five state-of-the-art classifiers, such as, EfficientNetB7, DenseNet201, InceptionV3, ResNet152V2, and InceptionResNetV2, is carried out by considering different performance metrics, such as AUC score, recall, and precision. From the simulation output, it is perceived that the effectiveness of the classifier is superior on segmented data compared to non-segmented data. All the five classifiers trained on segmented data obtained AUC scores of 92.39%, 93.91%, 92.08%, 90.92% and 94.98%, respectively, professing the superior classification capability of InceptionResnetV2 over others.

Paper ID: 354

Optimization and Comparative Analysis of PhCRR Based Sensor with Distinct Structures

Rohit Kumar (Chandigarh University); Dr. Gaurav Kumar Bharti (Chandigarh University); Ranjit Kumar Bindal (Chandigarh University)*

Abstract: Two different models of photonic crystal based ring resonator (PhCRR) for the detection of the various constituents/impurities in the water samples have been simulated and comparatively analyzed. The parameters of the designs are optimized through FDTD for sensing the impurities in the sample based on its distinct refractive indices. The performance of the devices have been evaluated and compared on the basis of Q factor and selectivity for sensing different impurities. The optimized biosensor models are highly sensitive, real-time, lab-on-chip, and label-free, which is necessary for on-site detection.

Paper ID: 356

Cluster analysis for identification of temperature breaks in a reefer container from IoT data***Satyajit Swain (Indian Institute of Technology Kharagpur)*; Mamata Jenamani (Indian Institute of Technology Kharagpur)***

Abstract: Temperature breaks are critical for deteriorating the quality of the perishable item during cold chain logistics in a reefer container. The breaches generally occur because of undesirable door opening and refrigeration shutdown or failure. Therefore, automated remote identification of such events from IoT data may enable appropriate action to avoid quality loss of the product. In this paper, we conduct few experiments in a reefer container emulating two temperature break events such as door opening, refrigeration shutdown and corresponding corrective events that results in moving the temperature towards the set point. The temperature data collected therefrom is used for automatic identification of the events. In particular, we cluster the subsequences from the time series using the similarity index computed from Dynamic Time Warping (DTW) algorithm and identify the patterns indicating the events related to temperature breaks. The result shows silhouette and adjusted rand index score of 62.5% and 74.5%, respectively. Thus, indicating correct grouping of the events.

Paper ID: 357**Toxicity Prediction in Peptides and Proteins using Random forest, Decision Tree and Logistic Regression*****Aparna S Valsan (Amrita School of Arts and Sciences)*; Thoufi K U (Amrita School OF Arts And Sciences)***

Abstract: In the toxicology field, it remains a major challenge to predict and understand toxicity of peptides and proteins. Toxicity prediction is critical for reducing the cost and labour of preclinical and clinical studies for a medicine. So far, peptide/protein-based treatments have been developed to treat a variety of diseases. In our research work, we review machine learning approaches which have been employed for toxicity prediction of proteins and peptides, including random forests, decision tree, and logistic regression. We developed model including Amino Acid Composition ,Di-peptide composition ,binary profile of patterns and motif identification and predicted toxicity of proteins and peptides using machine learning methods.

Paper ID: 358**Network Lifetime Improvement of Wireless Sensor Network using K-LEACH Protocol*****Manisha Narayan Barsale (College of Engineering Pune)****

Abstract: Wireless Sensor Network comprises of sensor nodes that are energy constrained so Energy efficiency becomes a critical performance parameter in WSN. It is essential to improve Network Lifetime by means of extending node's energy without affecting other network parameters. In order to make network energy efficient, various routing protocols are used in WSN. LEACH is one of the routing protocol that aims at reduced energy consumption. LEACH is a Hierarchical, most commonly used MAC layer protocol in WSN due to its simplicity and ability to handle large data sets. Energy conservation in LEACH can be enhanced by using k-means clustering algorithm which is based on machine learning technique. K-means clustering algorithm is used to select the most suitable Cluster head for energy optimization in the network. The proposed work is carried out on MATLAB. The combination of LEACH and k-means results into improved network lifetime and lesser energy consumption.

Paper ID: 359

Analysis of Windows 11 Link File Artifact for Evidence Gathering

Akash Budhrani (DIAT)*; Dr. Upasna Singh (Defence Institute of Advanced Technology, Pune); Bhupendra Singh (Indian Institute of Information Technology, Pune)

Abstract: The objects created by the operating system are known as artifacts, and they contain crucial data about the actions taken by computer users. Thus, these artifacts are of great relevance to the forensic analyst. These artifacts can act as evidence in a court of law to prove the digital crime. Link File or Shortcut file is one such object, presence of which confirms the usage of file in recent time. Link File are links between the executable and the applications. In this work, Link File is forensically analyzed and bring out its forensic value, knowledge it provides and perform few in-depth forensics examinations on Link File useful for analyst using open source FTK Imager tool. Lastly, we compared the Link File artifacts in various versions of Windows Operating System.

Paper ID: 360

Classification of Machine and Deep learning Techniques for Financial Fraud Detection of Healthcare Industry

Darsh C Pandya (K.J. Somaiya college of engineering)*; Harsh Shah (K.J. Somaiya College of Engineering); Krish Panchal (K.J. Somaiya college of engineering); Nikkamal More (Veermata Jijabai Technological Institute)

Abstract: The healthcare industry is one of the most visible areas with vast potential for data collection, both in terms of patient health and economics. Large-scale credit card theft occurs in the healthcare industry because of the steady improvement of electronic payment methods, and credit card fraud monitoring has proven to be a difficult monetary burden for many service providers. Therefore, the method for identifying frauds needs constant improvement. Numerous fraud incidents occur on a regular basis, each with the potential to cause significant monetary loss. Credit card numbers and other private information may be stolen in a variety of ways, including through phishing and Trojan horse programmes that act like viruses. Consequently, there has to be effective technology for detecting various forms of financial fraud. In this paper, we apply a number of machine learning and deep learning techniques to the problem of financial fraud detection of healthcare. We use a number of different algorithms, including Naive Bayes (NB), Logistic Regression (LR), K-Nearest Neighbor (KNN), Random Forest (RF), Convolutional Neural Network (CNN), and deep Artificial Neural Network (ANN), to skew the training of other normal and irregular transaction features. Available data are utilised to assess the quality of the model. Accuracy was represented graphically as 96.1%, 94.8%, 95.89%, 97.58%, 92.3%, and 98.53% for different algorithms, depending on whether they used NB, LR, KNN, RF, CNN, or deep ANN. The findings of the comparison clearly demonstrated that the deep ANN algorithm produces superior outcomes when compared to other methods..

Paper ID: 361

Drone/UAVs Surveillance feeds Video Object Recognition Using Transfer Learning

Sushil Kumar (DIAT)*; CRS Kumar (DIAT)

Abstract: The objective of this research is to demonstrate the use of a convolutional neural network (CNN) for object detection (OD) on drone/UAVs video feeds. The goal of the study is to determine how well the YOLO V3 (Y-V3) and feature extractor recognise objects in drone-shot video frames in the real-world. According to the study, application of several target identification algorithms to “regular” images captured by “normal” cameras has different efficiency impacts on the quantity, precision, and target performance consumption, as well as when applying the technique to image data collected by drones. Drones, a very active domain in this field, are crucial to the implementation of any robot’s complete autonomy due to its enhanced capability of OD. We have conducted numerous experiments to address our functional issues to investigate the efficacy of the most sophisticated target identification, classification and detection algorithm in the data acquired by Drones. In this study, the algorithm’s performance metrics are tallied after being tested on 1099 photos.

Paper ID: 364

Novel implementation of low power and high performance 4-2 compressors for approximate multipliers

*Saloni Sanjeev Koshe (Vellore Institute of Technology); Yash Rajgure (Vellore Institute of Technology); Sri Devi Adibhatla (VIT UNIVERSITY)**

Abstract: Multipliers are important arithmetic circuits in many applications such as digital electronics, digital signal processing, etc. The reduction stage of the partial products consumes a lot of computation time and power which needs to be reduced in certain cases. Approximate circuits have been investigated for error-tolerant applications that can accept some loss of precision while improving performance and time efficiency. This paper includes the comparison of various 4-2 approximate compressor designs along with their performances. A novel design of 4-2 compressor has been proposed in this paper. Power and timing analysis has also been performed to check the efficiency of the novel compressor and is compared with the existing ones.

Paper ID: 366

Energy Efficient Protocols LEACH -GWO Vs PEGASIS Comparison

sandeep chauhan (DIAT); Manisha Nene (Defence Institute of Advance Technology, Pune)*

Abstract: The ad hoc deployments of Wireless Sensor Network (WSN) have emerged as major technology which can enhance operational capability of critical surveillance capability in operations at hostile as well as places where accessibility of human intervention is restricted however the main concern for their utilization in these areas is power consumption by WSNs model. To improve the power utilization many protocols were introduced such as Low Efficiency Adaptive Clustering Hierarchy (LEACH), Power efficient gathering in Sensor information System (PEGASIS), Threshold Sensitive energy Efficient Sensor (TEEN) etc. LEACH introduced the concept of clustering which was a part of Hierarchical protocols and works on Cluster Head concept. These protocols are generally classified in three parts FLAT, DIRECT and HIERARCHICAL. Among all the other protocols LEACH and PEGASIS has shown improved results as compared to other. PEGASIS works on chain-based flow of information and works on leader head (LH) , LH is chosen determining the closest distance of a Node from Sink station. PEGASIS gives a better efficiency in terms of transmission as compared to LEACH. This paper aims to compare two protocols PEGASIS and LEACH (Low Energy Adaptive Clustering Hierarchy) in a Dynamic WSN network with the help of algorithm. The result will help in building a better energy efficient protocol for WSN model. These protocols can be clubbed with other route optimizing techniques such as Ant Colony Optimizer, Ant Bee Colony and Grey Wolf Optimizer to improve their efficiency. Simulation is done in MATLAB.

Paper ID: 367**A Comparative Study on Native and Non-Native English Accent Classifications**

Tanmay Bhowmik (Pandit Deendayal Energy University)*; Amitava Choudhury (Pandit Deendayal Energy University, Gandhinagar); Bishwajit Roy (University of Petroleum and Energy Studies)

Abstract: Speech and language recognition is one of the most important requirements in daily life. Most people in the world use English as the highly preferable language for easy communication. As a result, English is the highest speaking language in the World. Speech is the easiest way of medium for communication. Human-human, human-machine, and machine-machine communication are very much dependent on extensive and robust speech recognition. There are various important features of speech. The accent is one of them. It is a unique feature of speech that varies according to region and dialect. Speech scientists are continuously working on the improvement of speech recognition techniques and performance. Various challenges are being faced day by day and new areas of research are opened to overcome those difficulties. Variation of accent is one of the biggest challenges in improving speech recognition performances. In this work, the native and non-native English accent has been considered. The classification task has been performed on the English speech of non-native speakers and native American English speakers. Three sets of male and female speaker data both for native and non-native speech have been collected from the Voice Cloning Toolkit corpus of the Centre for Speech Technology Research. Mel Frequency Cepstral Coefficient features were extracted from the audio signals and given as input parameters to the supervised machine learning models. Evaluation metrics have been generated, multiple results were produced and compared.

Paper ID: 368**Detection And Prevention Of Phishing Attacks On Banking Website**

Prajwal Jaswal (NITTTR)*; Shweta Sharma (Punjab Engineering College (Deemed to be University) Chandigarh); Naveen Bindra (PGI Chandigarh); Rama Challa Krishna (NITTTR)

Abstract: Phishing is a type of social engineering attack to trick users to reveal their personal information. Attackers deploy malicious software by creating phished websites which seems to be exactly like genuine websites. Given the dramatically increasing number of phishing attacks on banking websites, it becomes crucial to detect and prevent the users from these attacks. Unfortunately, humans are not adept at performing the security checks necessary for secure website identification, and one mistake can lead to a user's entire online account being compromised. In this paper, we propose a novel framework for detection and prevention of phishing attacks on banking website. Our proposed framework is specific towards protecting the banking website against phishing attacks. For client side, we develop a plugin to validate the legitimacy of banking Uniform Resource Locator (URL). For bank side, we develop a web portal which acts as an interface by the bank representative to add, delete, and edit URLs in the database. On server side, an administrator is responsible for managing the complete database such as maintenance of the web portal, credential generation for bank representative, etc. The results show that our proposed framework effectively detects and prevents the phishing attacks on banking website with a best case time complexity of $\Omega(1)$ and worst case time complexity of $O(N)$ (if the URL is in database) and the best case time complexity of $\Omega(N)$ and worst case time complexity of $O(N*M)$ (if the URL is not in database and contain malicious keywords)

Paper ID: 370**A Rapid smoke detection in real-time CCTV videos using non-rigid bodies Algorithm**

Malik Mohamed Umar (Department of Electrical and Communication Engineering,); Veena Raj (University Brunei Darussalam)*

Abstract: World-changing technologies have rolled out in recent years to address an ever-increasing demand for safety and security. While fire accidents are increasing due to a variety of factors, the need for enhanced technology to detect smoke and fire at an early stage has been declared. An algorithm for detecting incipient stage smoke under any backdrop conditions has been proposed in this study using non-rigid regional bodies. The feature vector for multi-background frames was optimized in order to identify the swift and cost-effective way. Consequently, the non-rigid bodies algorithm (NRBA) was created to detect the onset of smoke or fire with a detection accuracy of 1 second for the high frame rate camera and 4 seconds for the low frame rate camera.

Paper ID: 378

Flight Delay Prediction using Machine Learning Model

Kavitha P V (Sri Ramakrishna Engineering College)*; LN Manoranjani (Sri Ramakrishna Engineering College); V Mithra (Sri Ramakrishna Engineering College); P Monal (Sri Ramakrishna Engineering College)

Abstract: In recent days, there have been more flight delays. During the present domestic airline crisis in the United States, there have been several flight delays and cancellations. Depending on the number of destinations it serves, American Airlines has long been regarded as one of the most reliable and significant airlines in the United States. In terms of punctuality, the airlines did not perform as expected. Flight delays are quite expensive for airline companies. As a result, they are taking extra precautions to reduce flight delays and cancellations as much as possible. In order to forecast aeroplane arrival delays, this study analyses flight data from three of New York City's largest airports. The Gradient Boosting Classifier Model is deployed by training and hyper-parameter tuning using Grid Search and Randomized Search. The accuracy gained before parameter adjustment is 72%. After parameter tuning the accuracy obtained is 73% using Grid Search, and 74% using Randomized Search. The passengers will find such a system quite helpful in planning their travel.

Paper ID: 384

Reservation System for Charging Electric Vehicles

Hari Krishna S M (M S Ramaiah University of Applied Sciences)*; Konda Jahnavi (M S Ramaiah University of Applied Sciences); Akula Abdulla (M S Ramaiah University of Applied Sciences); Sumanth H (M S Ramaiah University of Applied Sciences); Akshat Gaur (M S Ramaiah University of Applied Sciences); Tejaswini V (M S Ramaiah University of Applied Sciences)

Abstract: In recent years, the production of Electric Vehicles (EVs) has increased significantly due to their environmentally friendly nature and as substitutes for cost-effective petrol and diesel vehicles. With the increase in penetration of these electric vehicles and various user preferences, Charging Stations also need to install in appropriate locations and satisfy the various requirements of EV users. However, with the current infrastructure of these charging stations in major cities of India charging these massive loads of Battery, eats important time for EV users waiting in Queue or finding suitable charging station for their vehicles. This paper explains the mobile application that was designed and built to help EV users in locating different charging stations near them and find out the variety of charging modes available at their preferred charging point. This data has been gathered from various APIs provided by the different EV companies and included in this application using Google maps SDK and API to display charging station locations and directions to it. One of the main features of this application is to provide users an option to add themselves to the waiting list at a charging station of user choice instead of going there and waiting in the queue until their turn comes.

Paper ID: 385**Mitigation of PQP in Distributed Generation using CPD's*****Satyanarayana Addala (GITAM Deemed To Be University)****

Abstract: India is having the third-largest electricity consumers in the world and is also the largest renewable energy producer, accounting for 38 percent of global renewable energy production. Solar, wind, biomass, hydro, and fuel cells are examples of renewable energy sources. This paper begins with a description of the difficulties like voltage sag, swell, noise, interruptions, transients, and so on, before moving on to basic standards. Adaptive Linear Combiner (ADALINE) is a method for detecting and adjusting harmonics problems. ADALINE may also monitor voltage sags, swells, transients, and interruptions, among other things. Then, for micro-grid systems, we look at how to mitigate these issues by utilizing bespoke power devices like DVR, DSTATCOM, UPQC, and so on. Due to its numerous advantages, UPQC may be a viable option for renewable energy systems. The use of UPQC to analyze and resolve power quality concerns in distribution generating systems was confirmed through simulation using Matlab /Simulation

Paper ID: 387**Performance Analysis of Convolutional Neural Network for Image Classification*****Radha Narayan Kanabarkar (KLS Gogte Institute of Technology)*; Mallikarjun H ANANDHALLI (Accord Global pvt solutions Ltd)***

Abstract: In earlier days of AI, the scientists were trying to build computers systems which will have visual data. In the last few decades, we have seen lots of research has been done and have come up with a Computer Vision Field where Convolution Neural Networks plays an important role, as is the backbone of computers vision systems. Convolution Neural Network is also called as ConvoNets. This paper describes the learning approach of image classification using convolution neural network with appropriate architecture of CNN model.

Paper ID: 388**Autonomous Driving Mobile Robot using Q-learning*****Sudharsan Reddy Venati (Amrita School of Computing, Bengaluru)*; Sai Prakash Nagulapati (Amrita Vishwa Vidyapeetham); Vishal C (Amrita School of Computing, Bengaluru); Amudha J (Amrita Vishwa Vidyapeetham)***

Abstract: This study presents a Reinforcement Learning, more specifically Q-Learning, method to the problem of autonomous mobile robot obstacle avoidance. For the past few years, Reinforcement Learning in Robotics has been a difficult problem to tackle. Many deep research efforts have been motivated by the ability to equip a robot with a powerful enough tool to allow autonomous discovery of an optimal behavior through trial-and-error interactions with its environment. In this paper, Implementation of Q-learning algorithm and feedback control for the mobile robot has been implemented in ROS. This algorithm is developed and tested with the turtlebot3_burger. The control script and the simulated robot communicate via ROS

Paper ID: 389**A Smart Social Distance Monitoring System**

Priya B K (Amrita school of engineering); subramanyam r v (Amrita school of engineering); Jyothi Srinivas N (Amrita school of engineering); Nagendra Peddina (Amrita school of engineering)*

Abstract: The entire world is affected by the Covid-19 pandemic. One of the major reasons is that it is contagious and a minimum distance should be maintained to stay safe. Social distancing might be a difficult task to implement effectively. Social distancing plays a pivotal role in curbing diseases that are contagious like Covid-19.

Now that situations are returning to normal, the risk of getting infected is still high. Governments are deciding to ease lockdown regulations, as part of the unlocking public places, workspaces and educational institutions started to resume their activities. Considering the current scenario, the public has to strictly follow all the necessary Covid-19 protocols to reduce the spike in the number of Covid cases. This project aims to develop a prototype device that helps in implementing social distancing using Ultra-Wide Band (UWB) wireless technology based solution. Prototype issues an alert signal when the distance between individuals is less than the prescribed threshold distance. If the protocol is breached, the user is alarmed through an LED. UWB is known for its advantages as it has greater signal strength compared to Bluetooth. The design of the prototype enables implementation as wearable such as an ID card.

Paper ID: 390**CattleCare: IoT-Based Smart Collar for Automatic Continuous Vital and Activity Monitoring of Cattle**

Debanjan Das (IIIT Naya Raipur); Kadali Umesh Chandra (IIIT Naya Raipur); Shiva Teja Rapolu (IIIT NAYA RAIPUR); Siri Arelli (IIIT Naya Raipur)*

Abstract: Farm productivity is increasing these days drastically due to farm automation and new technical procedures. The cattle health monitoring system is a current research topic in agricultural automation. However, most of them focus on health

parameters and do not include the feedback system. This paper proposed an IoT-based CattleCare platform for both vital and activity monitoring of the cattle. The Cattle Activity Prediction algorithm classifies the activities of cattle in order to keep track of behavioral changes in cattle as well as their health parameters. The system algorithm can predict cattle activity like grazing, stationary, or walking with an accuracy of 91.46%. The sickness of the cattle can be observed by the change in its behavior for that it is really important to keep track of its activities. This model has stages like data collection, storage, analysis, prediction and feedback. With the advancement in technology and the existence of the internet, we can practically connect any device to the internet and implement the concept of IoT.

Paper ID: 392**Analysis of a High Voltage Air Circuit Breaker and The Current-zero Phenomenon**

Akshay Ganesh Hiwarkar (G H Raisoni College Of Engineering, Nagpur); Rutuja Sudhir Hiware (G.H.Raisoni College Of Engineering, Nagpur)*

Abstract: This paper presents a new method to measure the current zero phenomena of a circuit breaker that is parallel connected to a switch. This method is ideal for applications where faster operation is required. The air circuit breaker is mainly used for systems with a voltage of 11 KV. The current measurements were carried out to obtain the V-A relationship between the current zero region of a model Air circuit breaker and the transient time of an arc resistance. The results of the investigations revealed that the time constant cannot be regarded as a constant in the equation. Zero current phenomena that occur when high currents are interrupted by an Air circuit breaker have also been studied. In order to measure the current and voltage in the current-zero region, high-resolution equipment has been used. Three examples of phenomena that have been observed are presented. One of these is the phenomenon that occurs when a current-measuring device senses that the current is zero for a brief period, but then continues to flow thereafter. The second and third examples show the zero phenomena after high-current currents, which are much higher than the rated short-circuit current. The latter two examples also show a low-voltage period following current-zero. In addition, the third example shows traces of current measurement. The first two examples show the current zero phenomena after high-circuit currents, while the third one shows a low-volt period following current-zero. In addition, the third example shows proof of current measurement. The plasma tends to conduct poorly before current-zero, but it performs well after. The zero-current model of the circuit breaker and the varying rows and models are verified with measurements.

Paper ID: 394

Dual Thresholding Based License Plate Recognition

Nithul Bagathi (Amrita Vishwa Vidyapeetham); Rajesh Kannan (); Jyothi Sai Naga Swaroop Yajjavarapu (Amrita Vishwa Vidyapeetham); Prakash Reddy Tatiparthi (Amrita Vishwa Vidyapeetham)*

Abstract: Applications that allow users to reserve parking spaces in advance, can incorporate license plate detection in a variety of ways. This may also be viewed as an effort to preserve order within the society. This feature enables the authorities (police) to track down the vehicle/person involved in the crime. This study suggests an algorithm for reading license plate text which includes steps such as RGB to gray scale conversion, thresholding of the pixel value, edge detection, contour detection, plate identification, text extraction. This paper suggests an algorithm which involves dual binarization methods: Otsu binarization method and binary thresholding thereby enhancing the accuracy of license plate detection.

Paper ID: 398

Roasted Coffee beans Classification based on Convolutional Neural Network

*NABIN KUMAR NAIK (SAMBALPUR UNIVERSITY); PRABIRA KUMAR SETHY (Sambalpur University)**

Abstract: Coffee is a traditional drink in India after tea. The demand for coffee is increasing day by day among youngsters. There are different types of beverages made in coffee as per its aroma & color, and it depends on the roasting levels of coffee beans. Most specialty coffees have been sorted and processed by hand. The coffee roasting degree is mainly based on the coloring of beans and is directly related to the beverage quality. There are four levels of roasting: green, light roast, medium roast, and dark roast. This manuscript proposed a convolutional neural network to classify the four-roasting level of coffee beans and achieved 97.5% accuracy.

Paper ID: 400**Towards Privacy For Android Applications**

Akash AR (Sri Sivasubramaniya Nadar College of Engineering); chithra s (ssn college of engineering)*; Vasuki P (Sri Sivasubramaniya Nadar College of Engineering); ShanmughaPriya T (Sri Sivasubramaniya Nadar College of Engineering); Nivas Muthu M G (Sri Sivasubramaniya Nadar College of Engineering)

Abstract: The widespread adoption of Android phones has accelerated the deployment of android mobile apps. Mobile applications are software programs designed to operate on mobile devices such as smartphones and tablets. As a result, they will be able to access and use data saved on a device, such as a contact list and data from the device's different sensors. In Android apps, third-party libraries are commonly used for leveraging functionalities like GPS, analytics, and advertisements. The third-party libraries have access to permissions the same as that of the host apps, these apps can easily become overly powerful and leak users' personal information without the user's knowledge. Users consent only to the applications they install, and they have no clue about the number of thirdparty apps integrated, as well as the permissions they access. Apart from this majority of the users lack the competence to discern if an application suits their privacy preferences. Hence, there's a big difference between what's perceived, and what's preferred when it comes to privacy. Our motive is to create an Android application that will improve the user's privacy. In this project, we perform a survey to collect the privacy preference of the user on one hand and compare it with what they share with the application as well as the hosted third-party apps. Though the permissions shared with the hosting app can be extracted from the user settings, it is not so with third-party apps. By using the Xposed framework to extract the list of third-party applications and the permissions accessed by them. Based on the sensitivity of the accessed API, a score is assigned and the listing is provided to the user. This would help the user in deciding to uninstall any app that accesses the sensitive APIs.

Paper ID: 401**Improving Patient Health in Smart Healthcare Monitoring Systems using IoT**

Senbagavalli M (Alliance University)*; Senbagavalli M (Alliance University)

Abstract: In recent years, healthcare monitoring systems with advanced technologies have become a source of great anxiety for different countries worldwide. The healthcare system provides a report card of our health at regular intervals of time. The proposed smart health care monitoring system monitors the patient's health condition and updates the same to the neighbours and doctors by using IoT technology. It addresses blood pressure, oxygen concentration in our blood, heart rate, and atmospheric pressure. The proposed system contains several sensors which are responsible for complete patient health monitoring. The system generates and stores useful continuous health data. After storing the health data in the cloud, the data has to be pre-processed and then generated into one report which includes the status of the health condition of the corresponding patient. The system reduces the cost of the treatment because patient needn't to come daily to take readings of body temperature, SpO₂ etc. The system is basically wireless so we can embed at any location and the doctors and healthcare monitors can collects a data from any remote location. The major advantage of the system is more than one doctors collect the data from the cloudIoT at the same time. The system contains wireless sensors and application for displaying report of the person at each interval of time. It is very useful for the person who is living away from hospital or any remote location. It reduces time for the doctor so that they can attend more patients. In this paper, we used appropriate sensors which collect the appropriate data, so it is very useful for the doctor who analyses the data and predict the diseases. The proposed system used MQTT (Message Queuing Telemetry transport) as a connectivity protocol as well as I2C (Inter Integrated Circuit).

Paper ID: 402**Stock Index Probability Prediction using the FB Prophet Model**

Neha Harish (Sai Vidya Institute of Technology)*; Yashwanth Gundala (Sai Vidya Institute of Technology); Eshanya B (Sai Vidya Institute of Technology); Likith H (Sai Vidya Institute of Technology); Narayan Krishnaswamy (Sai Vidya Institute of Technology); SUNIL G L (Sai Vidya Institute of Technology)

Abstract: Given how unpredictable the stock market has recently become, it is now crucial to be able to accurately predict the future trend of equities. Because of the financial crisis, it is now essential to estimate stock values accurately in order to make

money. Non-linear signal forecasting requires sophisticated statistical models and machine learning methods. We must identify the stock's purchasing and selling points for a specific stock market history in order to make a profit.

The Dow Theory, MACD, the Relative Strength Index (RSI), the Exponential Moving Average, and others have all been used to forecast stock market performance. It could be challenging to make a specific judgement because these models could provide a variety of indications. The aforementioned issue was attempted to be solved by a wave of machine learning algorithms in artificial intelligence. Some strategies have yet to provide promising results, while others have not reacted as well on the stock market exchange, due to the non-linear structure of the stock market signals. We intend to employ the Prophet model, which is reliable and generates findings with minimal data. The Prophet refers to the method of forecasting time series data based on an additive model with non-linear trends suited with holiday impacts, daily seasonality, weekly, and yearly. Strong seasonal impacts in time-series data are ideal for it. The prophet is resilient to missing data and adept at handling outliers. Facebook has made available the prophet, an open-source Python package. Predictions of stock prices are shown by indicators like RSI, MACD, Super Trend, and others.

Paper ID: 408**Novel Machine Learning based Cancerous Tumour Diagnostic Model Design**

Sudhakara M Reddy (Nagarjuna college of Engineering & Technology)*; Dr. Nidhi Mishra (Kalinga University)

Abstract: Predictive machine learning methods promise breast cancer early detection. Evaluating cancer-diagnosis models is difficult. By applying various data exploration techniques, we were able to boost the accuracy of breast cancer diagnosis and construct four prediction models (DET). In the days before models, robust malignant and benign feature classification was achieved by the use of four-layered essential DET. This DET consisted of procedures such as feature distribution, correlation, elimination, and hyperparameter optimization. The WDBC and BCCD datasets were subjected to these methodologies and classifiers respectively. We used confusion matrices and K-fold cross-validation to assess the effectiveness of each classifier as well as the amount of time required for training. On the WDBC dataset, polynomial SVM achieved an accuracy of 99.3 percent, with LR 98.6 percent, KNN 97.35%, and EC 97.61%. Our accurate findings were compared to earlier research. The implementation technique and results may help doctors comprehend and prognosticate breast cancer tumours.

Paper ID: 410**Customer Following Trolley using ESP32**

Ranjith R (REVA University)*

Abstract: In the past few decade the shopping mall were introduced in the metropolitan cities that made customers buy all kind of their daily commodities which are available easily in one place that is in one mall. In order to add the items in the cart supermarkets has brought moving trolleys. Once after we add items in the trolley it becomes difficult to move to the billing counter due to overweight. To overcome such issues many models have been proposed so far but due to its complexity in design and high maintenance cost these models are not yet implemented in reality and remained in the development section. Hence, we have proposed a model in which modern components are implemented that supports wireless internet connection and Bluetooth such as ESP32, camera module and NODEMCU. These works perfectly without any need of external source. Using this we have build a system that follows the customer during their shopping and they do not need to move their trolleys.

Paper ID: 411

Brain Tumor Segmentation using 3DResUNET34

S Manivannan (Sri Sivasubramaniya Nadar College of Engineering)*; N. Venkateswaran (SSNCE)

Abstract: Brain is the most important organ in functioning of a human body. Brain Tumor refers to the growth, development and spread of unwanted dangerous cells in the brain .Brain tumor is a lethal disease and may even lead to death.The motive of this experiment is to integrate the advancement in the field of deep learning with tumor segmentation.For a long period of time brain tumours are segmented manually.This procedure is a hectic and time taking in many complex cases . So, automatic accurate segmentation is a need in today's medical world. Deep learning is used as a tool to address this necessity.In this paper 3D UNET architectures are proposed for Multi Class tumor segmentation.With a conventional 3D UNET as a reference architecture ,two modified 3D UNET frameworks are proposed for better performance .The proposed architectures namely are Attention based 3D UNET and 3D ResUNET34, these deep learning models performed well when compared to the baseline reference 3D UNET architecture.3D ResUNET34 was the best performing model with MeanIoU and Dice coefficient 80.23 and 88.55 respectively.

Paper ID: 413

Traffic Flow Forecasting in Intelligent Transportation Systems Prediction Using Machine

Mohammad Naveed Hossain (BRAC University)*; Nafim Ahmed (Daffodil International University); S. M. Wazid Ullah (Mawlana Bhashani Science and Technology University)

Abstract: Globally, intelligent transportation systems utilize traffic predictions. Traffic congestion, route planning, and vehicle dispatching all benefit from accurate traffic forecasts. The road system's changing geographical and temporal dependencies complicate the problem. In recent years, traffic forecasting has improved thanks to research, particularly deep learning. We investigate traffic predictions for Dhaka based on machine learning and deep learning techniques. The classification of existing traffic prediction methods comes first. To enable academics, we aggregate and arrange commonly used public datasets. We undertake comprehensive experiments on a publicly accessible real-world dataset to compare and contrast diverse methodologies. The contribution of the third section is automated approaches for traffic forecasting. In closing, we discuss some of the outstanding questions.

Paper ID: 415**Classification Of Medicinal Leaf By Using Canny Edge Detection And SVM Classifier*****Anagh Anil A (amrita school of arts and science)*; sharan mr (amrita school of arts and science)***

Abstract: Plants play an indispensable role in human life by providing food, oxygen, medicine, shelter, fuel along with environmental protection. Besides, lot of plants contain medicinal qualities and active ingredients for treatment. In modern years, many useful plant species have become vanished or have been destroyed due to factors such as population growth, global warming and lack of government support for research activities. Scientific research in the field of machine learning and image processing has concentrated on classification of medicinal plant species. Plants are recognized and classified by their leaf features. We assort leaves based on their shape and size. An automated system is presented in this paper which enumerates various properties of leaf shapes such as width, length, area of leaves, area of rectangle, perimeter of leaves in pixels. In the proposed work, we captured an image of the leaves and convert colored images into grayscale and binary image and further resized in order to process it rapidly and calculate the prominent features. Two machine classifiers K-nearest neighbor and Support Vector Machine are analyzed to regulate the optimum accuracy for classifying the plants

Paper ID: 417**Breast Cancer Classification Using Ensemble Approach, Machine Learning And Deep Learning*****Kushal kumar N Raju (Vellore Institute Of Technology)*; Avinash Khatua (Vellore Institute of Technology); Tarun S (Vellore Institute Of Technology); Monica Subashini (Vellore Institute Of Technology)***

Abstract: This research aims to use data classification, image classification, and the ensemble approach to classify and predict benign or malignant cancer cells, therefore lowering the time and expense involved with breast cancer screening. The dataset used in data classification was augmented using the Data Augmentation approach, and the augmented data is then separated into train, test, and validation. The model is then trained using CNN, SVM, KNN, and Random Forest algorithms, after which it is verified with the test data and validation parts of the dataset. The image classification models are trained using CNN and Random Forest algorithms then the models are validated by predicting images of different dataset image to check if a cell is benign or malignant. In data classification after 50 epochs of training, an accuracy of 94.73 percent was achieved for CNN in categorizing data, 92.98 percent for SVM, 90.87 percent for KNN, and 95.3 percent for Random Forest, in image classification 92.36 percent for CNN and 93.28 percent for Random Forest are achieved

Paper ID: 421**Big Data Analytics Architectural Data Cut off Tactics for Cyber Security and Its Implication in Digital forensic*****Md Sanaullah S Miah (JUST)*; Md Saiful Islam (JUST)***

Abstract: The Internet is very swiftly expanding today than our imagination that we see now. At present more than half of the world's population involved in the cyber world. There is plenty of data generation with this huge population. These data are of varying degrees

and speeds, collectively referred to as Big Data. This rapid growth of the Internet has led to a significant increase in the type and frequency of cyber attacks. There are many well-known cyber security solutions to combat these attacks. Many corporate studies are now focusing on security analytics, such as the application of Big Data Analytics techniques to cyber security. The literature reveals a plethora of Big Data cyber security analytics systems. Here, in this paper we proposed to adopt a new data cut off architectural strategy for big data cyber security analytics. And finally, we give an example of how this proposed data cut off tactics used in the digital forensic investigation process.

Paper ID: 422

Swarm Robotics for Ultra-Violet Sterilization Robot

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Abstract: Swarm robotics is a technical approach of multiple robots working together and solving multiple problems at a time. Enormous and complex work cannot be done using conventional approaches, so this system will help to work in an organized way to deal with this complex work. This paper mainly focuses on using a Swarm Robotics System for UV sterilization robots. The most crucial elements in maintaining human health are proper cleanliness and hygiene standards. This system will reduce traditional cleaning costs and also reduces the vulnerability of humankind to infection. The advancements in hardware technology, cooperative approaches in biology, and swarm intelligence in the future will be boosted in the development of swarm robotics systems.

Paper ID: 423

AI, AR Enabling on Embedded systems for Agricultural Drones

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Abstract: The agricultural sector nowadays is facing a lot of manpower issues as it has a lower income compared with other sectors. By using AI/ML in agriculture we can eliminate financial losses and increase agricultural yield. For every crop, farmers have to bear a larger amount of loss due to pests, animal intervention with the crops, as well as the inaccurate choice of crop. Every time a farmer cannot identify the diseases with naked eyes accurately. Approaching agriculture experts is not always financially feasible. Hence, the use of technology in the agricultural sector to address the said problems becomes very important. The crop disease detection is done with the help of the CNN algorithm and using N, P, K, soil-type, etc. features we can easily predict the suitable crop with accuracy. Surveillance at the border is an issue of national interest, with help of machine learning in the autonomous drone we can detect illegal human trespassing, while this won't completely replace the current system of human surveillance, but can reduce the use of manpower. Moreover, by using augmented reality, we can visualize future developments in the area.

Paper ID: 427

Complete Data Transmission using Li-Fi Technology with Visible Light Communication

Janhavi Sanjay Pradhan (NIELIT, Aurangabad); Asmita Pandit Sonawane (NIELIT, Aurangabad); vaibhavi waghmare (NIELIT, Aurangabad); Saurabh Kesari (NIELIT,Aurangabad); Shashank Singh (NIELIT, Aurangabad); Prashant Pal (NIELIT, Aurangabad)*

Abstract: Everyday numbers of people use the internet. Demand for net access increased as a result. Wi-Fi (wireless fidelity) is more expensive and exhibits sluggish data speeds when more than two routers are connected. Li-Fi (light-fidelity) is a good solution to solve these problems. It is a wireless technology that uses LED or infrared light to transfer data. This method uses a light source to transmit data while using VLC. This paper proposed a device that transfers all data using VLC (visible light communication). While a photo diode is placed in the receiver component to receive light arrays, the transmitter device uses high-power LED arrays to transmit audio, video, text, and images. The transmitter and receiver system to verify the performance and compile the audio, video, text, image transmission using Li-Fi under varying limitations such as light intensity, output quality and distance. Li-Fi uses LED for up to 500 Mbit/s of communication over short distances or regular lamps for transmissions at 10 Kbit/s. By conducting experiments, the system described in this paper can deliver data over a variety of distances. We are also putting into practice the application of how this previously mentioned concept might be indicated for indoor location-based services.

Paper ID: 429

Realization of Smart and Highly Efficient IoT-based Surveillance System using Facial Recognition on FPGA

Abhay Pratap Singh Shekhawat (NIELIT Aurangabad); Pawan Chaurasiya (NIELIT Aurangabad); Abhishek Chaurasiya (NIELIT Aurangabad)*

Abstract: In this paper, we have developed a security system using FPGA with the integration of IoT using face recognition technology with the help of the openCL library. We will be using HLS for the conversion of our C++ code so that it can be deployed on FPGA after converting it into VHDL. The designed system can recognize and allow the authenticated person to enter the building or office even if the person somehow bypass the authentication then also our system can catch him/her using real-time face detection using all the cameras integrated with our IoT system and comparing the faces stored in the database and will alert the security personals even out system will be able to find one particular person in building conditioned if the person is in camera's view which will make our system even more effective for surveillance and finding someone.

Paper ID: 430

Smart Navigation System Assistance for Visually Impaired People

Prathmesh Bhagwan Kenekar (NIELIT,Aurangabad); Vallari Khobragade (NIELIT,Aurangabad); Priyanka Bhosle (NIELIT,Aurangabad); Prashant Pal (NIELIT,Aurangabad); Shashank Kumar Singh (NIELIT,Aurangabad)*

Abstract: In this paper, we have proposed a system for visually impaired people using an ESP32 microcontroller, Radar sensor, Ultrasonic sensor, and GPS. This proposed system detects the object and converts it into an audio signal. We have used different types of sensors.

It also contains Bluetooth for audio navigation. This smart stick is user-friendly, light in weight, low power consumption, easy to use, and easy to understand for the user. This project aims towards helping visually impaired people so they can roam around independently. It is portable in use in any environment. It is a smart stick that guides the user by sensing the obstacles in the range of the stick on the path of the user. The vibration and buzzer sensor which is placed on the stick notifies the user about the hurdles or objects which are on the path of the user.

Paper ID: 431

Heart Murmur Detection from Phonocardiogram Recordings using Deep Learning Techniques

Nikhil S Bathe (College of Engineering, Pune)*

Abstract: The purpose of this research is to figure out where the murmur's boundaries are in heartbeat sound. Murmurs in the heart can help diagnose a wide range of heart problems, including natural or artificial valve dysfunction and heart failure. The PCG has some useful aspects that can help with the basic analysis of heart problems. In this system, it takes the audio PCG signal as an input then applies machine learning methods to train model to distinguishing the different types of PCG signals. After that by available result we can state types of MURMUR and accuracy of predicting it.

Paper ID: 432

An Efficient, Low-cost Plant Disease Detection System using IoT

Kanthy Hegde (Manipal Institute Of Technology)*; Paresh K V (MIT); Nitin Srinivasan (MIT); Gautham Raj P (MIT); Jai Varma (MIT)

Abstract: Agriculture gives employment to a significant part of Indian society, yet its technological growth has stagnated. Even today, crops are still devastated by diseases as farmers are not entirely aware of preventing them and do not have effective ways of predicting when and how to avoid them. Therefore, this method has been illustrated by using various technologies. The system will consist of a soil moisture sensor, soil temperature sensor, air temperature sensor and a humidity sensor with a simple microcontroller to monitor four parameters: Air temperature, Soil temperature, Humidity and Soil Moisture. These parameters will help in monitoring the plant's vital conditions and would help us know whether the plant is affected or not. Once the infected plant is identified, its location will be conveyed to the farmer via an app/ user interface. This system will help the farmers increase their efficiency and productivity and reduce crop wastage, increasing their income.

Paper ID: 433

AI Based Autonomous Room Cleaning Bot

Hari Krishnan (NIELIT, AURANGABAD)*; Akash Naik (NIELIT, Aurangabad); Ganesh Patil (NIELIT, Aurangabad); Prashant Pal (NIELIT, Aurangabad); Shashank Kumar Singh (NIELIT, Aurangabad)

Abstract: Daily, technology is growing at a rapid pace. We use machines even for simple jobs like monitoring, cleaning, etc. It is almost as if we depend on them, rely on them, and have an unprecedented urge to always have one on hand. For example, one of the most commonly used machines we have become so attached to is the mobile phone. Everywhere we look, we can see people wandering around with their eyes glued to their screens or holding their devices next to their ears and having a conversation with whoever is on the other side of the line. We have almost completely substituted all the earlier forms of communication, transportation, and other aspects of our society by creating newer, more industrial methods and apparatuses. This has brought modern methods and devices for various tasks in various fields. Most of these jobs are done with the help of machines to save time and labor costs. Our idea is one such project which mainly focuses on saving time and money, and also doing its work efficiently. This robot is fully automated which makes use of the concept of object detection and room mapping to move around the room and clean the floor.

Paper ID: 440

Comparative Study Of Movie Recommendation System Using Feature Engineering And Improved Error Function

*Dev Kumar (NIT Calicut)**

Abstract: Movie recommendation systems or Proposal framework suggest movies to users based on their online activities on the site. These systems give ideas to users which are best suited to the user's requirements at a moment when they don't know about it. Recently, these systems become an imperative part in expanding the income for some organizations such as Netflix, web based business destinations and many more. In this paper, we provide comparative study of different machine learning recommendation models which are based on the collaborative and content-based filtering using an effective error function generating relevant features over Netflix dataset. Experiment is performed on the data set comprising over 17K motion pictures and 500K+ clients. Here, Models are compared based on achieved Root Mean Square Error (RMSE) value. The experiment results on the dataset indicates that singular value decomposition provides an effective model that is precise and generates more personalized movie recommendations.

Paper ID: 444

Machine Learning Based Improved Automatic Diagnosis Of Soft Tissue Tumors (STS)

Sudhakara M Reddy (Nagarjuna college of Engineering & Technology); Dr. Nidhi Mishra (Kalinga University)*

Abstract: Soft tissue tumours, also known as STTs, are a kind of sarcoma that form in tissues that surround, support, and come into touch with physiological systems. When observed by magnetic resonance imaging, they seem to be heterogeneous owing to their modest recurrence throughout the body and their astonishing variety. They are often mistaken with other disorders, such as lymphadenopathy, struma nodosa, and fibro adenoma mammae, and these suggestive mistakes have a major unfavourable impact on the clinical treatment cycle of patients. In an effort to define malignancies, analysts have developed a variety of AI models, however, none of these models have effectively addressed the issue of inaccurate diagnosis. Comparative studies that have offered strategies for assessing these tumours, on the other hand, often leave out the variety and amount of the information that is available. We present a strategy that is based on machine learning and that includes preprocessing the data for feature modification, resampling strategies to minimise bias and instability, and classifier testing based on the SVM and DT algorithms. All of these components are included in the approach. Before the data is analysed, each of these procedures must first be completed. Resampling, resampling, and more resampling are all

part of this strategy for reducing the effects of bias and instability. The new data preparation is for the purpose of making changes to the characteristics. The results lend credence to the hypothesis that methods of machine learning might provide the STT diagnostics' autonomous decision-making algorithms some tools that are not only valuable but also practically applicable.

Paper ID: 445

Security Intensification in Restricted Area By Confining Unauthorized Smart Phone Applications

Ajay Salaria (DIAT); CRS Kumar (DIAT); Arun Mishra (DIAT)*

Abstract: With the advent of Technology, Android based applications have also taken a huge leap forward and are driving most of the Businesses around the world. However, the associated hazards of Information breach due to the user behind the machine are also growing several times. A very basic Android Phone if handled by an inimical element is in itself a threat to any organization. It becomes exceedingly difficult for any organisation to allow its employees to use android-based smartphones within Office premises considering the associated menace. The situation is considerably more problematic for organisations such as Defense, Nuclear, Medical, Research, etc as they deal with a huge amount of Classified Data. Notwithstanding, these demerits involved with the usage of Smartphones are sometimes ignored or these organisations attempt to impose various other physical limitations that involve significant expenses and cause discomfort to its employees. In this light, this paper aims to provide a novel method for imposing constraints on Android-based devices in order to mitigate the aforementioned risks. This approach contributes to restrict Android applications from accessing certain smartphone resources once the host device reaches a pre-defined designated area. This can be achieved by providing the requisite permissions to the Applications. This application will have a QR Code scanner that will scan QR Codes at Entry/Exit points to disable/enable undesired Smartphone applications.

Paper ID: 446

Cardless Cash Withdrawal Using Palm Vein Technology

Indraneel Tiloo (MIT WPU Pune); Sukhada Bhingarkar (MIT WPU Pune)*

Abstract: Generally, the easiest way to withdraw money from your bank account is by using an Automated Teller Machine (ATM). The user can withdraw the money by inserting their card into the slot on the machine, and then entering a four-digit Personal Identification Number (PIN) to complete the transaction process. Similarly, some banks adopted the method of using a One Time Password (OTP) to complete the transaction process to make it more secure. With the recent advancements in technology, there are many new methods that can be used for withdrawing money from ATMs, like cardless cash withdrawal or using one's biometrics. But, due to the recent COVID-19 pandemic, we refrain from using things that are not sanitized properly. People started avoiding going to the ATMs since hygiene was a major concern during the pandemic. Also, due to the constant hand washing and the use of sanitizers, the use of conventional biometrics was not efficient. As a result, the idea of using a method that is contact-less and is also more secure emerged, i.e., the palm vein technology. The palm vein technology uses a person's vein pattern, which is unique to everyone and can help us achieve better results with greater accuracy. The paper proposes a concept of using a person's vein pattern as a method of contact-less authentication. It is an extremely safe verification procedure because no two people in the world, not even identical twins, can have the same palm vein structure or pattern. Additionally, it is more secure because it is nearly impossible to replicate the palm vein pattern.

Paper ID: 454

Twitter Sentimental Analysis for Businesses Using Python Web Services in Salesforce Cloud

Priya Parameswarappa (University of the Cumberlands); Saideep Sunkari (Kakatiya Institute of Technology and Science, Warangal); Rahul Bejgam (Kakatiya Institute of Technology and Science, Warangal)*

Abstract: The presence of social media platforms has not only enabled the people to exchange personal views about the things that run around their lives but also provided the business organization to tackle with the reviews and reach their customers in quick manner, enabling the public relations (PR) teams, sales teams and marketing teams to address the issue quickly. The process of resolving the tickets, queries and tackling the reviews requires an automated process that actually helps the marketing teams to analyze the emotion of the consumer over social media. Using the sentimental analysis, organizations can understand the issue quickly and resolve it before it could reach a wider audience and probably lead to defamation of the business organization. With the growing reach for businesses over the globe, it is quite necessary for the marketing teams to address the negative reviews reach wider users and help the organization understand the issues with the product or service of the organization. This paper explains the approach for sentimental analysis, categorizing the emotion, raising a ticket over Salesforce platform. Salesforce is a platform that helps in managing relations with customers and potential customers, replying to the user from the same platform without going away to another platform.

Paper ID: 460

An Efficient Detection of Driver Tiredness and Fatigue using Deep Learning

Nirmala M (New Horizon College of Engineering); Jane Rubel Angelina (Kalasalingam Academy of Research and Education)*

Abstract: One of the most prevalent causes of fatal crashes that result in serious injuries or fatalities as well as major financial costs for victims, families, and society as a whole is fatigued driving. As a result of microsleeps, a fatigued driver poses a significantly greater risk to other road users than a fast driver. Scientists and firms in the automotive industry are working hard to find remedies to this challenge. In this paper, neural network-based approaches are used to identify short-term sleep and fatigue. Preventing road crashes caused by fatigued motorists may be as simple as triggering an alarm. Fatigue can be detected using a variety of techniques. The accuracy of classifying sleepiness was improved in this study by using camera-detected features of the face and a Convolutional Neural Network (CNN). As the system has been planted into portable smart device, it could be widely used for driving fatigue detection in daily life.

Paper ID: 465

An Empirical Study of Genomic Sequencing Workflow in the Cloud

Mandeep Kumar (University Institute of Computing, Chandigarh University); Gagandeep Kaur (University Institute of Computing, Chandigarh University)*

Abstract: Cloud computing is a well-known and long-lasting paradigm that has transformed how large and small businesses manage their computational resources. The cloud and network's global footprint match the global nature of science, with security and access controls that allow genomics researchers to manage data sharing. It's also changing the way genomicists and other researchers collaborate and

work with massive archive datasets. Researchers must understand the cloud and the new modes of analysis and collaboration it enables as it makes inroads into genomics. This work discusses genomic sequencing workflow procedures and software, as well as discuss how to setup a genomic sequencing workflow in the cloud with appropriate services, using the AWS Cloud as an example. We performed three genomic sequencing workflow execution Case Studies that use appropriate software with different hardware in the cloud. We ran a small-scale genomic sequencing workload with 290 MB of input data (FAST5) and a large-scale genomic sequencing workload with 232 GB of input data (FAST5). We provide a comprehensive performance evaluation of the genomic sequencing workflow with our execution Case Studies and comparisons to bare metal servers. The final output of the workflow will be used for filtration, validation, and clinical report generation as per clinical guidelines.

Paper ID: 467

Anti-Forensic Technique Using Alternate Data Streams for Data Hiding in NTFS

Rahul Hermon (Defence Institute of Advance Technology, Pune); Dr. Upasna Singh (Defence Institute of Advanced Technology, Pune); Dr. Bhupendra Singh (IIIT Pune)*

Abstract: Data hiding techniques are one of the most commonly used anti-forensic methods by attackers or perpetrators. There are many data hiding techniques in various kinds of file system in different OS. Alternate data streams (ADS) in NTFS are one such means by which data can be hidden in Windows OS. In this work, ADS will be used to demonstrate how data can be hidden in it, to include different kinds of data files. The same will be implemented using command prompt. Lastly, we compared the data hiding technique using ADS in Windows 10 and 11 Operating System.

Paper ID: 469

Language Identification System : Employing n- gram to Improve Accuracy And Efficiency

*Lekhraj Saini (Defence Institute Of Advance Technology)**

Abstract: Human conversations are highly dependent on language, so it's common for us to attempt to figure out the language being used or spoken. Language identification is necessary before any language translation or other language model can be employed (like; Sentiment analysis, OCR, etc.). These use cases are now a requirement for regular learning, application, and improvement. Neural networks are capable of capturing and identifying the language's essence in order to accomplish or implement such tasks. If we think in terms of humans, we try to identify a language based on the words, which are the group of characters, and how frequently they are used in any sentence before trying to predict the sentence. The algorithm can do the same thing because computers don't understand languages; instead, they need numeric representations of the languages, which is to say that each sentence should be represented as a vector of numbers. To accomplish this, we build a vocabulary using the top 180 n-grams in each language, and then we employ those attributes to represent each phrase. The neural network would then acquire these feature vectors for training, and numerous experiments would be carried out to achieve the highest level of accuracy.

Paper ID: 473**IOT Smart Stand for Smart Phones*****Amey V Dhuri (Vishwakarma Institute of Technology, Pune)****

Abstract: Focusing on a particular task has been a challenge for youth in this age of smart phones which has drastically reduced the productivity. In this paper, we propose a smart IOT stand with a mobile application for youth that will help to increase the productivity and concentrate on a particular task. This system detects when a phone is kept on the smart stand and starts counting the time required for a particular task. The activity of the user is stored in the application so that the user can create daily study patterns and segregate the time with the help of tags given to a certain task. So overall it is a IOT smart stand + mobile application combo that helps to boost productivity achieve more in academic or personal endeavors.

Paper ID: 475**Design of a New Transformer based Multilevel Inverter with Single Source for PV Application*****Hari Krishna Bhukya (Warangal Institute Of Technology And Science)*; Kranthi Kumar Vanukuru (KL University); JBV Subbrahmanyam (GIET)***

Abstract: Multilevel inverters with few numbers power components are evolving more widespread due to their reduced cost, higher efficiency, and compact size. In order to enhance the performance of a multilevel inverter, a suggested inverter architecture is generated from two transformers by including the three-leg inverter into the transformers inverter topology. By increasing the number of output voltage levels available to the multilevel inverter and decreasing the power losses in the switches by using suitable power semiconductor switches under various switching conditions, the proposed inverter circuit lowers the amount of THD in the output voltage of the multilevel inverter. Through the simulation of the proposed inverter topology and comparison of the results with the results from the simulation of existing multilevel inverter topologies, the performance of the suggested inverter is confirmed.

Paper ID: 476**Improving the Maximum Power Point Tracking in Wind Farms with PID and Artificial Intelligence Controllers for Switched Reluctance Generators*****Dr Venkataramana Guntreddi (Kampala International University); Dr. T Vijay Muni (Koneru Lakshmaiah Education Foundation)*; Chilukuri Bala Venkata Subbarayudu (Shadan Women's College of Engineering and Technology); V Parimala (KPR Institute of Engineering and Technology); B Suneela (Lord's Institute of Engineering and Technology); Fantin Irudaya Raj E (Dr. Sivanthi Aditanar College of Engineering)***

Abstract: One of the most significant forms of renewable energy is wind power, which has been the subject of in-depth study to develop more dependable and efficient ways. Numerous research on wind energy have been conducted in the recent years. The most often discussed subjects include maximum power point tracking (MPPT) systems, kinds of generators used in wind turbine applications, control and stability of wind plants. Recent research on the VSWT has centered on developing MPPT technology. For a switched

reluctance generator (SRG) powered by a variable speed wind turbine to generate the most power. By detecting the wind speed and adjusting the wind turbine shaft speed for the ideal tip speed ratio, MPPT is accomplished for the wind turbine. By altering SRG's turn-off angle. The asymmetrical half-bridge converter system connected to the SRG. The MATLAB/Simulink environment is used to simulate the systems. This project presents PID and Artificial intelligent controllers as MPPT system. The PID and intelligent controllers regulate the SRG's output power. The outcomes demonstrate that ANN controller outperforms the FL controller and PID controller in terms of accuracy and efficiency.

Paper ID: 478

Volt/VAR Optimization and Control of Smart-Grid Enabled Distribution System using CVR

Chandra Prakash Prajapati (National Institute Of Technolgy, Kurukshetra); Saurabh Chanana (NIT Kurukshetra)*

Abstract: The conservation voltage reduction (CVR) technique is being deployed globally for peak load reduction and energy conservation. In this paper CVR technique optimized with the Firefly optimization algorithm is applied to a distribution system enabled with smart grid technology. In the proposed scheme Volt/VAR control operation is used for the Advanced Distribution Management System (ADMS). The operation of CVR is based on a reduction in different levels of voltages which impact the impedance, current, and power of a ZIP load. So, the level of CVR decides the conservation of energy. When the voltage reduction level is high, capacitor banks are injected to maintain the voltage profile within acceptable limits by injecting additional reactive power. The effect of the proposed CVR is considered in IEEE 13-node test system which is an unbalanced radial distribution system. The system performance is simulated on OpenDSS software interfaced with MATLAB. The result of the simulation shows the energy saving during the peak load demand with different voltage reduction levels. It also shows voltage levels maintained with additional reactive power support by CVR in different modes of operation.

Paper ID: 481

E-Voting via Upgradable Smart Contracts on Blockchain

Mohd Mamoon (Zakir Husain College of Engineering and Technology, Aligarh Muslim University, Aligarh); Mohammad Saim (Zakir Husain College of Engineering and Technology, Aligarh Muslim University, Aligarh); Ilma Shah (Zakir Husain College of Engineering and Technology, Aligarh Muslim University, Aligarh); Abdus Samad (Zakir Husain College of Engineering and Technology, Aligarh Muslim University, Aligarh)*

Abstract: The proposed work is a blockchain-based E-Voting system that is designed to incorporate privacy, authenticity, and verifiability in the electoral process. Solidity programming language is used to implement smart contracts stored on the Ethereum blockchain which are executed automatically when predefined conditions are met. An Ethereum-based E-Voting decentralised application is deployed which authenticates users with the help of biometric factors and verifies it with the existing E-Aadhaar database. In this model, the paper presents the novel idea of deploying an upgradable smart contract where the election manager can decide whether the voting application would require either a version change, virtual upgrades or feature modifications in the future. This is achieved by using the OpenZeppelin plugin deployed on truffle which uses the concept of "proxy pattern." This methodology helps us to improve and enhance the logic of smart contracts that are normally non-editable once deployed. The parameters used for authentication include the user's Email-ID, Registration ID(Aadhar), and facial scan for biometric verification along with other details related to the voter's biodata.

Paper ID: 490**Modeling and Simulation of Solar Energy Storage System for Electric Vehicle*****Gouthami Eragamreddy (G.Narayanaamma Institute of Technology and Science (For Women))**; Dr S Gopiya Naik (PESCE mandya)**

Abstract: In contrast to the conventional automobiles powered by internal combustion engines burning fossil fuels, electric vehicles have drawn increased attention. Future sustainable transportation is a goal for the auto industry. In an electric car, the electric motor is crucial. Most motors used in automotive applications include AC motors, DC motors, and reluctance motors. However, BLDC motors are best suited due to their high levels of dependability, power density, efficiency, affordability, lightness, and reduced maintenance need as a result of the lack of brushes. With in-wheel technology, each electric vehicle (EV) wheel is operated by a separate motor as opposed to a central drive system. In order to analyze power flow during motoring and regeneration. This work uses the MATLABSimulink platform to present a simulation model of a completely electric automobile. The drive train components include motor, battery, motor controller, BMS, and auxiliary loads. The range of an electrical vehicle is increased by using solar photovoltaic (PV) electricity to aid auxiliary loads, which is represented using their mathematical equations. Plots and discussions are made of all simulation outcomes. To calculate the energy flow and drive performance, the torque and speed circumstances during motoring and regeneration were used. The basis for future research and development will be this study.

Paper ID: 491**A Taxonomy Of State Of The Art In Intrusion Response System*****Dharani Kanta Roy (Central Institute of Technology Kokrajhar)*; Hemanta Kumar Kalita (Central Institute of Technology Kokrajhar)***

Abstract: This work survey a taxonomy of Intrusion Response Systems (IRS), which classifies a lot of research papers released over the last decade that have provided us with a wealth of information about Internet security. Attackers' methods for gaining access to systems and infecting computers have evolved dramatically in recent years. The key aspects of IRS that are critical for defending a system from attacks are discussed. Choosing the appropriate security measures and responses is a crucial and difficult component of developing an IRS, and these issues are covered. Various approaches' Automated Intrusion Response Systems (AIRS) are discussed. Various existing techniques are discussed in relation to IRS. Based on a thorough understanding of all possible responses to various kinds of attacks in networks, this research paper presents a comprehensive assessment of Intrusion detection systems (IDS) and IRS. Understanding the mechanism from IDS to IRS can help system administrators and professionals for better understand how to combat various assaults using cutting-edge technologies. IRS is used in various applications, which is briefly discussed in the review.

Paper ID: 492**Middleware Device for Advertisement Blocking*****Harshal Amol Sonawane (Vishwakarma Institute of Technology)*; Manasi A Patil (Vishwakarma Institute of Technology); Shashank Lalit Patil (vit); Bhavin Ratansing Patil (Vishwakarma Institute of Technology); Uma Devidas Thakur (Vishwakarma institute of technology)***

Abstract: Online advertisements are a significant element of the Internet ecosystem. Businesses monitor their customers via pushing advertising (Ads). Within minutes, cybercriminals try to defraud and steal data through advertisements. Therefore, the issue of ads must be solved. Ads are obtrusive, a security risk, and they hinder performance and efficiency. Hence, the goal is to create an ad-blocker that would operate across the entire network and prevent advertisement on any website's web pages. To put it another way, it's a little computer with such a SoC (System - On - chip) also referred to as a Raspberry Pi that is merged with a networking system, for which we need to retrain the advertisements. On the home network, software named Pi Hole is used to block websites with advertisements. Any network traffic that passes via devices connected to the home network now passes through the Pi. As a result, the adverts are finally checked out during the Raspberry Pi before they reach the users' machine and they will be blocked.

Paper ID: 493

Data Leakage Prevention System for Internal Security

Bhavya Singh Shishodia (DIAT)*; Manisha Nene (Defence Institute of Advance Technology, Pune)

Abstract: Transferring both allowed and illegitimate information is increasingly routine. This increased the potential danger to sensitive information and opened the door to further threats. A data breach is becoming commonplace in the headlines. All kinds of harm may be done with stolen information. A Data Leakage Prevention System (DLPS) is a scheme for preventing the unauthorised release of sensitive information inside an organization's internal network. The purpose of this study is to investigate different strategies for data security and the effects of preventing data leaks. Objective notes were taken on installation procedures and issues encountered. The deployment of industrial Data Leakage Prevention solutions in major organisations to safeguard cyber data has also been highlighted. The study holds the potential to guide a way towards implementation of technical solutions to handle the challenges envisaged in the ever-evolving environment, benefiting both academics and professionals.

Paper ID: 497

A comparative Study Of Feature Extraction Techniques And Similarity Measures For Image Retrieval

Mona Singh (Banaras Hindu University)*; Suneel Kumar (Banaras Hindu University); Ruchilekha . (Banaras Hindu University); Manoj Kumar Singh (Banaras Hindu University (BHU))

Abstract: With the growing popularity of using massive amount image database in several applications, it is critical to develop an autonomous and efficient retrieval system to search the relevant images from entire database. The method of obtaining the relevant images from huge image libraries by extracting their content features is known as content-based image retrieval (CBIR). In this paper, a comparative study is performed while acquiring various methods of traditional feature extraction, such as Color moment, Gabor wavelet, Discrete wavelet transform (DWT), Local binary pattern (LBP), Gray level co-occurrence matrix (GLCM), and Histogram of orientation (HOG), to present an efficient and more accurate CBIR system. The experiment is demonstrated on two benchmark datasets, namely Wang (color images) and Medical MNIST (grayscale images), with different visual effects. To retrieve relevant images of a query image, three distinct distance metrics, such as Cosine, City block, and Euclidean, are used to examine the similarity between the query image and the database images. The experiment is evaluated using two performance metrics: precision and recall, to compare the efficacy of various approach. We achieve the best results as average precision of 65.65% and average recall of 6.57 on a scale of 10 using Color moment features via Euclidean distance metric in case of WANG dataset, while 99.89% and 9.99 on a scale of 10 for average precision and average recall using HOG features via City block distance metric in case of Medical MNIST dataset.

Paper ID: 499

Transition from Monolithic to Microservices Architecture : Need and proposed pipeline

RIDHIMA MISHRA (Banasthali Vidyapith)*; Nishtha Jaiswal (CDAC Noida); Rishi Prakash (CDAC Noida); Paras Nath Barwal (CDAC Noida)

Abstract: Nowadays people demand fast and efficient web applications. With the fastest internet facility and readily available resources to run the web application, reliability and efficiency can be provided by the efficient developers. As a matter of fact, it is necessary to choose proper architecture for the proposed solution to make sure the apps can supplement as user needs and requirements grow. Out of the two most popular architectures in software development : Monolithic and Microservices , later provides advantages of scalability and maintainability. Several big companies are working to migrate their monolithic architecture to microservices based architecture making it easier for programmers to build and scale apps. The purpose of this research work is to understand the need and techniques of migrating Monolithic applications to Microservices architecture. Since legacy monolithic application terms have such deep meaning it is not possible to mention that there is a particular way to convert Monolithic applications to Microservices. Therefore we reviewed proposed algorithms for the migration process and analyzed their benefits and drawbacks. This research work concludes by providing a generalized pipeline that will provide assistive technological architecture to migrate to microservices based systems for greater flexibility and scalability.

Paper ID: 501

Automatic Emotion Recognition System using Tinyml

Nandakrishnan R (Govt Model engineering college)*; John Tharian (Model Engineering College); Jayadas C K (MEC); ARUN A V (Model Engineering College); saurav sajesh (Model engineering college)

Abstract: The paper proposes a system to detect and analyze emotions using Tinyml. Automated emotion detection has attracted increasing interest from researchers in neuroscience, psychology, computer science, and associated disciplines for the past 3 decades. In this paper, an Automatic emotion Recognition System implemented using Tinyml (AERSUT) has been proposed. There are 3 levels/stages for the above-proposed method - 1) input data using tinyml, 2) feature extraction 3) emotion recognition. The first section involves inputting raw speech data to analyze and detect through a tinyml board. Features like Mel Frequency Cepstral Coefficients(MFCC), root mean square energy, and zero crossing rate are extracted from this audio and the user's emotional state is detected. Here we classify emotions into 8 categories- surprise, neutral, disgust fear, sad, calm, happy, and anger. We used an Artificial Neural network to train the model. A training accuracy of 99 percent and a test accuracy of 67 percent are obtained.

Paper ID: 502

The Human Assistant System

Shivam Srivastav (Siddaganga Institute of Technology)*; Nithin Bharadwaj K (Siddaganga Institute of Technology) ; Kumaraswamy R (Siddaganga Institute of Technology); Saurabh Saurabh (Siddaganga Institute of Technology); Rishabh Rishabh (Siddaganga Institute of Technology)

Abstract: The requirements for human assistant systems and their popularity are growing rapidly every day. With the growing trend of voice assistant systems like Alexa, Siri, the dependence on voice assistants is also increasing. A speech recognition model developed to detect and analyze voice commands and perform the required actions as and when. An algorithm-based speech recognition engine processes speech and detects spoken speech using speech processing techniques. Object detection and identification of different types of object in different light conditions plays a major role in any system, an object detection model built based on a machine learning algorithm that is trained with enough data set to identify 80 different objects with good accuracy. Navigation is a fundamental part of all non-stationary systems, obstacles on the way increase the risk of system damage. A humanoid navigation system built to navigate a humanoid in unknown environments, with the system mainly performing the actions of obstacle detection, obstacle avoidance, and destination path planning. Finding the current location of any mobile system is of greater importance for the successful management of security as well as advanced humanoid robot applications.

Paper ID: 503

Spoofing URL Detection

Omkar S Dhawale (JSPM Rajarshi shahu college of engineering); Sandhya Shelke (JSPM Rajarshi Shahu College Of Engineering); Rutuja Dhokane (JSPM Rajarshi Shahu College Of Engineering); Ketan Urkudkar` (JSPM Rajarshi Shahu College Of Engineering); Prema Sahane (JSPM Rajarshi Shahu College Of Engineering)*

Abstract: Currently, the range and severity of network information insecurity threats is quickly expanding. The most common ways which are deployed by hackers are to target end-to-end technology and exploit human weaknesses. Social engineering, spoofing are examples of these approaches. One approach in carrying out these attacks is to mislead the user using malicious Uniform Resource Locators (URLs). It's tough to find harmful Uniform Resource Locators(URLs) but fascinating issue since phishers typically produce URLs at random and researchers must detect them while keeping in mind the behaviors underlying the generated spoofing URLs. This study discusses approaches for identifying Spoofing Web sites using Machine Learning techniques to analyze different aspects of benign and spoofing URLs. We examine how address bar-based features, anomalous characteristics, and HTML and Java-based elements may be used to detect spoofing websites

Paper ID: 505

Resonant Frequency of Equilateral Triangular Cavity Using Trilinear Transformation

Sheershendu Bhattacharya (Swami Vivekananda Institute Of Science And Technology); Manotosh Biswas (Jadavpur University)*

Abstract: Resonant frequencies for different modes of an equilateral triangular waveguide are determined using Trilinear Transformation. Hence, resonant modes of triangular cavity are extracted. The theoretical resonant frequencies are compared with HFSS simulation results and close agreements is revealed between them.

Paper ID: 510

Optimization of a Fifth Generation Communication Based Dual-Band Microstrip Antenna

Pulakesh Roy (Kazi Nazrul University, Asansol); Debojyoti Batabyal (University Institute of Technology, University of Burdwan, Burdwan); Priyanka Biswas (University of Burdwan, Burdwan); Niladri Halder (University Institute of Technology, The University of Burdwan); Partha Pratim Sarkar (University Institute of Technology, University of Burdwan, Burdwan); Rajib Banerjee (DR. B.C. Roy Engineering College, Durgapur, West Bengal, India); Dibyendu Roy (University Institute of Technology, University of Burdwan, Burdwan)*

Abstract: In this work a dual band micro-strip patch antenna have been designed which is having a better radiation pattern for fifth generation communication in indoor & outdoor mode. The proposed antenna is having a frequency range of 24 GHz – 55 GHz. The antenna is basically a dual band micro-strip antenna having rectangular metallic patch with FR4 substrate material which consist of Loss of Tangential Component is 0.02 & Permittivity of the medium is 4.4 considering thickness 1.6mm. The required micro-strip patch antenna has been designed using Ansys Electronics Desktop 2022 R1 & the frequency surface is Finite Element Method (FEM). In this research an optimization, have been done for betterment of an antenna performance & enhanced the data transmission efficiency. The optimization & analysis have been done by changing the width & length of the designated patch of the simulated antenna process suggest that for the specific substrate the optimized length & width of the antenna can provide best result in the aspect of different antenna parameters like losses in antenna, standing wave ratio, impedance parameters & the coverage or radiation pattern of the antenna. The proposed antenna can provide -50dBi gain at 25 GHz frequency & -44dBi at a range of 57 GHz. The proposed antenna can also provide a better radiation pattern, Z parameter & a consistent steady VSWR in a range of 1 with an efficiency nearly 98%.

Paper ID: 511

Deep Learning Approach for Sound Signal Processing

Bhavya M (RVCE); Analia M R (R V College of Engineering)*

Abstract: In recent years, environmental sound classification has been a burgeoning subject of study. The unstructured nature of environmental sounds makes analysis challenging. However, sound signals have spectro-temporal patterns makes analysis easier using deep learning algorithms. Based on created spectrogram images and several feature extraction techniques Mel Spectrogram and Mel Frequency Cepstral Coefficients, we shall analyze sound signals using Artificial Neural Networks (ANN), Convolutional Neural Networks (CNN), and Long Short-Term Memory (LSTM) in this paper. All the three models use UrbanSound8k based modified dataset and compared for the accuracy achieved on train and test datasets are: 98% and 88% for CNN, 95% and 86% for LSTM and 81% and 76% for ANN

Paper ID: 512

Intelligence Gathering On An Edge Network By Using DNS Approach

Sankalp Dogra (DIAT); Manisha Nene (Defence Institute of Advance Technology, Pune)*

Abstract: Domain Name System (DNS) is in a league of its own among distributed directory services when it comes to building and using networked information systems. Internet of Things (IoT) network is increasingly turning to the network edge as a means of decreasing latency and conserving bandwidth. The purpose of edge network is to offload processing from remote servers and onto devices connected to the Internet of Things. A group of individuals with malicious intent of conducting activities like spamming and denial-of-service attacks actively seeks to take direct control of such systems. Active (reconnaissance) and passive (surveillance) information exposure by or to external entities is compared in this paper. Further an effort has also been made to investigate the extent to which

local IT resources are subject to either direct or indirect control by profit making organizations.

Paper ID: 523

Comparison of Machine Learning Approaches for Classification of Cardiac Diseases

Rudrappa B Gujanatti (KLE Dr M S Sheshgiri College of Engineering and Technology)*; Vijay B Rayar (KLE Dr. M. S. Sheshgiri College of Engineering and Technology, Belagavi, Karnataka); Sushant Jadhav (KLE Dr M S Sheshgiri College of Engineering and Technology); Prabhakar Manage (KLE Dr M S Sheshgiri College of Engineering and Technology); Dr. Arun TIGADI (KLE Dr MSS CET); Suhas Shirol (KLE Technological University Hubballi)

Abstract: An accurate ECG (electrocardiogram) classification for diagnosis of various heart diseases poses a challenging problem for the researchers. This proposed work aims to classify various arrhythmia types based on analysis of ECG signals. Accurate as well as early detection of arrhythmia is pivotal in detection of heart disorders and aids in giving timely and appropriate treatment for the patient. The proposed work compares performance of various Machine Learning (ML) approaches for detection of various heart disorders. Decision Tree classifier was found to provide the results using Pan Tompkins algorithm giving an accuracy of 85.71% compared to 67.85% with Naive Bayes and 67.5% with kNN (k-Nearest Neighbor). Overall the Decision Tree classifier had an average accuracy of 25% higher than the kNN and Naïve Bayes.

Paper ID: 524

Design of H-Plane Horn Antenna with Bandwidth Enhancement using Linear Tapered Curve

Bharti Gajendra (ITR DRDO)*; Pravakar Mallick (ITR DRDO); Milan Kumar PAL (ITR DRDO)

Abstract: The proposed H-plane horn antenna is designed with tapered linear curve and coaxial probe feed to achieve larger impedance bandwidth which is suitable for the high data rate application. This antenna provides ultra-wideband from 4.6 to 11 GHz for C-band and X-band application with IBW 85% and high gain achieved over a large frequency band. This antenna has been simulated by the help of electromagnetic computational tool. The maximum gain of antenna is 15dBi with minimum gain of 10.2 dBi.

Paper ID: 525

Sugarcane Disease Classification Using Soft Computing Algorithms

GOWRI SHANKAR D (NEW PRINCE SHRI BHAVANI COLLEGE OF ENGINEERING AND TECHNOLOGY)*; Jayaparvathy R (Sri Sivasubramanya Nadar College of Engineering)

Abstract: Sugarcane plant diseases are caused by various insects, bacteria, viruses etc., To reduce the impact of the diseases and thereby increase sugarcane yield, early detection of diseases is required. Existing techniques for detection of plant diseases focus on a single type of disease which does not have a significant impact on increasing the sugarcane crop yield. We propose an efficient Sugarcane Disease

Classification system (SDC) using soft computing techniques. The proposed system has four different modules; colour space conversion, histogram generation, feature extraction and classification. Sugarcane image is represented by two different colour models RGB and La*b*. Wavelet and contourlet based energy features from both RGB and La*b* colour models are extracted and finally classified using a neural network. The proposed SDC system is tested on 1000 sugarcane images affected with ten different diseases (100 images per category) by a 10-fold cross validation approach. Results show that the SDC system provides an average classification accuracy of 99.89%

Paper ID: 527

License Plate Recognition using OpenCV

Aditya Anasune (Vishwakarma Institute of Technology)*; Aditya Suresh (Vishwakarma Institute of Technology); Abhilasha Bande (Vishwakarma Institute of Technology); Swapnil Adhav (Vishwakarma Institute of Technology); Ishwari Baranjalekar (Vishwakarma Institute of Technology); Vijay Gaikwad ("Vishwakarma Institute of Technology, Pune")

Abstract: In India, there are an estimated 300 million automobiles. With such a huge number of vehicles, comes the concern of policing. Traffic-related problems are on an all-time rise, and the only way to counter them is increased surveillance. Most of this surveillance involves some or the other form of noting down the registration number of the vehicle, this is generally done manually by traffic cops. Though useful, the manual process tends to be time-consuming and causes a buildup of traffic in many cases. This problem, however, can easily and effectively be tackled by introducing automation and computer vision technologies. One such technology is License Plate Recognition or LPR. It involves the detection of the vehicle number plate and applies OCR algorithms to read the characters and give the textual format of the image data. This data can then be fed into various databases for further inspection. With a population of one billion people, India has a unique set of requirements for license plate identification. The first is that acceptance of this technology will greatly reduce the time required to detect and identify defaulter vehicles. LPR however, is not limited to just Traffic policing implementations, it can also be used to automatically register vehicle numbers at the entrances of various institutions, including societies, malls, parking lots, and even toll booths.

Paper ID: 528

Dynamic Voltage Restorer Based Solar PV System Connected Grid Utilizing UPQC with Fuzzy

Samala Nagaraju (Chaitanya Deemed to be University); Chandramouli Bethi (Chaitanya Deemed to be University); K Vinay Kumar (Chaitanya Deemed to be University); Dr. T Vijay Muni (Koneru Lakshmaiah Education Foundation)*; N Supreeth Virat Varma (Koneru Lakshmaiah Education Foundation); Pandala Rathnakar Kumar (Lakireddy Bali Reddy College of Engineering)

Abstract: Voltage stability in integrated photovoltaic (PV) distribution systems is crucial for enabling the efficient operation of all linked equipment in the distribution network. One of the most challenging aspects of PV integration is keeping voltage profiles stable. The primary focus is maintaining a constant 22 kVA load voltage profile. In the end, we settled on a PV integrated distribution system with a single phase. Combining a differential inverter with a dynamic voltage restorer (DVR) and a distribution static synchronous compensator (D-Statcom) is a first for the power conditioning sector (UPQC). The purpose of this innovative UPQC system is to employ a fuzzy controller to successfully connect a 10 kW solar PV system to the grid. Based on these results, the optimal battery-powered UPQC control strategy may be selected. As a means of increasing PV integration and ensuring voltage stability in the distribution network, a 20 kVA UPQC was constructed. Total harmonic dispersion may be minimised by maintaining a steady distribution system frequency, voltage, and reactance/resistance ratio.

Paper ID: 531**Reduction of Subthreshold Swing in Zener Tunnelling-Tunnel Diode Partially Depleted Silicon On Insulator*****Sumi Baby (CUSAT)*; anju pradeep (cochin university of science and technology)***

Abstract: This work reports subthreshold swing reduction in Zener tunnelling tunnel diode partially depleted silicon on insulator(ZT-TD-PDSOI). A highly efficient metal oxide semiconductor field effect transistor switch requires subthreshold lowering. Although we have fully depleted silicon on insulator, which minimizes subthreshold swing, no work has been documented the reduction of subthreshold swing in the Zener tunnelling-tunnel diode partially depleted silicon on insulator. The decrease in the subthreshold swing is caused by the introduction of a P+ area below the drain side. For the device's result to be verified, the surface potential, electron and hole concentrations are examined.

Paper ID: 532**Checking Trustworthiness of Data in IoT Crowd Sensing Environments*****Neville Thomas (Rajarshi Shahu College Of Engg)*; Shailaja Patil (Rajarshi Shahu College Of Engg)***

Abstract: In the context of mobile crowd sensing, an input data that is collected from multiple people may result to be incorrect or malicious and ultimately alter predictions, data reliability is one of the crucial factors taken into account. In this research, the reliability of the data is assessed using crowdsensing data from the transportation and traffic domain, where numerous people contribute data on the flow of traffic that may be used to calculate the shortest route and other traffic-related metrics. This project attempts to build a voting-based trustworthiness model. Game theory is utilized to encourage users to contribute to crowdsensing data, and metrics including voting capacity, user reputation, user pay-off, and trustworthiness are determined depending on the user's votes. Another approach used to assess user data trust is based on the concepts of experience and reputation, with experience being determined by how frequently a user interacts with other users. Based on their reputation scores, each user receives rewards in the form of badges. By repeatedly running both algorithms, the stability of each is examined.

Paper ID: 534**Optimal Position of Fractional Order Inductor in Fractional Order Hartley Oscillator*****Agniv Tapadar (Indian Institute of Technology Bhilai)*; Avishek Adhikary (Indian Institute of Technology Bhilai)***

Abstract: This paper presents the optimal position of the fractional order (FO) inductor for the design of fractional order Hartley oscillator using non-ideal op-amp. The design incorporates three non-idealities of the practical op-amp, which are i) finite open-loop dc gain, ii) non-zero output resistance, and iii) finite unity gain frequency. The effects of op-amp non-idealities on oscillation frequency and critical resistance ratio are presented. Four different configurations are presented to find out the optimal position of the FO inductor. The different case studies are presented to investigate the optimal design of FO Hartley oscillator to achieve the highest oscillation frequency.

Paper ID: 535**Deep Neural Network aided Sparse Bayesian Learning for Wireless Access Channel Estimation in mm-Wave Massive MIMO Cloud Radio Access Network Systems*****Jayanta Datta (University of Chile)****

Abstract: Cloud Radio Access Network systems with mm-Wave Massive MIMO framework can be considered as a potential candidate for next generation wireless communications due to its promise of increased spectral efficiency and distributed signal processing capability. State-of-the-art compressive sensing algorithms like sparse Bayesian learning can exploit the inherent sparsity of the mm-Wave wireless channels to estimate the channel connecting the remote radio head and the user equipment in the wireless access link. The performance of the sparse Bayesian learning based channel estimation can be adversely affected by impairments due to optical fiber based front-haul channel and quantization noise. As a result, it is necessary to compensate for the performance degradation by applying methods which can combat the effects of the front-haul channel. Contemporary research has demonstrated the capability of deep learning algorithms in signal enhancement under low signal-to-noise ratio conditions, such as hybrid beamforming design, channel estimation as well as feedback of channel state in heterogeneous multi-antenna wireless systems. Motivated by their de-noising and signal prediction capabilities, convolutional long short term memory networks are employed in this work to jointly remove the quantization noise and optical fiber impairment due to the front-haul channel, which can improve the performance of sparse Bayesian learning in estimating the wireless access channel at the base-band processing unit. Computer simulation results show that the proposed methodology performs well under low signal-to-noise ratio conditions.

Paper ID: 536**Impact of Renewable Energy Resources and Energy Storage Device on Transmission System*****Komal R Waghmare (Veermata Jijabai Technological Institute)****

Abstract: Cumulative including the electrical power generation identifies as consumption of extra fossil-fuels, such as maximum power generations are through coal. These fuels produce precarious gases for example CO₂, NO₂ and SO₂. The depreciation of such gases can be obtained by employing further sustainable power means such as wind, solar, hydro and pumped-hydroelectric stowage in generation system. Though, these sustainable means are indeterminate in environment, however owing to their low-cost and sustainable characteristics, their consumption have been augmented. The rising expansion of significant energy storage systems (ESSs) may diminish the vagueness for generation of renewable power and comforts to advance the structure progression. Therefore, it is obligatory to study the influences of these means on the transmission network. For this inspection, the problem of optimal sizing for ESS is inspected with the amalgamation of PV and wind power. The purpose is to diminish the total price of the system and study the impact on CO₂ level. The optimization algorithm of GABC has been executed for resolving the anticipated problem. IEEE 24-bus investigation system is considered to investigate

Paper ID: 540**Document Signature Recognition and Verification Using Neural Network**

Mithun M R (Amritha Vishwa Vidyapetam , Mysore)*

Abstract: For decades, a person's signature has served as a distinguishing element in identifying them. Manually verifying members signature is sometimes impractical when a significant number of documents, such as bank checks, must be certified in a short amount of time. Signatures are a safe and secure way to authenticate and authorise people. As a result, technologies for automated conformation is required. The current thesis work is in the topic of signature authentication systems and it involves extracting some unique characteristics that build a signature hard to forge. It analyzes a specific individual based on the features of signature. Many people nowadays falsify, or utilise someone's identity documents and photographs in illicit ways. As a result, in order to prevent such illicit use, the system assists in detecting modified photos and documents.

Paper ID: 541

Comparative Analysis of Symmetrical, Asymmetrical and Hybrid Supercapacitors as a Pulse Current Device

Mugdha P Bhajekar (P. E. S.'s Modern College of Engineering)*; Ankur Y Karandikar (MESCOE); Sarang Joshi (AISSMS IOIT); Shalaka N Chaphekar (P.E.S. Modern College of Engineering, Pune-5); P B Karandikar (Army Institute of Technology); Mayank Bhalerao (School of Industrial and Systems Engineering, University of Oklahoma)

Abstract: Energy storage has played a very important role in the development of any electrical technology. Since energy storage has been extensively studied, battery and capacitor technology has taken a paramount leap. A lot of development has also been seen in the field of fuel cells and supercapacitors. But now it is time to see beyond these pre existing electrical energy storage devices. Asymmetrical supercapacitors can be new device in the electrical energy storage sector, in the near future. Comparative study of symmetrical and asymmetrical supercapacitors is carried out and presented in this paper. In various modern applications, there is need for hybrid energy storage mechanisms. These mechanisms could be a combination of conventional battery and supercapacitor or fuel cell or hybrid supercapacitor. Work related to such device is also carried out and presented in this paper. Three types of supercapacitor devices with variation in the electrode material are compared with respect to capacitance, pulse current, internal resistance, power density and energy density. Asymmetrical supercapacitor with negative electrode of activated carbon and positive electrode of activated carbon/ metal oxide which is referred as hybrid supercapacitor is found to be the most suitable combination among the other types of supercapacitor devices that are studied. New hybrid energy storage mechanism using hybrid asymmetrical supercapacitor is presented.

Paper ID: 543

Fruit Freshness Detection Using CNN

Mukund Kulkarni (VIT, Pune); Archana K Chaudhari (Vishwakarma Institute of Technology, Pune); Shekhar V Shegokar (VIT Pune)*; Krushna Rudrawar (VIT Pune); Shaunk Joshi (VIT, Pune); Shruti Tibile (VIT, Pune); Isha Tayade (VIT, Pune)

Abstract: Quality of fruits and vegetables are most important as these are the main ingredients for our health. Freshness of fruits and vegetables are most important but segregation of rotten and fresh is time consuming, when done manually and degrades quality of fruits. Application based on Computer vision and image processing reduces this tedious and focuses on the quality of fruit and vegetable detection for a long period of time. The proposed method uses CNN to analyze and detect the variation and pattern for accurate classification.

The work recommends a semantic segmentation of fresh or the rotten portion observed in any fruit. It is entirely based on the RGB image of the fruit.

Paper ID: 544

Constrained Application Protocol(COAP) Implementation on Contiki OS For Anatomization of Low-Power and Lossy Networks In IOT

*Anil Behal (Chandigarh University)**

Abstract: The Internet of Things (IoT) is a network of physically connected things that exchange data, including vehicles, appliances, and other things. These products are resource-efficient and include connectivity, electronics, software, sensors, and actuators. Many IoT devices, however, are too small to create a secure connection. This indicated that a quick procedure was necessary right away. As a result, the Constrained Application Protocol (CoAP) was created by The Internet Engineering Task Force (IETF). This paper provides a summary of the CoAP Protocol for efficient communication in low-power, lossy networks for IOT utilising a contiki-based operating system.

Paper ID: 545

Machine Intelligence Based Web Page Phishing Detection

Amitava Choudhury (Pandit Deendayal Energy University, Gandhinagar); Kalpita Gadhe (University of Petroleum and Energy Studies); Dhruvil Soni (University of Petroleum and Energy Studies); Bhavya Doshi (Pandit Deendayal Energy University, Gandhinagar)*

Abstract: Advances in the Internet and technology have resulted in a significant increase in electronic trading, in which consumers make online purchases and transactions. This expansion leads to unauthorised access to users' sensitive information and harms an enterprise's resources. Most phishing Webpages resemble the image of the specific Webpages in terms of Website interface and uniform resource locator (URL). The number of victims is increasing exponentially as a result of ineffective security technologies. The Web's anonymous and uncontrollable framework makes it more vulnerable to phishing attacks. Existing research indicates that the phishing detection system's performance is limited. There is a need for an intelligent method to protect users from cyber-attacks. During this study, a model for URL detection that supports machine learning approaches was proposed. In this study, phishing websites were detected using autoML and convolution neural network (CNN) techniques with 98% and 85% accuracy, respectively.

Paper ID: 549

Emotion detection using facial image for Behavioral Analysis

Uma Mageswari R (Vardhaman College of Engineering); Vasantha SV (Vardhaman College of Engineering); Shiva Kumar Reddy g (Vardhaman College of Engineering)*

Abstract: The Treatment of mental disease is unique in that it relies on subjective evaluation. Another problem with mental disease diagnosis standards is the lack of consideration for individual departures from the broad categories of symptoms. The rising availability of sensor-equipped portable digital devices, such as smartphones, opens up new possibilities for monitoring human activity in real time made the task easier. Individuals' mental health and well-being can be better assessed as a result of this more exact method. More exact and tailored digital treatments in mental health care may be made possible by better modeling of individual mental health and by taking into account the context of the individual, which can be monitored through continuous monitoring. Such strategies for measuring, modeling, and treating mental illness and sustaining mental health became quite possible now. This Project proposes to apply various algorithms such as Decision tree, Random Forest, ANN to detect the mental health using certain facial emotion factors either from getting the input from webcam or uploading the facial image of the individuals.

Paper ID: 550

Hybrid Dragonfly-Cat Swarm Clustering algorithm with Closed Sequential Pattern Mining for Detection of Malicious Transactions

Indu Singh (Delhi Technological University); Pranjal Srivastava (Delhi Technological University); Pranav Bhatnagar (Delhi Technological University); Neil Roy (Delhi Technological University)*

Abstract: An Intrusion Detection System (IDS) is a tracking system that recognizes suspicious activity and generates alerts when it discovers it. A current intrusion detection system's major purpose is to identify signature and anomaly-based invasive attacks that abuse database privileges. In this work, we proposed a hybrid meta-heuristic clustering technique employing the Dragonfly and Cat swarm algorithms for building user profiles based on prior behavior. Furthermore, We explored the use of the CloFAST algorithm to mine association rules, which are then used to calculate the proposed dynamic conformance index, thus detecting fraudulent database transactions in a stream of incoming transactions. Experimental results demonstrate that the proposed technique achieves an accuracy of 99.33 % using a synthetically produced dataset in line with the TPC-C benchmark.

Paper ID: 554

A Deep Hybrid Learning Model for Classification of Code-Mixed Text

Sudharsan Kotha (Velagapudi Ramakrishna Siddhartha Engineering College); Hari Sankara koteswara Ial Keluth (Velagapudi Ramakrishna Siddhartha Engineering College); Venkata Nageswararao Kandlakunta (Velagapudi Ramakrishna Siddhartha Engineering College); Anirudh Sai Ram Talluri (Velagapudi Ramakrishna Siddhartha Engineering College); Deepa Venna (Velagapudi Ramakrishna Siddhartha Engineering College)*

Abstract: Social media consists of many tweets. These tweets consist of emotions like positive, negative. Many people use the bilingual sentences it means using two languages in a sentence. The main aim of the project is to develop a classification algorithm that can be used on social media data to classify it as positive or negative. Social media consists of code-mixed data which means more than one language has been used by the users. To classify the code-mixed data, we use classifiers to produce the emotions for the bilingual sentences. This project involves natural language processing, deep learning and machine learning algorithms. By mixing different classifying algorithms output we are going to increase the accuracy. The datasets are available for the linguistic languages. There are classifiers like CNN, LSTM and other machine learning classifiers like Adaptive boost are used to increase the accuracy and efficiency of the model.

Paper ID: 556**DGER: Delta Gamma Energy Ratio as a Biomarker for the Identification of Schizophrenia**

Hardik Thakkar (National Institute of Technology Raipur)*; Bikesh Singh (National Institute of Technology); Saurabh Gupta (NIT Raipur); Sai Krishna Tikka (All India Institute of Medical Sciences Bibinagar,); Lokesh Singh (AIIMS Raipur)

Abstract: Schizophrenia (SCZ) characterized as chronic psychotic mental disorder which severely affects the social life of an individuals. The present study analysed the delta and gamma band using resting EEG signals in SCZ and healthy controls (HC). Total of 10 subjects were selected for each group and 19 channel rest EEG data was recorded. The relative band energy for delta and gamma band was extracted and the ratio of delta and gamma energy (DGER) was calculated as a main feature. The results showed significant difference in the DGER value at frontal and prefrontal electrode locations. The DGER value observed to be significantly low in SCZ group compared to HC group. The classification output showed maximum classification accuracy of 89% using linear discriminant classifier when classifying the SCZ and HC group using DGER. In conclusion, the present study suggests the use of DGER as useful neurophysiological marker for identification of SCZ.

Paper ID: 559**Corn Plant Disease Classification System using a combination of Machine Learning and Deep Learning**

Rahul Kumar V H (SRM Institute Of Science And Technology)*; Shrishti V H (Dayananda Sagar College of Engineering); Sridhar P A (SRM Institute Of Science And Technology)

Abstract: Crops form an essential component of the agriculture sector of the world and corn is considered one of the most prominent crops grown in India and worldwide. Zea mays, typically called Indian corn, is a cereal plant of the grass family (Poaceae). It is used as cow fodder, food, raw material for numerous commodities, and biofuel. We lose a substantial amount of the harvest every year due to plant diseases. This paper presents a cross-platform compatible solution that employs ReactJS for developing the online application and React Native to build the mobile application. The model provided is a customized Convolutional Neural Network for feature extraction and the XGBoost classifier for classification. The model is hosted in the cloud using FastAPI and Google Cloud Platform and made available as an API for web and mobile applications, making the system extraordinarily accessible and versatile. The research also compares the performance of the suggested model versus different Deep Learning models.

Paper ID: 561**Train Track Crack Prediction Using CNN with LeNet - 5 Architecture**

sree nandha S S (SRM IST); Athish V P (SRM IST); RAJESWARI D (SRM Institute of Science and Technology)*

Abstract: Train track crack detection is a process of identifying cracks in the structure of railway tracks. Railways are major modes of transport in India. The tracks must be in good condition for trains to have safe voyages. Cracks that appear on the tracks are often due to heat and other natural causes. At present these cracks are identified manually by railway personnel by inspecting them at regular intervals. This process is not effective as it consumes more time and there is an increased chance of leaving the cracked track

undiscovered. The aim of this research work is to avoid the derailment of trains and reduce the cost and time that happens due to the cracks. This work proposed a technique for recognizing railway track cracks by combining Convolutional Neural Networks with image pre-processing technique. Observations indicate that neural networks are capable of capturing the colors and textures of lesions related to respective railway track breaks with 94.6% accuracy.

Paper ID: 566

Breast Cancer Classification

Rucha S Uplenchwar (Vishwakarma Institute of Technology); Pratham Gajbhiye (Vishwakarma Institute of Technology); Atharva G Rathi (Vishwakarma Institute of Technology)*; Shraddha S Shah (Vishwakarma Institute of Technology); Atharva B Sonawane (Vishwakarma Institute of Technology); Abha Marathe (Vishwakarma Institute of technology)

Abstract: Any sickness that is detected early enough can be cured with a small amount of human effort. The majority of patients do not recognize their illness until it has progressed to the point where it is chronic. It causes a rise in the global death rate. Breast cancer is one of the most common cancers, but it can be treated if detected early. It's among the most frequent and deadly cancers among women. It has now become a frequent health problem, and its frequency has recently increased. Due to misinterpretation, the medical practitioner may diagnose diseases incorrectly. An easy way to deal with the symptoms of breast cancer is to recognize them early. Computer-aided diagnosis (CAD) plays an important role in diagnosing breast cancer early and can help people live longer.

Several machine learning techniques have been proposed in this study to accurately detect and prevent breast cancer in the modern world. The Diagnostic Breast Cancer Wisconsin dataset is used here and comparison among K-Nearest Neighbor, Naive Bayes, Decision Tree, Support Vector Machine and Random forest is done.

Paper ID: 568

A modified ANFIS controlled Unified Power Flow Controller for Power Quality Improvement in Transmission System

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Abstract: Nearly every component of the system, including the generators, the transmission and distribution lines, and the loads themselves, contributes either to the production of reactive power or to its consumption. The capacity of an interconnected power system to return to regular or stable functioning after being disrupted in some way is referred to as its stability. It is getting more difficult to maintain synchronism amongst the different components of the power system as linked systems continue to expand in size and spread out across huge geographical areas. In this paper, the capacity of the Custom Power Active Transformer that delivers UPFC services is investigated. These services include power flow management, reactive power compensation, voltage regulation, and the removal of harmonics. A 69kV transmission line American Electric Power system namely IEEE 14 test bus system is considered for dealing the power quality issues like reactive power compensation and harmonic elimination. A modified ANFIS (BA-ANFIS) controller is used to

control the UPFC. All the simulations carried out in MATLAB/Simulink.

Paper ID: 571

Compact Hexagonal Monopole Antenna using Defected Ground Structure (DGS) for S and C-Band Application

Khushbu Patel (NIT Rourkela)*; Subhasish Pandav (NIT Rourkela); Santanu Kumar Behera (NIT Rourkela)

Abstract: The proposed work presents a compact hexagonal monopole antenna for wide-band applications. Defected ground structure method is used to enhance impedance bandwidth. The antenna is miniaturized by using a hexagonal radiating patch placed on an FR4 substrate material having relative permittivity 4.4. The dimensions of the antenna are limited to 36 mm × 26 mm × 1.6 mm. The antenna covers an operational bandwidth of 66.1% spanning from 3.12 GHz to 6.20 GHz. The proposed monopole shows the S11 values of -22.6 dB and -25.1 dB at 3.74 GHz and 5.76 GHz, in the band. A peak gain factor of 2.7 dBi is observed at 5.76 GHz. The presented antenna shows a cross-polar difference of 44 dB with stable radiation characteristics making it suitable for S and C-band applications.

Paper ID: 575

Analysis of Juvenile Delinquency in India

Sachin Kumar Gupta (Pandit Deendayal Energy University); Aavart Modi (Pandit Deendayal Energy University, Gandhinagar); Amitava Choudhury (Pandit Deendayal Energy University, Gandhinagar)*

Abstract: This paper is mainly focused on predicting and classifying which state/UT needs more awareness regarding juvenile delinquency. The Indian states and union territories will be classified based on the juvenile crime statistics for a period of 10 years (2001-2010) and will be graded into four classes, where each class will depict the level of awareness against juvenile crimes required in a state or UT. Levels to classify the states are: Relaxed-Awareness-Required, Focused- Awareness-Required, High-Awareness- Required and Alarmingly-High-Awareness- Required. Kaggle dataset, 'Crime-In-India' is used as the source of data. This dataset contains complete information about various aspects of crimes happened in India from 2001 till 2010, which also provides a link between crime rates and the education level of juveniles who performed crime. The lack of awareness in the society against juvenile delinquency is a major concern and challenge for the Indian society which needs immediate attention. With the application of the project, it is an attempt to bring attention towards the need for stricter vigilance and awareness against juvenile crimes in Indian states & union territories based on their juvenile crime-statistics. A number of the traditional supervised learning classifier models, including K-Nearest Neighbors (KNN), Support Vector Machine (SVM), and Random Forest, are used for classification. Both the dataset and the final analyzed findings are visualized in this project. Understanding which states/UTs are alert about juvenile delinquency and which states need greater awareness and stricter vigilance against juvenile delinquency will be made easier with the use of this implementation.

Paper ID: 577

Frequency Selective Surface (FSS) Loaded, CPW-fed, MIMO antenna with Wider Bandwidth and Enhanced Gain for sub 6 GHz 5G Applications

Abhilash AP (Cochin University of Science and Technology)*

Abstract: This study details the development and testing of a four-element MIMO antenna operating at frequencies below 6 GHz. Initially, a single-element dual band CPW fed antenna is designed working in the range of 3.05 to 3.45 and from 4.1 to 5.15 GHz. With this approach, a Quad-element MIMO structure is designed by arranging them orthogonally adjacent to each other. The performance of this MIMO structure is enhanced by inserting a Frequency Selective Surface (FSS) on the bottom plane. The suggested MIMO antenna delivers wide impedance bandwidth ranging from 2.84 - 5.79 GHz (fractional bandwidth of 68%) with at least 15 dB of isolation for the complete operating band. This MIMO antenna yields good realized gain (>4.9 dBi), optimum radiation efficiency (>59%), and impressive envelope correlation coefficient (<0.05). The structure is appropriate for applications operating in the sub-6 GHz 5 G communication range.

Paper ID: 584

Short-term forecasting of a univariate time series load using LSTM based RNN model

Mrinal Kanti Dey (National Institute of Technology Kurukshetra)*; Saurabh Chanana (NIT Kurukshetra)

Abstract: Due to the recent developments of the society and economy, load forecasting is becoming a crucial asset in the field of power system dispatch and demand response. We have analyzed the hourly load demand of a univariate time series. First, a single data point is predicted implementing a single-layered LSTM based RNN model. Later on, forty data points are predicted using this model using different optimizers. The experimental results prove the effectiveness of the developed prediction algorithm.

Paper ID: 585

Dynamic Traffic Scheduling Using Emergency Vehicle Detection.

Shreyas Kailas Darade (Sardar Patel Institute of Technology)*; Krish Meshram (Sardar Patel Institute of Technology); Sarvesh Satpute (Sardar Patel Institute of Technology); Sheetal Chaudhari (Sardar Patel Institute of Technology)

Abstract: Vehicles must be able to travel freely on the road, which involves the use of traffic signals. The duration of these traffic signals is predefined and constant irrespective of the road traffic scenario. The fixed length of signal timings and the carelessness with which emergency vehicles are handled during scheduling are the main contributors to traffic problems. This paper proposed a Dynamic Traffic Emergency Scheduling(DTES) algorithm for a four lane intersection. The YOLO object detection model is used to identify the emergency vehicles as well as normal vehicles present on the road. The suggested heuristic takes into account the density, waiting time of the normal vehicles along with prioritizing any occurrences of emergency vehicles in the lanes. The results demonstrate that the DTES algorithm is able to reduce the average waiting time and is able to optimize the green signal timings while focusing on emergency vehicles.

Paper ID: 588**Design of J-Pole Antenna for Receiving ADS-B Signals*****B K B S Chandra Sekhar (CVR College of Engineering)****

Abstract: The key element in making air travel safe is by locating and keeping track of aircraft. The planes are located and tracked with the help of Radio Detection and Ranging (RADAR). But due to some limitations, tracking is not possible beyond a certain range. This work is proposed to implement ADS-B (Automatic Dependent Surveillance-Broadcast) which has high efficiency, improved safety, and improved accuracy. SDR (Software Defined Radio) is a multimode wideband receiver. It is used to receive ADS-B signals at 1090 MHz. A J-Pole antenna is used to receive signals of 1090 MHz that are transmitted by the aircraft itself. As a result, an aircraft can be tracked by the data provided by the aircraft such as altitude, speed, position, aircraft ID, and other essential parameters. with the help of the designed J pole Antenna, 55 aircraft could be tracked within a radius of 232 NM. VSWR of the antenna is 1.10 and -25.99 dB is the return loss.

Paper ID: 589**Realization of OpenCL based CNN Implementation on FPGA using SDAccel Platform*****Abhay Pratap Singh Shekhawat (NIELIT Aurangabad); Abhishek Chaurasiya (NIELIT Aurangabad)****

Abstract: In this paper, we are demonstrating the implementation flow of algorithms using deep Convolutional Neural Networks (CNN). Deploying CNNs solely on CPU-GPU based platforms deal with issues of high power consumption and comparatively slower processing speeds than hardware accelerators like FPGA. FPGA offers high parallel-processing capability, hardware re-configurability, reduced latency and low power consumption. To further improve flexibility in programming the hardware accelerator, we decided to use High Level Synthesis (HLS) tool based on OpenCL framework for development of our CNN model and implementing it on cloud. We are using Xilinx SDAccel development environment targeting Amazon's AWS EC2 F1 instances. We are using Cloud based services for our model visualization on FPGAs. Cloud provides FPGA as a service with High Performance Computing (HPC) resources and enables us to deploy our optimized code on provided FPGA accelerated instance without need of buying an actual hardware. AWS EC2 F1 instance uses Xilinx Ultrascale+ VU9P chip as a Hardware platform.

Paper ID: 590**Fabrication and Characterization of Mixed-Metal Oxide/Conducting Nanocomposites for Hydrogen Generation*****Shantanu Agnihotri (PDPU)*; Prakash Chandra (Pandit Deendayal Energy University); Khyati Mistry (PDEU); Shreya Paneliya (PDEU)***

Abstract: The contemporaneous energy and environmental crises are the outcome of the population growth and global boom in economical and industrial development. This scenario has forced mankind to develop more economical, green and sustainable routes of energy generation and environmental remediation. The photocatalysis in corroboration with electrochemistry provides most favorable economical and green pathway to overcome this issue. Therefore, in the same direction we propose application of titania based advanced semiconductor materials for the harvesting solar energy for solar driven hydrogen generation. TiO₂ based composite

photocatalysts are an effective approach for solar light absorption and prolong the excitons lifetime for superior H₂ production. Furthermore, incorporation of CuO improves the efficiency of photocatalytic activity. The surface contact between CuO-TiO₂ behaves as a p-n type semiconductor heterojunction that effectively separates photoinduced electron-hole pairs due to an inner electric field. To make the process photoelectrochemically fissile the introduction of conducting polymers make the process more superior because of the intrinsic continuous p-conjugation. The CP provides excellent electrical conductivity, controllable optical properties, chemical stability, and high surface area.

Paper ID: 596

Evaluation and Segregation of Fruit Quality using Machine and Deep Learning Techniques

Mohit Kedar Mali (NIELIT)*; Shubham Rajendra Devake (NIELIT Aurangabad); Satyam Manoj Kharpude (NIELET); Yogesh Kumar (NIELIT Aurangabad); Prashant Pal (NIELIT Aurangabad); Shanshank Singh (NIELIT Aurangabad); Saurabh Bansod (NIELIT Aurangabad)

Abstract: Identifying fruit fruits is an essential part of fruit plantation smart management. This paper presents a mechanism based on the available deep learning model to determine the fruit fast and reliably in a complicated orchard environment. We employed the YOLOv3 method to detect the deep characteristics of fruit fruits using a stereo camera and an indoor fruit dataset, resulting in efficient identification of varied fruit sizes. In this paper, we proposed segmentation of fruit using the UNET framework using various deep learning backbones such as densenet, efficientnet, mobilenet, vggnet etc. This research has been done on field fruit images, so it contains some noise in the background of the image; this problem impacts accurate detection and classification. The YOLOv3 model has been used for fruit object detection with boundary regions. It returns the normalized image in square form with the detection of edges of the object the UNET framework has used for classification. The various backbones obtain different accuracy, but UNET-VGG19 brings Dice Coefficient of 90.35%, which is better than other methods. As a result, various experimental analyses were done on real-time images and demonstrated the dice score, precision, recall, etc.

Paper ID: 601

Solving multi-class classification problem using Support Vector Machine

Bhushan S Yelure (Government College of Engineering Karad)*; Siddheshwar Patil (D. Y. Patil College of Engineering and Technology, Kasaba Bawada, Kolhapur); Shobha Patil (DYPCEO, Kolhapur); Sangita Nemade (GCOE, Aurangabad)

Abstract: Many data mining and pattern recognition task have a multi-class classification problem at their core. In order to give satisfactory results in operational contexts, certain applications necessitate high-end machine learning systems. In case of supervised learning problem, most efficient ones, such as Boosting, are mono class, which brings the dilemma of converting a global multi-class problem into many binary issues while still being able to deliver an answer to the original multi-class problem at the end. They work for binary classifications well but sometimes it is necessary to have multi-classification. The current work intends to solve this multi-class challenge by offering a comprehensive framework that includes multiple multiclass classifiers as well as principal component analysis for feature selection. Their performances in terms of accuracy are tested on world class benchmark datasets. The datasets with appropriate training and test samples are used for experimentations. It is seen that linear SVM performs well among all the classifiers.

Paper ID: 604**Smart Embedded Framework of Real- Time Pollution Monitoring and Alert System**

Salna Joy (New Horizon College of Engineering)*; Baby R Chithra (New Horizon College of Engineering, Bangalore); Anju M I (New Prince Shri Bhavani College of Engineering and Technology); Neethu P S (School of Engineering and Technology, CHRIST (Deemed to be University))

Abstract: The sustainability and progress of humanity depend on a clean, pollution-free environment, which is essential for good health and hygiene. Huge indoor auditorium does not have proper ventilation for air flow so when the auditorium is crowded the carbon dioxide is emitted and it stays there for many days this may be a chance to spreading of COVID-19 and other infectious diseases. Without proper ventilation virus may present in the indoor auditorium. In the proposed system, emissions are detected by air, noise, and dust sensors. If the signal limit is exceeded, a warning is given to the authorities via an Android application and WiFi, and data is stored in cloud networks. In this active system, CO₂ sensor, noise sensor, dust sensor, Microcontroller and an exhaust fan are used. This ESP-32 based system is developed in Arduino Integrated Development Environment (Aurdino IDE) to monitor air, dust and noise pollution in an indoor auditorium to prevent unwanted health problems related to noise and dust. More importantly, using IoT Android Application is developed in Embedded C, which continuously records the variation in levels of 3 parameters mentioned above in cloud and display in Android screen. Also, it sends an alert message to the users if the level of parameters exceeds the minimum and maximum threshold values with more accuracy and sensitivity. Accuracy and sensitivity of this products are noted which is very high for various input values.

Paper ID: 606**An Analysis of Methods for Processing Large Numbers of Unstructured Data**

Suresh Kumar N (Galgotias University)*; Mr. Raju (Noida Institute of Engineering and Technology); Dharman J (Agastiyar Research and Technologies)

Abstract: The described analytical tools were already fully functioning in 2018, and they are continually being enhanced. The article discusses one tool's potential for use in public support institutions. The case study of the technology trend for electric cars presents techniques for recognizing and diagnosing technological trends. Modern analytical methods must be used for effective programming of research and development (R&D) funding, calibrated to the real potential of beneficiaries.

These semi-structured or unstructured formless data make searching and analysis difficult. This study provided an overview of the numerous documents and data that make up the unstructured data that is the foundation of predictive analysis. Only unstructured data occurs in information service systems without databases. The majority of information resources now provide consumers a variety of unstructured formats in addition to structured data.

Data source will be the object of this article, which will also examine relevant information processing technologies, integrate it into complex network architectures, and examine how to create multi-type networks to fully utilize unstructured data.

Paper ID: 608**An Exploration on Big Data Analysis and Data Mining Methods**

Dharman J (Agastiyar Research and Technologies)*; Michael Raj TF (Galgotias University); Yaduvir Singh (Noida Institute of Engineering and Technology)

Abstract: The exploration of BIG data is one of the biggest areas in researchers currently present. It is widely accepted that the advent of big data will have far-reaching effects on many fields, including science, commerce, industry, government, society, and so on. Large, complex datasets are being created at an ever-increasing rate, making it imperative to develop novel methods for analysing this "Big Data." Since dealing with Big Data presents significant obstacles for the applications, data mining techniques are proving to be of tremendous assistance in the field of Big Data analytics. Analysing such massive datasets using Big Data analytics allows for valuable insights to be gleaned. All things technological, including social media, financial technology, and scientific data, contribute significantly to the exponential expansion of data in the database in the modern digital era. Data mining is the process of sifting through large amounts of data in search of useful information. As a consequence of this, the R predictive algorithm is an improved measure of the composition of the surrounding air and our Experimental Analysis into the Predictive Capability of the Mathematics Models Algorithm. In this article, we'll look at some of the most pressing problems brought on by big data, as well as some of the ways in which those problems could be overcome.

Paper ID: 609**A Comparative Study of Artificial Intelligence and Machine Learning In 5G Innovation**

S Srinivasan (Galgotias University); Ashutosh Kumar Singh (, Noida Institute of Engineering and Technology); Dharman J (Agastiyar Research and Technologies)*

Abstract: 4G/LTE (Long Term Evolution) mobile network deployment has addressed the high capacity problem to establish genuine broadband mobile Internet. 5G has overcome some of these difficulties via huge MIMO radio interface. Adopting software-defined networks (SDN) and network function virtualization (NFV) has given flexibility, allowing operators to handle demanding vertical market services. Strong physical layer and flexible network architecture made this feasible. Virtual reality (VR), augmented reality (AR), etc., are bandwidth-intensive. Mobile networks face new applications that require high dependability and near-zero latency, including car communications or Internet-of-Vehicles (IoV). This article describes the role of AI and ML in 5G and beyond to develop a cost-effective, adaptive next-generation mobile network. AI/ML use in network lifecycle is explored. MATLAB mimics these findings.

Paper ID: 614**An Evaluation of Intelligent Network Data Analytics Based on Machine Learning In 5G Data Networks**

Parth Batra (, Nanyang Technological University); Vikas Sagar (Nanyang Technological University); . Kanishk Kandoi (Nanyang Technological University); Dharman J (Agastiyar Research and Technologies)*

Abstract: Big Data Analytics has developed as a judgment technique for unopened organizations to uncover hidden patterns,

relationships, industry trends, and consumption patterns. Newline Of the most common sources of big data is Viral marketing data sets, as Web 2.0 null byte technology generate massive social corpora from our everyday routines. Newline in basic language Web 2.0 technology applications including Internet newline data analytics, relationship management, Text Analytics, and opinion line break mining depend heavily on processing. Even before compared to prestige cellular networks, 5G cellular networks have many major updates, such as network data analytics-based network data analytics, which will allow network administrators to either implement their own machine learning (ML)-based data analytics methodologies or incorporating third-party solutions into their networks. This study originally presents the structure and protocols of network data analytics based on the 3rd Generation Partnership Project (3GPP) standard standards. Then, based on the fields specified by the 3GPP specification, a cell-based artificial data set for 5G networks is built. Network slice, a major 5G technology, divides a physical network into many virtual end-to-end networks, each of which may receive logically separate network resources to offer richer services. 5G mobile data and sensor data are combining to produce an increasing network traffic. Traffic explosion has grown into a mixed network type, involving network viruses, worms, network theft, and hostile assaults.

Paper ID: 615

Research and Implementation of Data Mining for Applications Involving Big Data

Dharman J (Agastiyar Research and Technologies)*; Unni Krishnan A (Galgotias University); Kedar Nath Singh (Noida Institute of Engineering and Technology)

Abstract: Data mining is the process of removing obscured, undiscovered, but possibly valuable information from vast amounts of data. Huge Information altogether affects the advancement of significant worth and logical forward leaps. In this paper, information mining strategies and large information advancements are presented. Information mining endlessly issues with immense information are examined. Also, a few information mining innovative headways and huge information mining progressions are featured. The lifecycle of electronic items, which ranges from the plan and creation stages through the assistance stage, has seen broad utilization of information mining (DM) utilizing Large Information. It will be useful for scientists to foster solid examination subjects and recognize holes in the writing, yet it will likewise help specialists in the improvement of DM application framework by furnishing an exhaustive investigation of DM with Enormous Information and a survey of its application in the phases of its lifecycle. This paper starts with a short clarification of DM-related issues. Large Information is a tremendous assortment of information that is excessively complicated for traditional projects to deal with. Nowadays, it involves huge, multifaceted, and a ton of coordinated, semi-organized, and unstructured information as well as privileged information that is delivered and accumulated from numerous areas and assets. The model when gets implemented displays results on various models based on different regions San-Francisco, Chicago and Philadelphia from 2006-2011

Paper ID: 620

Analysis of the Performance, Scalability, Availability, And Security Of Cloud Computing In Different Cloud Environments

Dharman J (Agastiyar Research and Technologies)*; Basetty Mallikarjuna (Galgotias University); Manish Kumar (Noida Institute of Engineering and Technology)

Abstract: The practise of distributing data, programmes, and other resources over several computers connected via a network is referred

to as "cloud computing." Cloud computing allows us to perform all of these tasks by allowing us to use remote servers for information transfer, storing, and retrieval. Because of the huge number of Virtual Machines that cloud computing makes open, we are currently ready to do computations in equal. Performance, scalability, accessibility, and security issues with the cloud could turn out to be the most serious issues from here on out. We will examine the difficulties of scalability, accessibility, and security with regards to cloud computing here, as well as the means we have taken to work on the security and reliability of our foundation while working here. Recent breakthroughs and advancements in information technology have led to a rise in popularity and admiration for cloud computing. Access to services is made feasible via cloud computing at any time. Cloud computing utilises numerous remote network sites and servers that are connected to the internet for the purpose of storing, managing, and processing data instead of utilising a server that is a part of a local area network (LAN) or a single computer. In contrast, traditional computing uses a single server and relies on a single computer. Because of the many advantages it provides, such as massive processing power at a low cost, great performance at a scalable level, stability, accessibility, and availability to customers, cloud computing is currently a highly sought-after service. The performance of cloud data, issues with cloud data security, and difficulties with cloud data environments are all examined in this research study. This poll provides some insightful information that can be used in the analysis of current cloud issues and problems.

Paper ID: 622

Federated Learning Method for Local Differential Privacy in IoT Networks

Dharman J (Agastiyar Research and Technologies)*; Pooja Kapila kapila (Chandigarh Engineering College); . Baldev Singh (Vivekananda Global University)

Abstract: The Internet of Things is a young technology with great potential. The fact that the creators of crowdsourcing programmes may easily determine users' location data, traffic data, motor vehicle details, environmental information, etc., raises major sensitivity personal data privacy concerns for users. The cost of connectivity here between vehicles and the cloud server also considerably rises as the number of cars grows. In this research, we propose federated learning with local differential privacy integration to support machine learning model development in crowdsourcing applications while minimising privacy risks and reducing communication costs. We explicitly recommend using four LDP approaches to disrupt slopes caused by moving vehicles. The proposed Three-Outputs method provides three different output options to achieve a high accuracy when the private budget is constrained. The output options of 3 can be coded with just two bits to reduce transmission expenses. Additionally, when the privacy cost is significant, a perfect piecewise approach is recommended to maximise performance. In addition, we provide a suboptimal method with a simple formula and comparable utility to PM-OPT. Then, we develop a completely new hybrid mechanism by fusing Three-Outputs with PM-SUB. In order to synchronise the cars and cloud server for collaborative model training, an LDP-FedSGD technique is suggested. Extensive experiments on real data sets support the possibility that our suggested methods could safeguard privacy while maintaining value.

Paper ID: 623

QoS Aware Resource Allocation in NOMA-based Multibeam Satellite IIoT

Amandeep Kaur (Chandigarh Engineering College); Manish Dr Shrivastava (Vivekananda Global University)*; Dharman J (Agastiyar Research and Technologies)

Abstract: Unfortunately, traditional ground-based IIoT cannot deliver wireless connections everywhere because of its restricted communication coverage. This paper presents a multibeam satellite IIoT in Ka-band that use different types of network-oriented multiple

access (NOMA) for each beam to boost the data throughput, allowing for both widespread coverage and long-distance data transfers. In order to guarantee Quality of Service (QoS) for the satellite IIoT, the beam power is adjusted such that the theoretical transmission rate is equal to the service rate. To maximise the NOMA transmission rate for each beam, we optimise the power allocation of each node within the constraints of the total power for the beam and the minimum transmission rate for each node inside the beam. An alternative to relying only on satellite coverage in uninhabitable regions is to use satellite-ground integrated IIoT, which makes use of the cellular network on the ground. Network selection and power allocation are proposed as ways to reduce transmission costs for the integrated IIoT. The benefits of adopting NOMA in the satellite IIoT are shown by simulation results, which show increased transmission for the allocation of resources that assures QoS.

Paper ID: 624

Energy-Aware Dynamic Offloading over IoT-based Mobile Edge Networks

Dharman J (Agastiyar Research and Technologies); Rini Saxena (Chandigarh Engineering College); Sitaram Gupta (Vivekananda Global University)*

Abstract: In this research, we look at the challenge of scheduling jobs in a software-defined fog-IoT network while keeping latency and energy consumption in mind. We suggest the potent Deep Q-Learning process as a first step toward resolving the online job allocation and scheduler problem. The other guarantees economical energy use by preserving battery life within the limitations imposed by app reliance to reduce network latency. Next, we propose a deep reinforcement learning (DRL) method for adaptive scheduling tasks as well as allocation in SDN-enabled edge networks, and we factor in the task arrival process as part of this approach. Through thorough testing, we compared the proposed approach to three cutting-edge deep learning techniques (namely, deterministic, random, and A3C agents). Our method was shown to be better to other methods via several simulations. We also emphasise our design's energy efficiency, which may result in savings of up to 87% compared to more traditional methods. We have proved that the offloading system can do up to 50 percent more work in the same amount of time. The results demonstrate that the proposed method may be utilised to proactively optimise scheduling as well as allocation of complicated activities with dependencies in decentralised Fog IoT networks.

Paper ID: 625

Implementation of Deep Learning Techniques for Secure IoT Networks

Dharman J (Agastiyar Research and Technologies); Rohini Mahajan (Chandigarh Engineering College); Dushyant Singh (, Vivekananda Global University)*

Abstract: The medical industry, the military, and the power grid are just a few examples of businesses that may benefit greatly from using IoT solutions. The safety of an Internet of Things network is less important than the safety of the underlying computer and communications systems. However, IoT networks are vulnerable to a variety of threats because of the scarcity of available resources and computational power. Protecting the Internet of Things (IoT) network from malicious assaults necessitates the creation and use of effective security measures, such as an intrusion detection system. In this paper, we provide a unique method for categorising the data flowing through an Internet of Things (IoT) network by using Deep Neural Networks (DNNs) educated on deep learning data to spot outliers. We create standard features from field-collected packet-level data using a recently released IoT dataset. To classify potential threats to Internet of Things (IoT) devices, such as denial-of-service (DoS), distributed denial-of-service (DDoS), reconnaissance, and information theft, we create a feed-forward neural networks model. On the sanitised dataset, the tested approach exhibits high

classification accuracy.

Paper ID: 626

DL-based Visual Interpretability over Medical Images using StyleGAN

Dharman J (Agastiyar Research and Technologies)*; Sonia Sharma (Chandigarh Engineering College); Megha Garg (Vivekananda Global University)

Abstract: Interpretability of the underlying predictive models is essential to increase the usage of AI-based medical devices in clinical settings as they become more prevalent in imaging disciplines like radiology and histology. GradCAM is one existing heatmap-based interpretability method that solely emphasises where the predictive characteristics are located. Do not elaborate on how they affect the prediction. In this work, we suggest a fresh approach to interpretability that can be utilised to comprehend any by displaying the changes that would be made to the supplied image in a to arrive at various predictions. An expert in medical imagery, StyleGAN to offer a mapping between pictures and latent vectors. Our technique recognizes the best direction to update the model prediction in the latent space. This direction can be changed by moving the latent representation of an input image to create a number of fresh synthetic graphics with modified forecasts. We verify our radiological pictures, and show its capacity to provide a strategy on histology and GradCAM heatmaps are not as informative as meaningful explanations. Our technique displays the patterns that the model has discovered, enabling physicians to develop rely on the model's forecasts, find new biomarkers, and ultimately reveal possible biases.

Paper ID: 628

AI-based Medical Image Inspection for Patient's Racial Identity Recognition

Dharman J (Agastiyar Research and Technologies)*; Abhishek Sharma (Chandigarh Engineering College); Gajendra Shrimal (Vivekananda Global University)

Abstract: Research has shown that different races perform differently when it comes to medical imaging, but there is no known association between race and medical imaging that would be visible to a human professional analysing the images. We provide a thorough assessment of AI's capacity to identify the racial identification of patients using medical photographs. In this paper, we assess the following using both private and public datasets: A) performance quantification of deep learning models to identify race from medical images, including these models' generalizability to external environments and across various imaging modalities, B) evaluation of potentially confounding anatomic and phenotype population features, such as disease distribution and body habitus as predictors of race, and C) research into the underlying mechanism by which AI mode works. Across a variety of imaging modalities, standard deep learning models can be trained to accurately predict race from medical pictures. When models are tuned to carry out tasks that are therapeutically motivated, as well as under external validation settings, our findings stay true.

Paper ID: 631

Massive Data Management in Healthcare Systems using Edge Computing and Internet of Things

Dharman J (Agastiyar Research and Technologies)*; Deeksha Verma (Chandigarh Engineering College); Garima Sharma (Vivekananda Global University)

Abstract: Internet of Things (IoT) combines recent advances in hardware and networking technology to provide doctors more options in keeping tabs on their patients' health. The city, the house, the farm, and, more recently, the healthcare system for illness prediction and medical advices are all part of this "smart environment." Layers of data transmission must be evaluated to increase the capability of IoT with healthcare systems. This is done to verify the reduced latency and quicker reaction times of doctors during conversation. There are also many obstacles to overcome in order to guarantee user anonymity and solve this privacy problem with this technology. As with every new technology, privacy will be reduced initially. Thus, this study models an e-healthcare architecture concerned with edge computing for EMRs, with the aim of resolving the inherent latency problem. However, the NS3 environment, which is focused on metrics like reaction time and latency, is used for the experiments. In comparison to competing models, the desired result is more favourable with the expected model. The work's results are efficient while also providing privacy using conventional network parameters.

Paper ID: 632

Trust-Aware Certificateless Signature on IIoT Sensors using Blockchain Technology

Dharman J (Agastiyar Research and Technologies)*; Meenakshi Garg (Chandigarh Engineering College); Krishan Kumar Sharma (Vivekananda Global University)

Abstract: The Industrial Internet of Things (IIoT) has brought about enormous changes in both our individual ways of life and the ways in which our culture works, transforming them into an unique electronic medium. This has enormous implications for almost every facet of life, including clever logistical, smart grids, and smart cities. In particular, the amount of gadgets that are part of the Industrial Internet of Things (IIoT) is increasing at such a fast pace that numerous gadgets and sensors are constantly communicating with one another and exchanging a substantial quantity of data. The potential of spying and hijacked assaults in messaging services has grown as a result of the creation; as a direct consequence of this, protecting data privacy and security has become two key problems at the current moment. In recent years, a protocol known as certificateless signature (LCS), which is both better secured and lighter, has been more popular for use in the development of source of energy IIoT protocols. The Schnorr signature serves as the foundation for this method's underlying mechanism. In spite of this, we found that the vast majority of the currently implemented CLS schemes are susceptible to a number of widespread security flaws. These flaws include man-in-the-middle (MITM) attacks, key generation centre (KGC) compromised attacks, and distributed denial of service (DDoS) attacks. As a potential solution to the issues that have been discussed in the preceding paragraphs, we, the authors of this work, suggest an unique pairing-free provable data approach. In order to develop a revolutionary LCS scheme that is dependable and efficient, this plan takes use of the most cutting-edge blockchain technology as well as smart contracts. After that, in order to verify the dependability of our system, we simulate both Type-I and Type-II adversary and run the results through a series of tests.

Paper ID: 633

Secure Data Communication in Vehicular Networks for Disaster Rescue

Dharman J (Agastiyar Research and Technologies)*; Harsimran Kaur (Chandigarh Engineering College); Manish Kumar Goyal (Vivekananda Global University)

Abstract: Ground recovery automobiles operating in the regions impacted by the catastrophe should coordinate their efforts and communicate a large amount of data with one another. This data should include rescue orders, details on the state of the roadways, and data on prior rescue missions. This will guarantee that you are able to drive safely and effectively respond. Unmanned aerial vehicles (UAVs), which can be used to conduct instant recovery services in places that are destructed and assist in sharing data for ground Vehicular networks, can be utilised when connectivity investments are damaged as a consequence of climate change. UAVs can help share data for field lot environments and can conduct recovery services in areas that have been damaged. However, in a tragedy scenario involving UAV-assisted IoV, there are possible safety threats on intelligence sharing among machines and UAVs. These threats are the outcome of an unreliable distributed environment, unreliable improper behavior tracing, and minimal information. These issues could compromise the integrity of shared data. The interconnection of the relevant vehicles and unmanned aerial vehicles (UAVs) makes these dangers possible. In this article, we create a lightweight vehicular blockchain-enabled secure (LVBS) data exchange architecture for the Automotive Internet of Things that is helped by unmanned aerial vehicles (UAVs) to assist in hurricane relief. The concerns which have been voiced will be addressed more effectively as a result of this. To begin, we will discuss the new UAV and smart contracts collaboration high - altitude system architectures that we have developed for usage in places that have been affected by natural disasters. A resource consensus method is developed for the lighter vehicular ecosystem in the second step of our project.

Paper ID: 634

Physically Unclonable Function for Authentication of IoMT Systems using Hybrid Cryptography

Dharman J (Agastiyar Research and Technologies); Kushnain Kaur (Chandigarh Engineering College); Aarti Yadav (Vivekananda Global University)*

Abstract: One of the biggest problems with the Industrial Internet of Things is keeping sensitive data safe from attackers. There are Internet of Things (IoT) sensors set up to collect information in this setting. Legitimate users can access this data remotely through the internet, but the data being carried via a public route raises security concerns. To address the problem of user anonymity, we suggest a new user-authenticated key agreement mechanism in our system. This system ensures that only approved users may access the service through sensor device. Users are authenticated using a combination of a smart card, password, PUF, and biometric data from a legally registered user, for a total of three layers of protection. Consequently, it improves the system's overall safety. Also, the fuzzy extractor approach is used for authentic user authentication using biometrics. Then, we have a password phase, a biometric change phase where the password and fingerprint data may be altered, and a smart card cancellation phase where the card can be cancelled or blocked in the event that it is lost or stolen. Our suggested solution, therefore, offers better protection for data transfer in the IIoT than existing methods.

Paper ID: 635

Healthcare Monitoring and Concurrent Medical Service Consultation using Deep Learning and Optimization Techniques in IoMT

Dharman J (Agastiyar Research and Technologies); Harmandeep Kaur (Chandigarh Engineering College); Jitendra kumar Katariya (Vivekananda Global University)*

Abstract: There has been substantial expansion of the healthcare monitoring system in hospitals and other healthcare facilities, and

many nations around the world are growing increasingly concerned about the availability of transportable health monitoring devices equipped with emerging technologies. In healthcare, the shift from in-person to remote consultations is made easier by the development of Internet of Things technology. This study offers an Internet of Things -based healthcare system capable of real-time monitoring of vitals and environmental factors such as temperature and humidity in the patient's current environment. Five different sensors, including a CO sensor, heart rate sensor body temperature probe, room temp sensor, and a CO₂ sensor, are used to gather data from the hospital setting. The error rate of the developed method is always lower than a predetermined limit. A portal allows doctors to keep up with patient data and utilize it to make more informed decisions about treatment. The approach incorporates a cost for skipping over potentially harmful input in order to create a neural network convolution with more efficiency. This research modifies the convolution neural network's architecture to account for the diversity of data features and the dynamism of data changes over time, with an eye toward eight physiological properties of data. The prediction accuracy of medical evaluation reaches 90.15%, which is higher than some other machine-learning algorithms thanks to the realized CNN optimization algorithm model's increased prediction effect. The achievement of the system demonstrates that the built model is ideal for health monitoring.

Paper ID: 637

Pesticides Spraying Using Non-GPS-Based Autonomous Drone

Anand Jaya Raj Dampella (NIELIT); KAUSHIK BAIDYA (National Institute of Electronics and Information Technology, Aurangabad); Surya Charan Paidipalli (National Institute of Electronics and Information Technology, Aurangabad); Saurabh Bansod (National Institute of Electronics and Information Technology, Aurangabad); Shashank Kumar Singh (National Institute of Electronics and Information Technology, Aurangabad); Prashant Pal (National Institute of Electronics and Information Technology, Aurangabad)*

Abstract: Technological use in agriculture has a greater impact on efficient farming that elevates crop yield. The use of drones in the agriculture field helps farmers to a greater extent. This paper demonstrates the development of a non-GPS-based autonomous pesticide spraying drone, which is particularly useful for farms with limited land sizes and in areas where GPS is inaccurate. Because of poor GPS positioning and mapping, GPS became unreliable. This autonomous drone creates an optimized navigation path around the mapped field spraying pesticides uniformly over the crops. This agriculture drone carries a fluid pesticide tank to spray evenly all over the crop, reducing the time and effort of the farmer and preventing harmful effects caused by pesticides. This drone can adjust the altitude, liquid flow rate and speed depending on the type of crop. This drone included with the monitoring application platform provides real-time information. The web application is user-friendly, ensuring that drone performance is manageable and understandable by the user. With the help of these features, the farmer is able to comprehend the field's spray in real-time.

Paper ID: 639

Singular Value Decomposition of Matrices with Uncertain Parameters

Sarishti Singh (IIT Kharagpur); Geetanjali Panda (Indian Institute of Technology Kharagpur)*

Abstract: This paper presents an algorithm for computing singular value decomposition (SVD) of an interval matrix. The application relies on the tighter outer estimations of eigenvalues and their corresponding eigenvectors. The outer approximation of the bounds of eigenvalues of symmetric interval matrices is determined using strong regularity conditions.

Paper ID: 640

Design and Control of Swerve Drive Robot Using Kinematic Model

Kunal R Khairnar (Robotics Research Lab); Madhukar ! Gavani (Robotics Research Lab); Satyajeet J Nalawade (Robotics Research Lab)*

Abstract: Nowadays, wheeled mobile robots is an expanding field of scientific research and growing applications in both industrial and non-industrial fields. They are extensively used in surveillance, industrial automation, and transportation task. This paper describes the design and control of the Swerve drive robot with a kinematic model. In this swerve drive, all four swerve modules are operated independently, which provides greater agility and minimal steering hysteresis over the conventional holonomic drive. In Swerve drive, each swerve module is driven by a gear-train and steered by belt drive with the help of a BLDC motor. Each motor has an in-built hall sensor and acts as a feedback element for the PID controller.

Paper ID: 641

Analysis of the Integration of 5G with Artificial Intelligence

*Dharman J (Agastiyar Research and Technologies); Preetam Singh Gaur (Jaipur National University); Deependra Rastogi (Galgotias University)**

Abstract: All as it proceeds to create and is progressively executed in a rising number of settings, this innovation will ultimately develop to where it will cause a change in outlook, moving away from the conventional traffic administration worldview and toward one that is established on a model of a natural chain that considers its variables. Integration of 5G innovation into modern areas will bring about a critical expansion in the productivity of modern result and will rush the course of carefully changing and redesigning modern areas.. The integration of 5G and man-made intelligence innovation will reshape the future instruction data climate by achieving incendiary mechanical progressions and instructive application situations. This will bring about a remade future instruction data climate. The expansion in the quantity of remote correspondences networks has gotten the way for the advancement free from state of the art advances like driverless cars, automated airplane frameworks, automated mechanical technology, the Web of Things, and augmented reality. The fifth era of remote correspondence networks is promising to convey immense information speeds, incredibly low inactivity, and exceptional constancy, which are all necessities for the advancements that require them. These mechanical headways are: (5G) Right now in the improvement of 5G advances, it is bounteously clear that there are a considerable number of troublesome and complex hubs that should be tackled. General information to take advantage of the innovations that are as of now open, an enormous number of enhancement methods and the consolidation of helper frameworks are required. The execution of artificial intelligence gives a significant open door to the goal of genuinely exceptionally confounded setup issues.

Paper ID: 642

Implementation Of Privacy And Security In The Wireless Networks

Dharman J (Agastiyar Research and Technologies); Hoshiyar Singh (Jaipur National University); K M Balamurgan (Galgotias*

University)

Abstract: The amount of information that is shared regularly has increased as a direct result of the rapid development of network administrators, Web of Things-related devices, and online users. Cybercriminals constantly work to gain access to the data that is stored and transferred online in order to accomplish their objectives, whether those objectives are to sell the data on the dark web or to commit another type of crime. After conducting a thorough writing analysis of the causes and problems that arise with wireless networks' security and privacy, it was discovered that there are a number of factors that can make the networks unpredictable, particularly those that revolve around cybercriminals' evolving skills and the lack of significant bodies' efforts to combat them. It was observed. Wireless networks have a built-in security flaw that renders them more defenceless against attack than their wired counterparts. Additionally, problems arise in networks with hub mobility and dynamic network geography. Additionally, inconsistent availability poses unanticipated problems, whether it is accomplished through mobility or by sporadic hub slumber. In addition, it is difficult, if not impossible, to implement recently developed security measures due to the limited resources of individual hubs. Large-scale problems that arise in relation to wireless networks and flexible processing are examined by the Wireless Correspondence Network Security and Privacy research project. A few aspects of security that are taken into consideration include confirmation, access control and approval, non-disavowal, privacy and secrecy, respectability, and inspection. Any good or service should be able to protect a client's personal information. an approach that emphasises quality, implements strategy, and uses a poll as a research tool for IT and public sector employees. This strategy reflects a higher level of precision in IT faculties.

Paper ID: 644**An Analysis of how Computer Graphics and Image Processing Are Used in Art Design**

Dharman J (Agastiyar Research and Technologies); Rachana Yadav (Jaipur National University); Satya Prakash (Galgotias University)*

Abstract: In the era of high-speed information, with the widespread use of networks and the rapid advancement of multimedia communication technologies, human society has entered a significant new evolutionary stage. As a result of the informationization of society, human productivity and lifestyles have been greatly impacted. Recent advances have also been made in the area of computer-aided image processing. Photoshop has become a must-have software for computer graphics and image processing professionals. Rich functionality, ease of use, and humanization lead to increased labor productivity in processing computer images and photographs. Photoshop is a very effective tool for graphics and image processing techniques. The software is so robust in its image processing capabilities that it can produce the highest quality graphics and image processing. This technology is commonly used in the workplace. Professionals must act skilfully and understand technology in detail. Photoshop is widely used in graphic design and image editing these days. It is used in a variety of image processing contexts in addition to meeting the relevant processing needs of consumers.

Paper ID: 655**An Investigation into a grid-linked solar–wind hybrid electricity–Internet of things system**

Dharman J (Agastiyar Research and Technologies)*; Sanjay Pachori (Jaipur National University); Rashid Khan (Galgotias University)

Abstract: The design and development of a hybrid power generating system for rural electrification, as well as the simplicity of monitoring all power generation from individual units and load monitoring utilising IoT, are the main topics of this article. In order to lessen reliance on the grid, the entire hardware system is powered by employing solar PV and wind systems. This project has a number of features,

including dual-axis solar panel rotation, Wi-Fi-based remote control monitoring, temperature, humidity, and inverter sensing. Utilizing generated power for rural electrification at any remote locations is the main benefit of HRES. The technology is straightforward: a wind turbine converts mechanical energy into electrical energy, producing output voltage, which is then converted from AC to DC by an AC to DC converter or rectifier. This hybrid power generation system can be used as a grid-connected unit or rooftop self-power generation unit Solar panels and a wind turbine are used in the project. Where solar PV cells are used to harvest solar energy, heat radiation energises the solar cells, causing a chemical reaction that result in the generation of a unit of charge. The usage of an inverter is a cutting-edge technology that converts a DC supply to an AC source. Electrical appliances receive this AC's supply. Depending on the load and demand requirements, many configurations can be used to obtain the O/p.

Paper ID: 656

Cost Functions For Efficient Electric Vehicle Drive Systems

Dharman J (Agastiyar Research and Technologies); Sunil Dubey (Galgotias University); Altaf Hasan Tarique (Galgotias University)*

Abstract: This study presents an initial arrangement of electric motor degradation cost functions based on energy consumption, energy loss and work generation, relative to the continuous running rating given by the manufacturer. Make recommendations. These cost functions take into consideration the quantifiable amount of time in the degradation cycle; unlike traditional electric motor degradation indicators, such as bearing life and insulation based support elements. Real-time measurements are used to evaluate cost functions over the life of the engine. Thus, they give an extremely exact indication that can be utilized for online regulator adjustment. The system originator can offer the client the choice among performance and degradation minimization thanks to the sound creation of a degradation cost capability. In regards to hardware in known electric power train tests and standard drive cycles, the proposed cost-liability plot has been experimentally validated. According to the experimental results, the attenuation cost functions of the accumulated information energy ratio (CIER), cumulative loss ratio (CLR) and cumulative work rate (CWR) accurately capture these aspects. qualitative and quantitative edge of electric motor degradation.

Paper ID: 661

An Examination of Energy Storage Methods and Its Influence on the Development of Future Power Systems

Dharman J (Agastiyar Research and Technologies); Deepankar Sharma (Jaipur National University); Kaushalendra Kumar Dubey (Galgotias University)*

Abstract: Human welfare depends greatly on electricity, which also has a major impact on a nation's economic growth. Researchers are focusing on enhancing power availability, quality, and dependability in response to electricity concerns. To resolve the issue of energy lack, this mission has raised the goal to incorporate environmentally friendly power (RE) into power organizations. On account of substitute energy sources, specialized headways, request, costs, and ecological impacts, energy systems are dynamic and on the move. The customary energy age comes from petroleum derivatives, however there has been a consistent shift to the cutting edge, creative innovation, with an emphasis on sustainable assets like sunlight based and wind. Notwithstanding progressing cost rises, client request is rising rapidly because of rising populaces, financial development, per capita utilization, accessibility in far off areas, and in static structures for machines and convenient gadgets. To satisfy purchaser interest, energy storage might give adaptable power age and conveyance. By 2030, how much energy storage required will be fourfold the thing it is today, requiring the utilization of extremely concentrated gear and systems. The ebb and flow survey's exploration will probably dissect and evaluate the systems and advancements

that are as of now being used and those that will probably be created from now on.

Paper ID: 662

An Integration of the SVC and STATCOM Technologies into Wind-Based Power Systems

Dharman J (Agastiyar Research and Technologies)*; Ravi Prakash Upadhyai (, Jaipur National University); Lokesh Garg (Galgotias University)

Abstract: A short out will have an impact on the enormous scope wind power framework strength studies and the power matrix. Before connecting the wind homestead to the electrical matrix, a complete reproduction is carried out to analyse and deconstruct this peculiarity. The demonstration of shunt Doubly-Cared-For Enlistment Generator connected with shunt Adaptable Exchanging Current Transmission Framework Devices has been investigated. Static V AR Compensator (SVC) and Static Simultaneous Compensator are these systems (STATCOM). Through programming in Mama TLAB and Simulink, the framework is reconstructed. Results from the reenactment demonstrate that STATCOM executes more efficiently than SVC. In various static and dynamic load systems that a wind ranch manages, the voltage soundness of the transport load has been examined. Static coordinated compensator (STATCOM) and static var compensator (SVC) of 10 MVar are used to control load voltage and responsive power. The twofold feed enlistment generator (DFIG) is used in the wind ranch under study. The effects of time reaction and damping swaying have been studied in voltage and receptive power regulation using MATLAB/Simulink. The results achieved have shown that SVC and STATCOM produce excellent results when used in relation to voltage security of the framework. The STATCOM and SVC's wind ranch receptive power control approach. First, the STATCOM framework and its use in power systems and wind farms are demonstrated. Second, the SVC framework is presented along with examples of how it is used in power systems and wind farms.

Paper ID: 663

An Instructional Approach to Power System Operations Utilizing Load Flow Simulations

Dharman J (Agastiyar Research and Technologies); Upasana Rani (Jaipur National University); Aanchal Vij (Galgotias University)*

Abstract: Another approach for estimating the coordinated AC-DC system's load flow. For consecutively altered Gauss and Gauss-Seidel power flow for AC-DC systems, a simple and reliable method is developed. This strategy relies on using the nodal infusion theory at every conveyance. The current infused to the connected transports that make up the DC system treats it, and the impact is mirrored at inward transports by the infusion of additional power. Calculations of the AC and DC power flows are made in cycles to meet the limit circumstances of the two systems. According to this methodology, the converter transporters' dynamic and receptive power as well as the air conditioner voltages are taken into account as the point of connection between the air conditioner and DC conditions in each focus stage. Using successively modified Gauss and Gauss-Seidel procedures, the combined AC-DC circumstances are independently handled. Experts from a variety of fields, including finance, project management, energy, fabrication, design, creative work, protection, oil and gas, transport, and the environment, are participating in this process. Existing systems in the electricity sector must continuously be modified to accommodate rising load densities. Studies on power flow are necessary. When planning for the expansion of the power system and choosing the ideal operational conditions, power flow study is of utmost importance. Data related to real power, responsive power, point, and voltage on each conveyance are included in this study. The Monte Carlo simulation provides a decision with a range of possible outcomes and the possibility that they will really happen. This displays both the outlandish selections and the most conventional arrangements alongside every possible interpretation of the main arrangements.

Paper ID: 665**An Analysis and Development Plan For Photovoltaic Power Systems Both Off-Grid and On- Grid*****Dharman J (Agastiyar Research and Technologies)*; Ravi Prakash Upadhyai (Jaipur National University); Aarti Neema (Galgotias University)***

Abstract: In addition to the way that solar energy integration into non-sustainable sources is significant as it diminishes the paces of consuming non-sustainable assets consequently decrease reliance of petroleum products, integration innovation has become significant because of the world's energy necessities which forced huge requirement for various techniques by which energy can be created or coordinated. By utilizing the sun's energy and converting it from DC to AC, photovoltaic or PV systems are driving this transformation. This essay examines the development strategy for both off-grid and on-grid photovoltaic power systems.

Paper ID: 666**A Methodology for Analyzing Frequency Droop Caused By Utility-Scale Solar Plants Operating In a Power System*****Dharman J (Agastiyar Research and Technologies)*; Gautam Singh (, Galgotias University); Deepika Chauhan (Jaipur National University)***

Abstract: Environmental issues have recently become serious and renewable. Attention has been drawn to energy as one of the solutions. However, the output of electricity generated utilising renewable energy has the drawback of being unstable due to irregular features, for example, changes in wind speed or the power of solar radiation. A major problem is frequency oscillations brought on by the integration of large-scale wind farms (WF) and photovoltaics (PV) into the electrical grid. Excessive output from PV plants may negatively affect grid frequency. This phenomena can be seen because local PV plants are exposed to fundamentally erratic cloud transients. To support local grid operations, it is along these lines urgent to give choice based regulators to unified power inverters. To actually battle minutes-based PV power varieties from its steady harmony, such controllers can be improved. Therefore, further research is needed at the point of grid connections for PV plants regarding grid frequency variations.

Paper ID: 667**Planning for Grid Expansion and Maintaining Reliability in the Context of Electricity Storage*****Dharman J (Agastiyar Research and Technologies)*; Dinesh Singh (Galgotias University); Sanjay Pachori (Jaipur National University)***

Abstract: Human welfare depends greatly on electricity, which also has a major impact on a nation's economic growth. Researchers are focusing on enhancing power availability, quality, and dependability in response to electricity concerns. To resolve the issue of energy lack, this mission has raised the expectation to incorporate environmentally friendly power (RE) into power organizations. However, intermittent sources of RE supply and variable shifts in demand over time have created a high risk for sustaining system dependability in terms of giving consumers an appropriate supply. While not another source of electricity, an energy storage system (ESS) has been shown to be efficient and practical in addressing the aforementioned problems. The evolution of ESS technologies is thus thoroughly reviewed in this study, along with the advantages and practical uses of these technologies. To better comprehend this study, the idea of

reliability in power systems is also studied.

Paper ID: 668

An Effective Strategy for the Charging Period of the Batteries in Electric Vehicles

Dharman J (Agastiyar Research and Technologies); Sudhir Kumar Singh (Galgotias University); Vivek Kumar Jain (Jaipur National University)*

Abstract: A superior speedy charging strategy for electric cars is proposed in this examination. Contingent upon the circumstance and need, electric vehicles (EV) can be charged in different strategies. Subsequently, there are a few kinds of charging foundation for EVs that are made for different applications. Electric vehicle supply hardware (EVSE), otherwise called EV charger details and norms, contrast starting with one country then onto the next relying upon the kinds of EVs that are sold there and the power network's highlights. Past examinations and reports on battery tests demonstrate that the energy limit of batteries isn't consistent and that it could momentarily diminish relying upon how much charging or discharging power. This study looks at how the limit decreases corresponding to how much charging power, lessening the driving reach. An original condition of-charged pointer is proposed, and the adjustment of battery limit is depicted numerically for effective and valuable use by EV customers. This study proposes an ideal charging procedure that infuses consistent power to upgrade the customary charging strategy, which reliably supplies power no matter what the battery limit.

Paper ID: 669

Utilization of Computational Intelligence in the Development of a Health Monitoring System for Induction Machines

Dharman J (Agastiyar Research and Technologies); Dr. J.N Singh (Galgotias University); Brijraj Singh Solanki (Jaipur National University)*

Abstract: Technology advancement makes significant contributions to the healthcare system. By automating the patient monitoring task, smart health monitoring will reduce human effort while improving patient work flow management. Computational intelligence plays a vital part in intelligent failure diagnosis and prediction since it is one of the most potent data processing methods for resolving challenging nonlinear issues. The continued use of computational intelligence in machinery condition monitoring and problem diagnosis has, however, only been briefly covered in a few thorough papers. This paper describes the creation of an induction machine health monitoring system. It is briefly explained how artificial neural networks work and how they might be used for machine diagnostics. It is covered the general situation of designing intelligent systems based on neural networks. The effectiveness and accuracy of the proposed intelligent system for identifying machine health are demonstrated.

Paper ID: 670

Using Different Methods to Deal with Congestion in Hybrid Electricity Markets

Dharman J (Agastiyar Research and Technologies)*; Gitanjali Mehta (Galgotias University); Upasana Rani (, Jaipur National University)

Abstract: The stacking illustration of the transmission structure is basically impacted by the store fluctuations that occur throughout the day, particularly during the zenith hours. Exactly when the association is at its generally dynamic and at its zenith load, the voltage profile disintegrates, which can cause congestion. One of the most colossal and irksome commitments for the Free System Executive (ISO) in a freed environment is congestion management (CM). This assessment presents a hybrid-based energy market model-based generators' rescheduling-based CM framework to regulate transmission line congestion contemplating load limit. One of the main pressing concerns with a freed power structure is transmission congestion. Due to an extension in load interest, age rises. In any case, in light of the fact that transmission line limit is constrained and transmission lines convey more power than their assessed limit, congestion results. It is an irksome and complex task to regulate congestion in a freed electricity structure, but it will in general be done by introducing something like one Scattered Generators (DG) in the best position. To increase the social government help ability, which is benefit for both electricity providers and customers, the region and size of DGs are basically essential. In this survey, a recommendation for congestion control in hybrid power markets is made.

Paper ID: 672

An Analysis of Effective and Efficient Integration of Distributed Power Generation

Dharman J (Agastiyar Research and Technologies); Yogesh Kumar (Galgotias University)*; Anil Agarwal (, Jaipur National University)

Abstract: In recent years, there has been a critical expansion in distributed age (DG), or age that is associated with the low and medium voltage distribution organization (DN). This really intends what is going on, the customary suspicion of a unidirectional power stream and a voltage decrease along the distribution feeders is as of now false. Distributed Generations (DGs) are turning out to be more well known because of the requirement for brilliant electrical frameworks with minimal measure of specialized misfortune and ecological effect. These frameworks may likewise give some of extra advantages, like better power quality, diminished dependence on transmission and distribution frameworks, and decreased asset prerequisites. These advantages, be that as it may, couldn't be valid relying upon the setup and support of the framework. The need to change from the fit-and-fail to remember technique for coordinating DG into electric power frameworks to a procedure of incorporating DG into power framework arranging and activity through dynamic administration of distribution networks and use of other imaginative ideas is focused on specifically. The integration of dispersed power generation effectively and efficiently is examined in this article.

Paper ID: 673

Implementation of Soft Computing-Based Optimization Strategies to Enhance Power System Stability

Dharman J (Agastiyar Research and Technologies)*; Gautam Kumar (Galgotias University); . Mukesh Kataria, (, Jaipur National University)

Abstract: The improvement of large, interconnected power systems relies basically upon the stability of the power system. Because of the critical robotized needs of both home and modern requirements, the present power system keeps on developing dramatically. Soft computing approaches have accomplished very high rates, astounding adaptation to internal failure, and versatility. These variables make counterfeit brain network answers for probably the most troublesome or perplexing issues in the controls and power systems

spaces appealing. For a solitary machine boundless transport bar (SMIB) system, a fuzzy based power stabilizer is to be built in the recommended paper. A reproduction software must be utilized to follow through with the whole responsibility. Within the sight of an unobtrusive system unsettling influence, recreations of the SMIB Energy system state space model with fuzzy logic regulator and regular regulator are to be run. When contrasted with traditional and fuzzy logic power system stabilizers, this clear plan approach and more modest rule base are simpler to carry out and possibly offer better execution.

Paper ID: 674

Designing Model of Residential Demand Response Programs by Application of Real-Time Pricing

Dharman J (Agastiyar Research and Technologies); Ganana Jeba Das (, Galgotias University); Prashant Kumar Sharma (Jaipur National University)*

Abstract: In this article, real-time pricing is used to analyse residential demand response programmes. In light of the private area's lopsidedly high pinnacle energy use and broad utilization of disseminated neighborhood sustainable power age related to battery capacity gadgets, demand response (DR) is remembered to assume a urgent part in the savvy network structure. It demonstrates how representative residential DR can be in the future by helping to disperse the energy usage and so reducing peak loads that account for between 30% and 40% of the global energy demand. Programs like DR can help utilities better manage their energy assets while simultaneously saving money for end users. The availability of renewable energy sources, the price of electricity, and ancillary requests are only a few examples of the aspects that demand response (DR) programmes encourage users to take into account when they use electricity. It is one of the most cost-effective ways to increase the reliability and efficiency of the power system. One-third of all electricity used worldwide is consumed by homes, which provides enormous potential for DR applications.

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