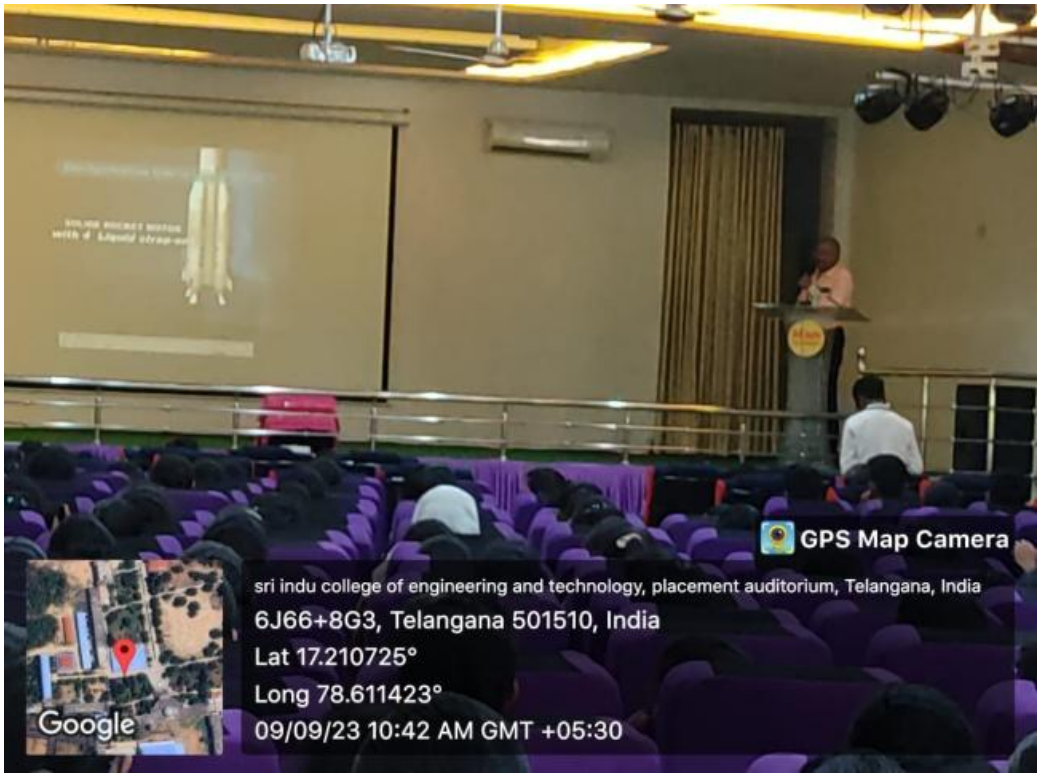
Collaborative quality initiatives with other institution(s)

S.NO	INDEX
1	Delivering lectures
2	Patent&Books
3	Publications

1. Delivering lectures:

- Conduct of placement training in collaboration with SIIET



PRINCIPAL
Sri Indu College of Engineering and Technology
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- Our students (Sri Indu college of engineering and technology) participated with BVR Mohan reddy school of Innovation & Entrepreneuship

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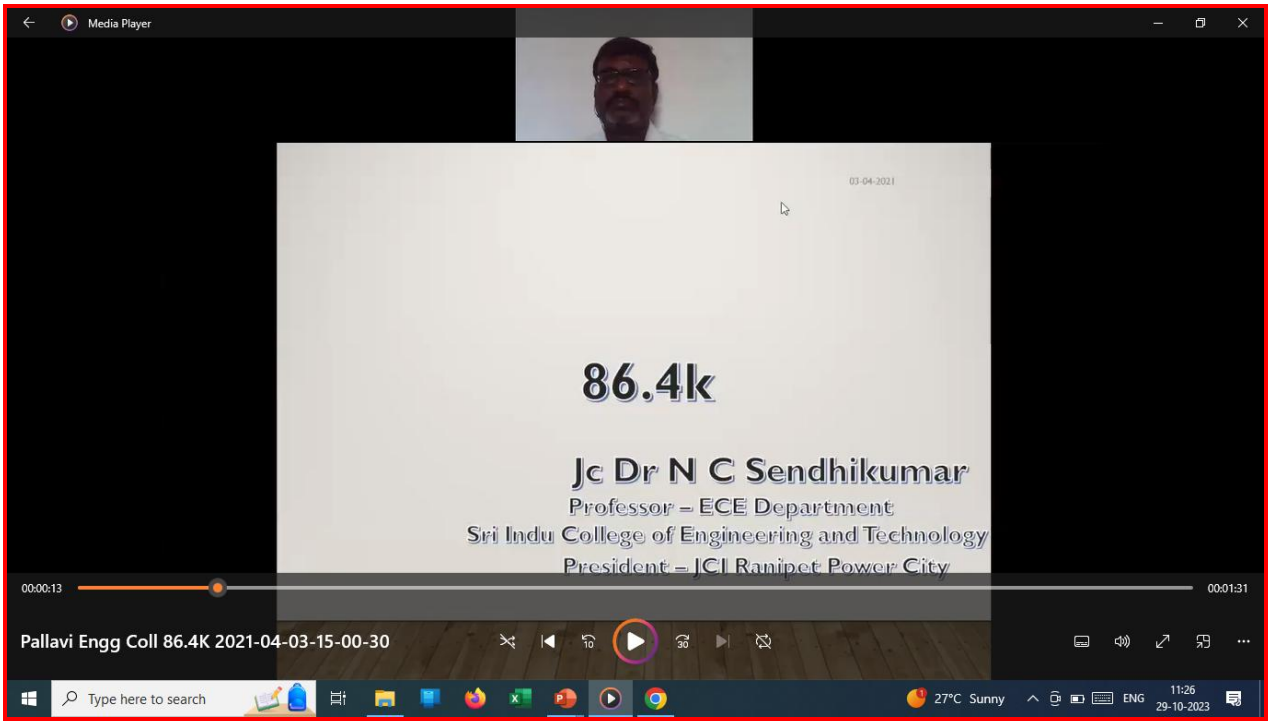
- Dr. NC. Sendhilkumar, professor of department of ECE, Sri Indu collage of engineering and technology has conducted webinar on “86.4k” in collaboration with Pallavi engineerin collage.



THANK YOU ALL !!!

Dr N C Sendhikumar
Professor – ECE Department
Sri Indu College of Engineering and Technology
President – JCI Ranipet Power City

31-10-2023

SRI INDU COLLEGE OF ENG. & TECH.

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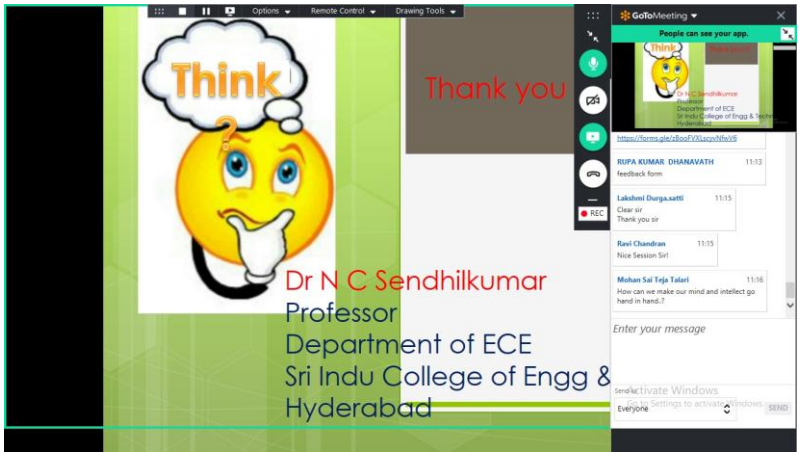
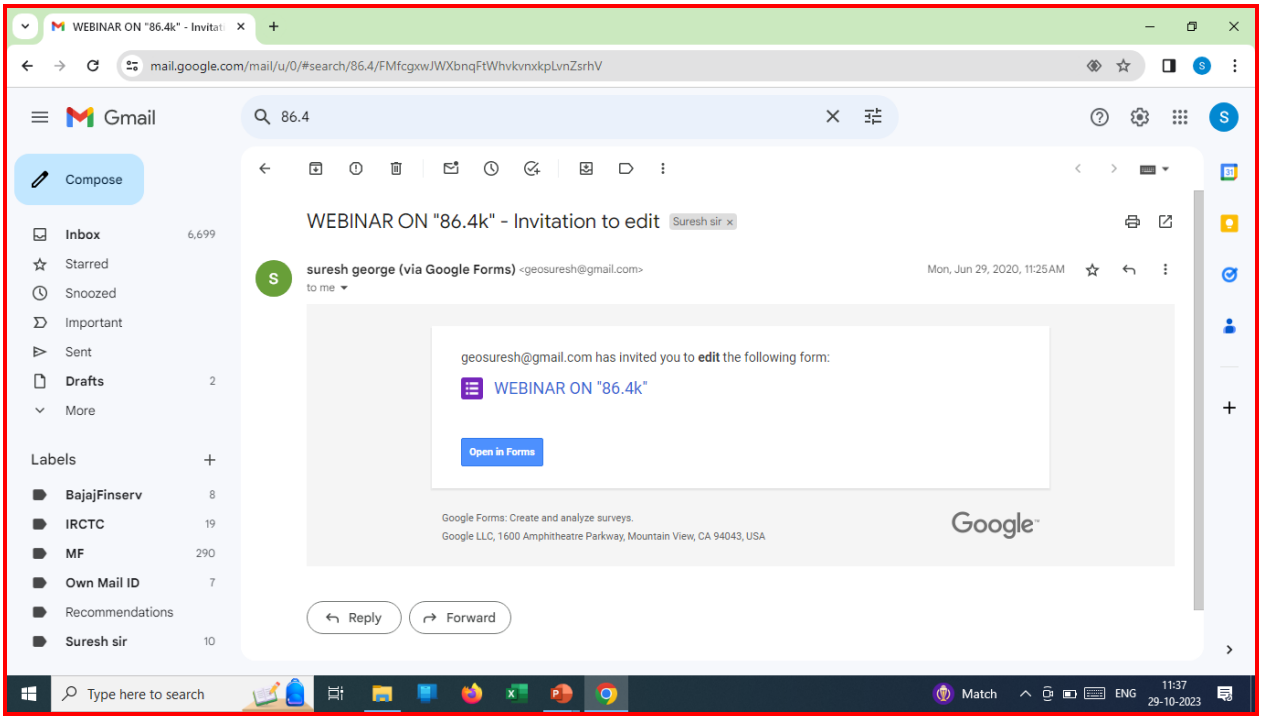
Feed Back





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- Various quality initiative program organized by Internal Quality Assurance Cell

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Sri R.Venkat Rao
Chairman

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UGC Autonomous Institution
Recognized under 2(f) & 12(B) of UGC Act 1956,
NAAC, Approved by AICTE &
Permanently Affiliated to JNTUH
Estd.2001

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Sri R.Anup Chakravarthy
Secretary

Internal Quality Assurance Cell

organizes

INSTITUTION'S INNOVATION COUNCIL
(Ministry of HRD Initiative)

Seminar
on

Total Quality Management (TQM) Reimagined

By :

Dr.R Murugesan
Professor
AITS

Date : 15-05-2020
Time : 11 AM

Coordinator	Principal
Dr.N.C.Sendhilkumar	Dr.G Suresh

Sri R.Venkat Rao
Chairman

Sri Indu
College of Engineering & Technology
UGC Autonomous Institution
Recognized under 2(f) & 12(B) of UGC Act 1956,
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NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

Sri R.Anup Chakravarthy
Secretary

Internal Quality Assurance Cell

organizes

INSTITUTION'S INNOVATION COUNCIL
(Ministry of HRD Initiative)

Seminar

Human Factors in Quality Management

By :

Jc J SenthilMurugan
National Trainer
JCIINDIA

Date : 19-10-2019
Time : 2 PM

Coordinator	Principal
Dr.N.C.Sendhilkumar	Dr.P.Mallesham

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Sheriguda (V), Ibrahimpatnam (M), R.R. Dist-501 510.

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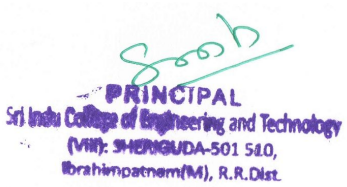
COLLABORATION WITH OTHER INSTITUTION FOR PUBLISHING PATENTS



S.NO	TITLE OF THE PATENT	PATENT APPLICATION NO.	HOST COLLEGE *(SRI INDU COLLEGE OF ENGINEERING AND TECHNOLOGY)*	COLLABORATED WITH OTHER INSTITUTIONS
1.	A METHODOLOGICAL STRATEGY FOR USING MACHINE LEARNING TECHNIQUES IN THE ENDEAVOUR OF FORECASTING JUDICIAL DECISIONS	202241060784 A	**G.Uma Maheswari** *Assistant professor / Department of CSE* ,	**K V Panduranga Rao** *(Prof & HOD / Department of CSE, Sree Vahini Institute of Science & Technology, Tiruvuru, NTR District, A.P-521235).* **Bandarupalli Mouleswararao** *(Associate Professor / Department of CSE, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, A.P-522302).* **Dr.Animoni Nagaraju** *(Associate Professor / Department of Mathematics and CSE, Malla Reddy Institute of Technology and Science, Maisammaguda, Dhullapally, Hyderabad, Telangana-500100).* **N.M. Deepika** *(Assistant professor / Department of CSE, Institute of Aeronautical Engineering, Dundigal, Hyderabad, Telangana-500043).* **Shivani Yadao** *(Assistant professor / Department of CSE, Stanley College of Engineering & Technology for Women, Abids, Hyderabad, Telangana-500001).*
2.	Comparative study to analyze the impact of nano materials and their energy delivery to the solar panels	202241014156 A	**Tamilarasan** *professor / Department of ECE* ,	**S. Kalaiselvan** *(Assistant Prof & Department of chemistry, M. Kumarasamy college of engineering, karur, 639113).* **Pravat Kumar Swain** *(Assistant Professor / Department of chemistry, Satyasai engineering college, chandipur road, Balasore-756002).* **Abhiruchi Passi** *(Professor and Head / Department of ECE, Manav Rachna International institur of research and studies, Faridabad, Haryana-121001).* **Amrut S. Lanje** *(professor / Department of ECE,*

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				Ambedkar college of arts, commerce&science, Chandrapur-442401). **Sanjay Laxmanrao Gaikwad** *(Assistant professor and Head / Department of Physics, Mahatma Phule Arts Science and Commerce college panvel Dist Raicad).*
3.	Machine learning based model to predict the characteristics of next generation based on DNA sequences	202211013212 A	**S. Vijayarangam** *Associate Professor / Department of CSE* ,	**Surendra kumar yadav** *(Advocate & Scientific consultant, No 37, old roshan pura extension A-Block Najafgarh New Delshi-110043).* **Mohd.Shaikhul Ashfaf** *(Department of botany, HKM Govt. Degree college, Bandipora, kashmir).* **Resham Bhalla** *(Loknete vyankatrao hiray arts science and commerce college panchavati nashik).* **Sampath Premkumar** *(Assistat professor / Department of Computer Application, Bishop thorp college, Dharapuram-638657).* **Sameera siddiqui** *(Assistant professor / Department of Biochemistry and Biotechnology, SFS college nagpur).* **Sujithra L R** *(Assistant Professor / Department of CSE, Dr.N.G.P. Institute of technology, Coimbatore-641048).* **K. Manoharan** *(Associate Professor / Departmetn of BME, SNS college of technology, Saravanampatti, Coimbatore, Tamilnadu-641035).* **Venkatesh.S** *(Assistat professor / Department of CSE, Nehru institure of engineering and technology, coimbatore).* **Dipan kumar Das** *(Centurion University of technology and management, PHD applied Physics research scholar, Bhubaneswar-761211).*
4.	The application of internet of things (IoT) technology to analyze electric quantities in real time	202141061894 A	**Shek Shakeel and Mandula Ashok** *Assistant Professor/ Department of IT*	**D.Shekar Goud** *(Assistant Professor / Department of ECE, Ellenki College of Engineering and Technology.).* **S. Sree Hari Raju** *(Associate Professor / Department of CSE, Nalla Narsimha Reddy Educational Society's Group*

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5.	INTELLIGENT VOTE CASTING METHOD TO PREVENT THE FAKE VOTING AND IMPLEMENTATION OF AUTOMATED POLLING SYSTEM USING RASPBERRY PI	202241000543 A	**T. CHARAN SINGH** *Associate Professor, Department of Computer Science*	**M. I. THARIQ HUSSAN (***Address of Applicant :Professor & Head, Information Technology, Guru Nanak Institutions Technical Campus, Ibrahimpatnam, R.R.District, Hyderabad, Telangana, India 501506)* **RAVULA ARUN KUMAR** *(Address of Applicant :Assistant Professor, Information Technology, BVRIT Hyderabad College of Engineering for Women, Nizampet Road, Hyderabad, Telangana, India 500090)* **KURAKULA ARUN KUMAR** *(Address of Applicant :Assistant Professor, Computer Science and Engineering, Sree Vidyanikethan Engineering College, Sree Sainath Nagar, Tirupati, Andhra Pradesh, India 517102)* **P. NAMRATHA** *(Address of Applicant :Associate Professor, Computer Science and Engineering, Gates Institute of Technology, NH. 44, Gootyanantapuram Village, Peddavaduyur Mandal, Gooty Railway Station, Anantapuramu District, Gooty, Andhra Pradesh, India 505401)* **IDIMADAKALA MADHAVILATHA** *(Address of*

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				Applicant :Assistant Professor, Computer Science and Engineering, Sri Venkateshwara Engineering College, Karakambadi, Road, Mangalam, Tirupati, Andhra Pradesh, India 517502)
6.	A SYSTEM AND A METHOD FOR REAL TIME DYNAMIC TRAFFIC MANAGEMENT BY THE UTILIZATION OF GPS AND IOT	202141061430 A	**G. SURESH** *Professor-Dept. of ECE*	**S. MANJULA** *(Address Of Applicant :Associate Professor, Dept.of ECE, Rajalakshmi Institute Of Technology, Chennai, Tamil Nadu, India, 600124)* **P. ANANDAN PROFESSOR,** *(DEPT. OF ECE, Saveetha School Of Engineering, Saveetha Institute Of Medical And Technical Scineces, Saveetha University, Chennai, Tamil Nadu, India, 602105)* **N. KUMARATHARAN** (Address of Applicant :Plot No.9 Second Cross, PSC Bank Nagar, Mudaliyarpet, Pondicherry, Pondicherry, India, 605004) **I. SOWMY** *(Associate Professor, Dept of Biomedical Engineering Address Of Applicant :Noorul Islam Centre For Higher Education, Kumaracoil, Kanyakumari District, Tamil Nadu, India, 629180)* **M. SUGANTHY** (*Associate Professor, Dept.of ECE, Veltech Multitech Dr. Rangarajan Dr. Sakunthala Engineering, Avadi, Chennai, Tamil Nadu, India, 600062)*
7.	IoT based smart social distancing and monitoring robot for queue using python language	202141056824 A	**S.Vijayarangam** *Associate Professor, Department of CSE*	**Adlin Suji K** *(Address of Applicant :Assistant Professor, Bishop Heber College (Autonomous), Trichy -17. Pin:620017 State: Tamilnadu Country: India)* **P.M.K.Prasad** *(Address of Applicant :Associate Professor, ECE Dept., GVP College of Engineering for Women, Visakhapatnam, Andhra Pradesh, India PIN: 530048, State: Andhra Pradesh Country: India)* **Alamelu alias Rajasree S** *(Address of Applicant :Assistant Professor Sri Ramakrishna engineering college, thudiyalur, Coimbatore. Pin: 641022. State: Tamilnadu Country: India)*

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8.	Structural and Fluid Dynamics Boundary Value LimitationsApproximated Solution in Engineering Applications	202141035934	**M. Chalapathi Rao,** *Assistant Professor/ Department of H&S*, **S. Praveen Kumar,** *Assistant Professor/ Department of H&S,* **Ponneyboina Manjula, Assistant** *Professor/ Department of H&S*	**K. Ramesh Babu** *(Assistant Professor/ Department of H&S, MVSREngineering college)* **P. Suresh** *(Assistant Professor/ Department of Mathematics,Chaitanya Bharathi Institute of Technology (A))* **A.Mythreye** *(Associate Professor/ Department of H&S, StanleyCollege of Engineering and Technology for Women)* **P. Srilatha** *(Associate Professor /Department of Mathematics,Institute of Aeronautical Engineering)* **G. Rami Reddy** *(Professor/ Department of Mathematics, MallaReddy Engineering College (A))*
9.	Structural and Fluid Dynamics Boundary Value Limitations Approximated Solution in Engineering Applications	202141035934 A	**M. Chalapathi Rao,** *Assistant Professor/ Department of H&S,* **S. Praveen Kumar,** *Assistant Professor/ Department of H&S* **Ponneyboina Manjula,** *Assistant Professor/ Department of H&S*	**K. Ramesh Babu** *(Assistant Professor/ Department of H&S, MVSR Engineering college)* **P. Suresh** *(Assistant Professor/ Department of Mathematics, Chaitanya Bharathi Institute of Technology (A))* **A.Mythreye** *(Associate Professor/ Department of H&S, Stanley College of Engineering and Technology for Women)* **P. Srilatha** *(Associate Professor /Department of Mathematics, Institute of Aeronautical Engineering)*

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				G. Rami Reddy *(Professor/ Department of Mathematics, Malla Reddy Engineering College (A))*
10.	ADVANCED MICROCONTROLLER BUS ARCHITECTURE (AMBA)'S VLSI DESIGN FOR THE AHB2APB BRIDGE	202141033469 A	**Sandhya Bolla** *Assistant Professor/ Department of ECE* **Deepika Rathod Bhukya** *Assistant Professor/ Department of ECE* **Udayasri Pabbu,** *Assistant Professor/ Department of ECE*	**Dr.N.Ramanjaneyulu** *(Associate Professor / Department of ECE, RGMCET)* **Dr.Chennakesavulu.M** *(Associate Professor / Department of ECE, RGMCET)* **P.Rangappa** *(Assistant Professor/ Department of ECE, RGMCET)* **V.Sudarshani Kataksham** *(Research Scholar/ Department of ECE, Acharya Nagarjuna University)* **V.Spandana** *(Research Scholar/ Department of ECE, University College of Engineering, Osmania University)*
11.	SYNTHESIS, CRYSTAL STRUCTURE, SPECTRAL AND THERMAL PROPERTIES OF 4-DIMETHYLAMINOPYRIDINIUM SALICYLATE MONOHYDRATE	202141034416 A	**N.Shailaja,** *Associate Professor/Department of H&S* **Ashok Kumar. Ch,** *Assistant Professor/ Department of H&S*	**A. Arun kumar** *(Associate Professor / Department of Physics H&S, Methodist College of Engineering & Technology)* **P.Anusha** *(Assistant professor/ Department of H&S, Stanley College of Engineering and Technology for Women)* **Ganta Raghupathi Reddy** *(Associate Professor / Department of H&S,CMR Engineering College)* **Gopikishan Sabavath** *(Assistant Professor/ Department of H&S, CMR Engineering College)* **7)M.Pavan Kumar** *(Assistant Professor/ Department of H&S, CMR Engineering College)* **8)C.Dabora Vincy** *(Research scholar/Department of Physics, Malankara Catholic College)*
12.	BWO Strategy for Power Quality Improvement in HRES Grid-ConnectedDPFC System	202141033891	**Rakesh Sharan,** *Assistant Professor/ Department of EEE* **Talla Venu Gopal,** *Assistant Professor/*	**B. Srikanth Goud** *(Assistant Professor / Department of EEE, AnuragCollege of Engineering)* **Maku Venkata Shruthi** *(Assistant professor/Department of EEE,Stanley College of Engineering and Technology for Women)*

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13.	CU–IN–SE TERNARY MATERIAL THIN FILM PHYSICAL PROPERTIESUNDER THE EFFECT OF CHOLINE CHLORIE PH ADJUSTER	202141019655	**Rekha Rani Maddula,** *Associate Professor /Department of H&S*	**Sangi Bhanuprasad** *(Assistant Professor / Department of S&H(Physics), Lords Institute of Engineering & Technology)* **Satyanarayansingh Thakur** *(Assistant Professor / Department ofS&H, Sridevi Women's Engineering College)* **Patlolla Avinash Rao** *(Head of the Department Physics, PragathiMahila Degree Kalasala)* **B. Vinay Kumar** *(Assistant Professor(c) / Department of S&H, JNTUHCollege of Engineering Sulthanpur)* **P.Anusha** *(Assistant professor/ Department of H&S, Stanley Collegeof Engineering and Technology for Women)* **Dr.SadhanaKatlakunta** *(Assistant Professor/Department of Physics,University College of Science)* **N Maramu** *(Assistant Professor/Department of Physics, KakatiyaInstitute of Technology and Science)*
14.	A COMMON FIXED POINT THEOREM FOR COMPATIBLE MAPPINGS OFTYPE (C)	202141006283	**Yelala Srinivas** *Assistant Professor/ Department of H&S* **Rekha Rani Maddula** *Associate Professor /Department of H&S*	**Swathi Mathur** *(Associate Professor/Department of H&S,Methodist College of Engineering & Technology)* **P.Srikanth Rao** *(Prof. /Department of BS&H, B V Raju Institute ofTechnology)* **Machunoori Narsimulu** *(Assistant Professor / Department of H&S,Vishnu Institute of Pharmaceutical Education & Research)*

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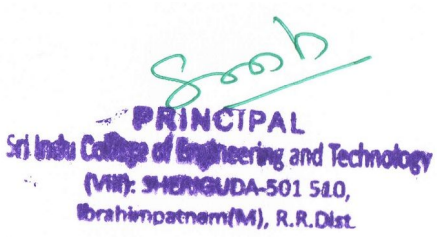
			Vuduthaneni Anuradha *Assistant Professor/ Department of H&S*	
15.	VISION BASED SAFTEY SEAT BELT MONITORING SYSTEM	201941003139	**P.SUBRAMANIAN** *Professor- CSE*	**D.STALIN ALEX** *(Professor & Head-IT Guru Nanak Institute ofTechnology Hyderabad)* **Dr.G.SANKARA NARAYANAN** *(Professor-Mechanical, Guru NanakInsmutions Technical Campus Hyderabad)* **M.I.Thariq Hussan** *(Professor & Head-IT Guru Nanak InstitutionsTechnical Campus Hyderabad)*



(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :25/10/2022

(21) Application No.202241060784 A
(43) Publication Date : 28/10/2022

(54) Title of the invention : A METHODOLOGICAL STRATEGY FOR USING MACHINE LEARNING TECHNIQUES IN THE ENDEAVOUR OF FORECASTING JUDICIAL DECISIONS

(51) International classification :G06Q0050180000, G06N0020000000, G06N0005040000, G06K0009620000, G06N0020200000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :
Abstract The process of making decisions in legal matters can benefit from the exercise of imagining the outcomes of the instances involved. Several areas of law, including construction lawsuits, criminal law, parental rights, employment classifications, divorce, and tax law, are amenable to forecasting. With the development of AI, machine learning techniques can be used as decision-making aids in the judicial system. This research set out to disseminate an SLR of existing literature on the topic of using machine learning to foretell legal outcomes. The purpose of this study is to identify and evaluate the machine learning approaches taken to forecast judicial outcomes. The ROSES (Reporting Standards of Systematic Evidence Syntheses) publication standard was used for this analysis. Then, using the authoritative databases Scopus as well as Web of Sciences, we selected 22 relevant research that most reliably predicted the judgments requiring binary classification. The results of the SLR suggest that many machine learning techniques can be utilized in judicial rulings. Since most approaches hit an accuracy rate of 70% or more, we can safely say that performance is satisfactory. But the machine learning algorithms we have now can be improved to make better predictions about how judges will rule.

No. of Pages : 13 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/03/2022

(21) Application No.202241014156 A

(43) Publication Date : 01/04/2022

(54) Title of the invention : A COMPARATIVE STUDY TO ANALYZE THE IMPACT OF NANO MATERIALS AND THEIR ENERGY DELIVERY TO THE SOLAR PANELS

(51) International classification	:B64G0001440000, H01L0031054000, H01L0031042000, A61K0039395000, F24S0023000000
(86) International Application No	:PCT//
Filing Date	:01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number	:NA
Filing Date	:NA
(62) Divisional to Application Number	:NA
Filing Date	:NA

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(57) Abstract :
A comparative study to analyze the impact of nano materials and their energy delivery to the solar panels is the proposed invention. The proposed invention focuses on designing a framework that conducts a comparative study to analyze the impact of nano particles on solar cells. The invention tries to increase the performance of solar cells.

No. of Pages : 11 No. of Claims : 4

PRINCIPAL
Sri Indu College of Engineering and Technology
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Ibrahimpatnam(M), R.R.Dist.

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :11/03/2022

(21) Application No.202211013212 A

(43) Publication Date : 18/03/2022

(54) Title of the invention : MACHINE LEARNING BASED MODEL TO PREDICT THE CHARACTERISTICS OF NEXT GENERATION BASED ON DNA SEQUENCES

(51) International classification :G06N0020000000, G06N0003080000, G05B0013040000, G16B0030000000, G06N0005000000

(86) International Application No :NA
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA
Filing Date :NA

(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :
Machine learning based model to predict the characteristics of next generation based on DNA sequences is the proposed invention. The invention focuses on identifying the traits of DNA sequences that will be passed over to the next generation. The proposed invention will also help to predict the various aspects regarding health aspects can be analysed using machine learning approach.

No. of Pages : 11 No. of Claims : 3

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :30/12/2021

(21) Application No.202141061894 A
(43) Publication Date : 07/01/2022

(54) Title of the invention : The Application of Internet of Things (IoT) Technology to Analyze Electrical Quantities in Real Time

(51) International classification :G01R0023020000, G06F0030200000, H02J0003000000, G05F0001700000, G01R0021133000
(86) International Application No :PCT//
Filing Date :01/01/1900
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
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(57) Abstract :
Abstract Energy, Voltage, Power, Current, Power Factor, and Frequency are all electrical parameters that can fluctuate in an electrical power system due to load alterations, instabilities, or further abnormal conditions. To avoid a significant problem for the entire system, a change in electrical amounts must be identified immediately. Therefore, it is vital to quickly and accurately identify the current state of electricity in order to make the best judgments possible. Using Internet of Things (IoT) technology, a three-phase main distribution panel power building's distribution system was monitored online. Arduino is used to processing the data, which is then stored on a server and shown on a web-based presentation in real-time. The measuring system offers many significant features, including real-time observing, comprehensive data gathering, cataloging, and system reporting, which may be utilized for different resolutions of power generation investigation, such as planning and estimation. The conclusion demonstrates that the electrical system at the building has an instable load, frequently results in a drop-voltage state.

No. of Pages : 13 No. of Claims : 3

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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :05/01/2022

(21) Application No.202241000543 A
(43) Publication Date : 14/01/2022

(54) Title of the invention : INTELLIGENT VOTE CASTING METHOD TO PREVENT THE FAKE VOTING AND IMPLEMENTATION OF AUTOMATED POLLING SYSTEM USING RASPBERRY PI

(51) International classification	:G07C0013000000, H04L0009320000, G06K0009000000, G06Q0050260000, H04L0009140000
(86) International Application No Filing Date	:NA :NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

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(57) Abstract :
India, the nation's biggest republic, continues to organize elections via Concealed Electoral Polling or Electronic Voting Machines (EVM), both of which incur enormous costs in terms of human effort and inefficiencies. Fraudulent votes continue to be a major electoral drawback. The authorities have a comprehensive database for us in AADHAR CARD, including fingerprint and retinal information.Biometric finger-printing and a camera are used in the Electronics Voting Machine to authenticate the vote.The polling station just requires the usage of a fingerprint scanner to capture the voter's face identity in the voting stand's web camera and allows the voter to be identified with: an on-site fingerprint and face. RFID is utilized to read the identification in this case. This information is sent to the verification unit. When registering voters, the controller takes reader data and compares it to previously recorded data. The candidates may cast their vote via GUI display for their parties.

No. of Pages : 19 No. of Claims : 6

PRINCIPAL
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(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :29/12/2021

(21) Application No.202141061430 A
(43) Publication Date : 14/01/2022

(54) Title of the invention : A SYSTEM AND A METHOD FOR REAL TIME DYNAMIC TRAFFIC MANAGEMENT BY THE UTILIZATION OF GPS AND IOT

(51) International classification :H04W0004021000, G01S0005000000, G08G0001010000, G08G0001017000, G08G0001140000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :
The geo-density and loT based real time dynamic traffic management system enabled through the GPS comprises a sensing system for determining the position of the vehicles and based on their location amending the database values wherein said sensing system further comprises a GPS system installed on-board in the vehicles for determining the GPS coordinates of the vehicle and intimating the said system upon the said vehicle entering the geo-fenced location determined around the traffic signal; microcontroller / microprocessor for receiving the said data from the GPS system, for continuously monitoring the locations of the said vehicle and for updating the central database upon the said vehicle reaching the geo-fenced region; a RFID tag / GSM for executing a prioritized communication between the said vehicle and the system for re-altering / interrupting the routine operation of the system in order to provide lanes for the emergency vehicles; at least one power supply drawn from the said vehicle for activating the plurality of functional and operating systems; a memory incorporated with a real time central database that stores the data corresponding to the vehicle counts in each junction and that is updated every 15 seconds depending upon the presence and absence of the vehicle in the geo-fenced location and a decision making system for determining the highest priority lane to receive the instructions for the continuous movement and the lowest priority lave to be stopped wherein said system includes RF receiver in communication with the micro controller / microprocessor and plurality of relay tags.

No. of Pages : 24 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :07/12/2021

(21) Application No.202141056824 A
(43) Publication Date : 10/12/2021

(54) Title of the invention : IoT based smart social distancing and monitoring robot for queue using python language

(51) International classification :B25J0009160000, G08B0021020000, G06Q0050000000, B25J0019020000, B25J0013080000
(86) International Application No :PCT// Filing Date :01/01/1900
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA Filing Date :NA
(62) Divisional to Application Number :NA Filing Date :NA

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(57) Abstract :
IoT based smart social distancing and monitoring robot for queue using python language Abstract: Keeping a safe distance from other people is critical during this current pandemic. In some ways, it aids in the prevention of COVID transmission by tracking how far people infected with it are from one another. We're developing a robot that can detect when people in queues are socially distancing themselves from one another. It moves forward using a two-wheeled design system. Its primary responsibilities include following the line and looking for violations of social distancing. The robot follows the line and uses infrared sensors to detect violations as they occur. This is due to the addition of an ultrasonic obstacle detection sensor to the robot. This means the robot can now detect obstacles in its path. One of the robot's ultrasonic sensors is used to determine the distance between two people in a line. When two people are discovered near each other, the robot sounds a buzzer and sends an alert. When these things happen, alerts and a picture taken by the camera are sent out. Those who obtain them do so. Viruses cannot spread because of this project's ability to keep people separated in lines.

No. of Pages : 9 No. of Claims : 5

PRINCIPAL
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Application Details	
APPLICATION NUMBER	202141035934
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	09/08/2021
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FIELD OF INVENTION	COMPUTER SCIENCE
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PRIORITY DATE	
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PUBLICATION DATE (U/S 11A)	13/08/2021

Application Status	
APPLICATION STATUS	**Awaiting Request for Examination**

View Documents

➡ Filed ➡ Published ➡ RQ Filed ➡ Under Examination

➡ Disposed

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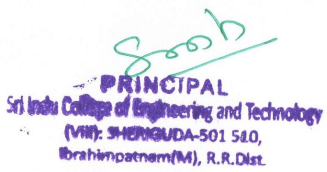

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :09/08/2021

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(43) Publication Date : 13/08/2021

(54) Title of the invention : Structural and Fluid Dynamics Boundary Value Limitations Approximated Solution in Engineering Applications

(51) International classification	:G06F0030230000, G06F0111040000, G06F0009455000, G06F0017130000, G01M0010000000
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	:PCT// :01/01/1900
(87) International Publication No	: NA
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8)Dr. G. Rami Reddy, Professor/ Department of Mathematics, Malla Reddy Engineering College (A).

(57) Abstract :
Abstract As a boundary value problem solver, the variational iteration method (VIM) is advantageous in structural engineering and fluid dynamics analysis problems. Models of these complications are used to study viscoelastic and inelastic flows, beam distortion, and plate bending. The exact answers and the outcomes of the variational iteration method are compared (VIM). According to the outcomes, this strategy is highly successful, straightforward, and provides exact solutions. Using this strategy for addressing linear and nonlinear boundary limitation problems were demonstrated.

No. of Pages : 16 No. of Claims : 3

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(Vill): SHERIGUDA-501 510,
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(54) Title of the invention : ADVANCED MICROCONTROLLER BUS ARCHITECTURE (AMBA)'S VLSI DESIGN FOR THE AHB2APB BRIDGE

(51) International classification	:G06F0013400000, H04L0012460000, G06F0030300000, G06F0030330000, G06F0013360000
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(57) Abstract :
Abstract The AMBA (Advanced Microcontroller Bus Architecture) System Chip bus protocol facilitates the communication of advanced microcontrollers and low-power devices. The Advanced Peripheral Bus (APB) is employed to associate UARTs. In contrast, the Advanced High-Performance Bus (AHB) uses an assembly bus to link a microprocessor, substantial storage regulators, and a DSP. The AHB bus connects to the APB bus through a bridge. Bridges are bus-to-bus interfaces that provide a standardized method for IPs that are linked to separate buses to communicate. In this work, we've described how the AHB2APB Bridge is developed, built-in Verilog tool. An AHB2APB Bridge RTL synthesizable interface design is created and identified as AHB2APB Bridge. AHB2APB Bridge (which is sometimes referred to as the 'twin bridge' has 11 signals from AHB Master and six calls from AHB2APB Bridge. These AHB2APB Bridge results are positive, and more verification will be done to check the versatility of the simulation by using UVM in the future.

No. of Pages : 14 No. of Claims : 4

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(54) Title of the invention : SYNTHESIS, CRYSTAL STRUCTURE, SPECTRAL AND THERMAL PROPERTIES OF 4-DIMETHYLAMINOPYRIDINIUM SALICYLATE MONOHYDRATE

(51) International classification	:G01N0021640000, C30B0029220000, G01N0005040000, C30B0015000000, C30B0019120000
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(57) Abstract :
Abstract 4-dimethylaminopyridinium salicylate monohydrate (DMAPSA) was synthesized and its crystal structure was determined using single crystal X-ray diffraction analysis. From the crystal structure analysis it can be inferred that the crystal belongs to monoclinic system with space group of P21/n. Investigation has been carried out to assign the vibrational frequencies of the grown crystals by FTIR spectral studies. 1H and 13C FT-NMR has been recorded to elucidate the molecular structure. Molecular mass of DMAPSA has been measured using mass spectroscopic analysis. The thermal stability and thermal decomposition of DMAPSA have been investigated by means of thermo gravimetric analysis and differential thermal analysis. The melting point of crystal was observed as 172° C by melting point apparatus. Fluorescence spectra were taken for the excitation wavelength of 240 nm.

No. of Pages : 15 No. of Claims : 3

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FIELD OF INVENTION	ELECTRICAL
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DATE OF FILING	29/04/2021
APPLICANT NAME	1 . Sangi Bhanuprasad, Assistant Professor / Department of S&H (Physics), Lords Institute of Engineering & Technology 2 . Satyanarayansingh Thakur, Assistant Professor / Department of S&H, Sridevi Women's Engineering College 3 . Patlolla Avinash Rao, Head of the Department Physics, Pragathi Mahila Degree Kalasala 4 . B. Vinay Kumar, Assistant Professor(c) / Department of S&H, JNTUH College of Engineering Sulthanpur 5 . P.Anusha,Assistant professor/ Department of H&S, Stanley College of Engineering and Technology for Women 6 . Rekha Rani Maddula, Associate Professor /Department of H&S, Sri Indu College of Engineering & Technology (Autonomous) 7 . Dr.Sadhana Katlakunta,Assistant Professor/Department of Physics, University College of Science 8 . N Maramu, Assistant Professor/Department of Physics, Kakatiya Institute of Technology and Science
TITLE OF INVENTION	CU–IN–SE TERNARY MATERIAL THIN FILM PHYSICAL PROPERTIES UNDER THE EFFECT OF CHOLINE CHLORIE PH ADJUSTER
FIELD OF INVENTION	ELECTRONICS
E-MAIL (As Per Record)	senanipindia@gmail.com
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APPLICATION NUMBER	202141006283
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TITLE OF INVENTION	A COMMON FIXED POINT THEOREM FOR COMPATIBLE MAPPINGS OF TYPE (C)
FIELD OF INVENTION	COMMUNICATION
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TITLE OF INVENTION	VISION BASED SAFTEY SEAT BELT MONITORING SYSTEM
FIELD OF INVENTION	MECHANICAL ENGINEERING
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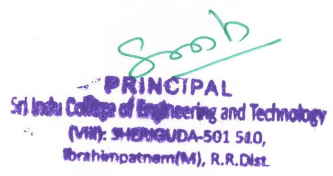

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OBJECT ORIENTED SOFTWARE ENGINEERING

OBJECT ORIENTED SOFTWARE ENGINEERING

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Kiranmai Vanaparthi | Mrs.J.S.Radhika

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PREFACE

This book aims to provide a broad view of **OBJECT ORIENTED SOFTWARE ENGINEERING** is well known in various engineering fields. It logically explains complicated concepts and stepwise methods to explain essential topics. Each chapter is well supported with the necessary illustrations. All the chapters in the book are arranged in a proper sequence that permits each topic to build upon earlier studies.

OBJECT ORIENTED SOFTWARE ENGINEERING is an important research area. The techniques developed in this area so far require to be summarized appropriately. In this book, the fundamental theories of these techniques are introduced.

The brief content of this book is as follows-

CHAPTER 1 OBJECT-ORIENTED CONCEPTS, MODELLING

CHAPTER 2 INTRODUCTION TO SOFTWARE ENGINEERING

CHAPTER 3 SOFTWARE REQUIREMENTS

CHAPTER 4 DESIGN ENGINEERING

CHAPTER 5 TESTING AND IMPLEMENTATION

CHAPTER 6 PROJECT MANAGEMENT

CHAPTER 7 SOFTWARE MAINTENANCE COST FACTORS

REFERENCES

This book is original in style and method. No pains have been spared to make it as compact, perfect, and reliable as possible. Every attempt has been made to make the book a unique one.

In particular, this book can be handy for practitioners and engineers interested in this area. Hopefully, the chapters presented in this book have just done that.

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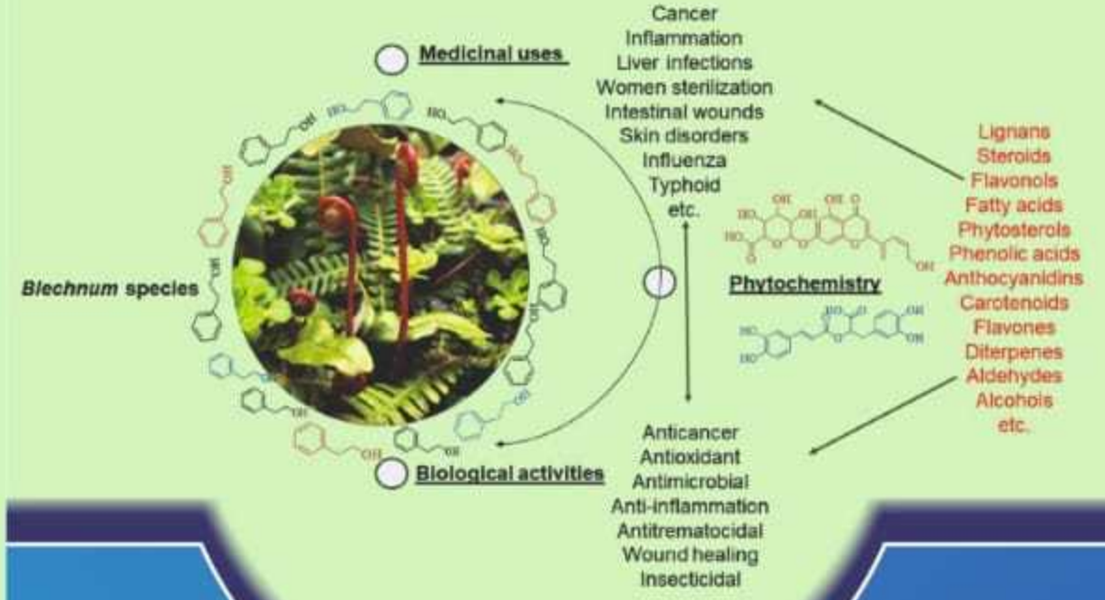

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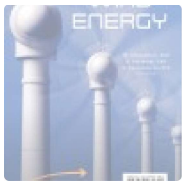

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Chapter 5. A Machine Learning Approach for Thermodynamic Analysis in Wind Turbine with Optimization

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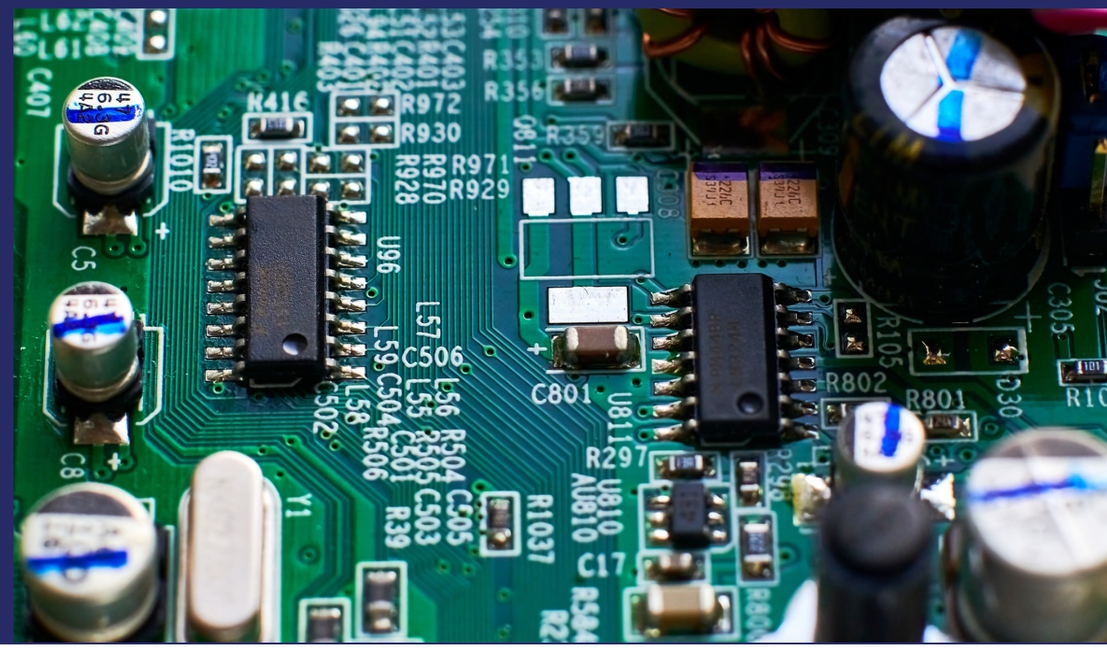

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An Investigation on Tabu Search Algorithms Optimization

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Abstract: Tabu Search is one of the local search methods used for mathematical optimization Metaheuristics search method. It was founded in 1986 by Fred W. Developed by Clover and in 1989 Formalized. Local (nearby) searches take a potential solution to a problem and its immediate neighbor Check countries (i.e., similar solutions except for very small details). Improved solution Diagnosis. Local search methods on plateaus where subdivisions or multiple solutions are equally applicable Tend to get entangled. Tabu Search is the local search by relaxing its basic rule Improves performance. First, any moves that get worse with each step Will be accepted if not upgraded (if the search is stuck in a strict local minimum). In addition, obstacles (hereinafter referred to as taboo) prevent the return to previously visited solutions Introduced in the category. The implementation of the tab search, the solutions visited or the user Uses memory systems that describe sets of rules provided. [2] A certain short If the possible solution within the period has been visited before or if it violates a rule, it is Will be referred to as "taboo" (blocked) so that the algorithm does not reconsider that possibility.

1. Introduction

Tabu Search is a metamorphic local search method used for mathematical optimization. Local search The methods have a tendency to become entangled in subdivisions. Already by the rules provided by the user TS enhances the effectiveness of these techniques by blocking visited solutions or others. Teachers have previously used TS to solve MINLPs with the master-slave system. Master Loop TS Handles all integer variables using, and internal rotation is a gradient based method Minimizes every NLP add-on using. TS is a whole integer of so-called candidates Creates an array of number variables. These candidates are one or the other of the current best solution Differ by more than one bit and they are not included in the tab list. NLP sub-problems are solved using a slope based method for each candidate. Of all the new candidates, the one with the best objective value is selected and the next generation Is considered the seed for making candidates.

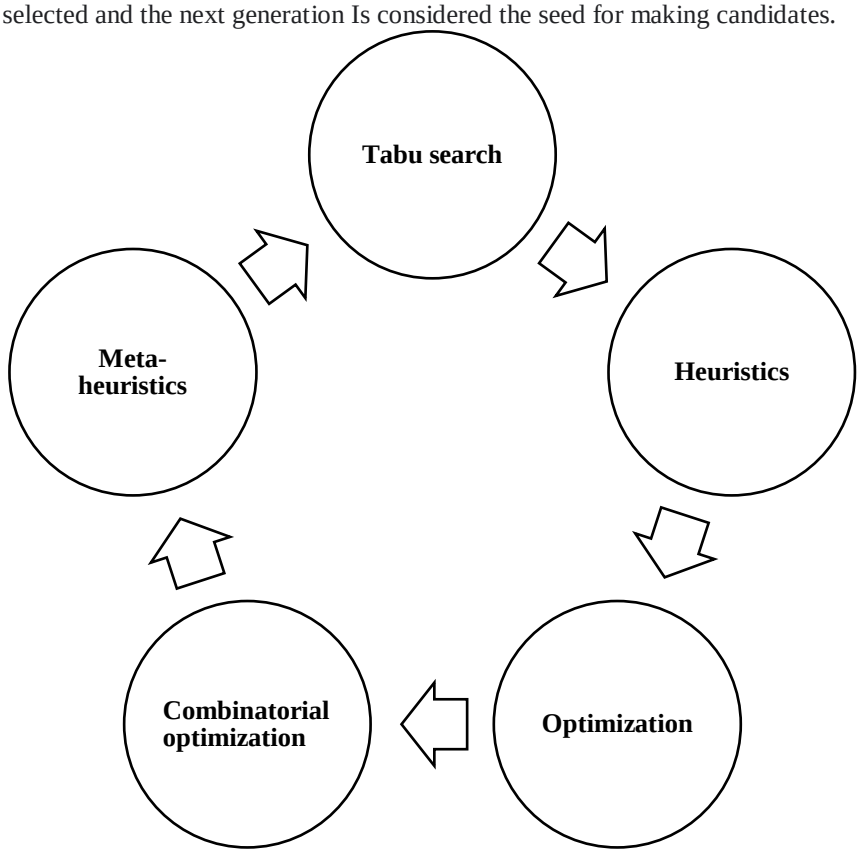

FIGURE1. Tabu search Algorithms

To prevent getting caught up in local optimism, to prevent the selection of already visited solutions and their surroundings, a tab list Has been created. A holistic, or heuristic technique is anything that solves a problem Is also the approach, which is a practical method or solutions using various shortcuts Not optimal to create but limited time limit or time limit Enough to give. Optimization is the adjustment of variables used for technical analysis Through is the process of making a trading system more effective. Some transaction costs or risks are expected to be reduced or higher A business system can be improved by targeting assets with income. Combinatorial Optimization is a subfield of mathematical optimization of finite objects Consists of finding an optimal object from the package, where the set of possible solutions Can be separate or reduced to a separate set. Computer Science and Mathematics in optimization, metaheuristic is a high-level process or heuristic (partial search algorithm) Designed to find, create or select one. Limited computational ability. The Metaheuristics model is a subset of solutions Would be too large to be fully calculated or explored.

2. Tabu search

Taboo Search is a meteoritic application of local search methods used for mathematical optimization Is the search method. Local searches take a potential solution to a problem and its immediate neighbors Check in hopes of finding an improved solution. [1] Of course planning issues, in addition to the classical restrictions of priority and time windows Requirements are taken into account. Tap search to find a possible syllabus We describe a new method based on techniques. The purpose of this paper is the length of the course One based on taboo search techniques to deal with non-syllabus scheduling problems Is to propose a new global approach. Must know in advance. [2] Tabu-search-based heuristics descent upgraded as expected, Appendices 1 and See 2. In scenario 1, the well-structured de "nation of ¸S (i) (functional representation) Using S variation dominates. A less informed definition of (S (i) (Random Pix) Uses, however the results are not significantly different. For example, with 44 More than 54% of the best solutions were found by functional S in comparison. Random S and S % Was obtained using the mild aspiration criterion in both methods. [3]. To explore the above, minimize distribution loss based on the built-in utility of Tabu Search A system has been developed to determine the optimal allocation and size of DGs. Each and every taboo search to determine the capacity of the DG and to search the location of each DG respectively Used. A brief description of the Tabu search is shown in Appendix 1. [4]. The most commonly used "recent based" memory in tab search is the default rule Is the basis of aspiration, which can be used with little modification to give the shape of the tree search. In the clover as can be seen, the application of the results rules built into the taboo search is consistent with the tree search as a special case Creates shape. In the present case, however, tree searches vary considerably. Then The variation described will, for example, be used in popular methods for integer programming We get a taboo tree search that departs significantly from regular branch and binding tree searches. [5]. Although taboo search for STSP and VRP has been found to be one of the most promising metamorphoses, It appears that no taboo search algorithms have been proposed in the literature for TOP. In this paper, provides integer programming creation for TOP (Section 2) and a Tab Search Heuristic Designed. A step-by-step explanation of this process is given (published Section computational results on test problems are provided (Section 4). Of these computational experiments The results show that the proposed taboo search algorithm for resolving the TOP works better than other published heuristics. On top. [6]. Tabu Search, proposed by Clover, is a meta heuristic method, integrated optimization Used to solve the problem. It has received widespread attention recently. Its apparent control Many amazing successes in solving configuration and NP-difficult issues are quick in its application Caused growth. This varies from local search technique. Tabu Search is a short-term memory Uses, also known as the tabu list, which records and guides the search process. [7]. Tabu search techniques are used to gradually move towards the minimum value of a function. List of prohibited movements to avoid cycling and getting stuck in the local minima Will be updated. Such techniques are suitable for graphic colorization problems. They are 1000 nodes We show you the almost optimal colors of the apps up to, and their Performance has been shown to be significantly higher than popular simulated analgesia.

3. Heuristics

A holistic, technique is any approach to problem solving that is an It is not optimal to create solutions using practical method or various shortcuts but it is enough to give a limited time limit or deadline. Heuristic methods Are flexible and are used for quick results, especially in finding the optimal solution Impossible or impractical and when working with complex data. This cognition Shortcuts play an important role in the behavior economy. Horisticics for making a decision There may be mental shortcuts that ease the cognitive burden. Trial and error, thumb rule or The use of read guess is an example of the use of heuristics. [8]. Solution techniques range from graphical coloring to complex metamorphic algorithms, including LP Formulations and horistics are tailored to the specific problem. [9]. We discuss several types of identification algorithms that can be classified into three groups: Creative Horistic (Randomized Horistic and Horsepower with a finer degree of control than other Express Editions). Created the algorithm. As far as we know, this is the first time. To solve an identity problem Designed, despite the importance of such issues in solving problems associated with branching and cutting. [10]. Horoscope for solving flow shop planning problem can be divided into two types: sequence generating Horistics and upgrade horistics. Many heuristics have been developed for the Flow Shop problem, but these two hoists have shown moderately good

performance in previous studies. Early start to get the solution, we consider two horistics We took: a system due to Nawaz, Encore and Ham (NEH). [11]. Tabu Search (Clover, 1986) is one that aims to overwrite a major search holistic Is meteoritic, and exits the heuristics local optima, other areas of the solution site Helps to explore. The moving horistics of pMP are particularly well suited to this structure. [12]. To evaluate the performance of our two-phase TS algorithm, the latest LRP in the literature We compare Srivastava's SAV1 algorithm (1993) with one of the heuristics. This algorithm is on the same sheet (SAV2 and CLUST) compares favorably with the other two proposed horistics. SAV1 Horistic Comparing the two-phase TS algorithm with LRP LRP in the literature begins with the basis for evaluating the effectiveness of heuristics. [13]. Horisticics include creative horistics that try to keep the cost of the solution as low as possible. When gradually creating a viable solution, two-phase horistics, in which the customer first Possible routes and real routes are created, and in single routes Improving improvement methods. Traveling Salesman Problem (DSP) Horistic application or in many ways by making customer reassignments or transactions. [14] J6rnsten and Nfisberg modify Lagrangean decay boundaries to obtain potential solutions Propose simple horistics. From a solution that satisfies semi-assignment controls The start was found to be the best holistic. If capacity restrictions are violated, possibilities are restored Another simple transfer process is used [15] Multiple heuristics running times to solve the B-center problem. Programs for all modes in Fortran 77 Coded and compiled by f77-cg89-O4 plenty, it runs on Sun Spark Station 10. For the p-center problem Since there are no benchmark test problems, compare heuristics in the cases that are created We saw. In random, then OR-Lib and TSP-Lib cases, Dedicated to p-Median and Traveling Salesman problems respectively. [16] As a result, optimization methods can be ignored and certain rules known as horistics Can be implemented. These are good solutions very quickly Are capable of receiving but are not required to provide optimal solutions. [17] Different by changing the set of edges required for service and changing the capacity of the vehicles Problem events were created. Enabling Classical Heuristics, Path Scanning Method and TSA Version 1 Table 9 shows the results of comparison with the solution provided by. Route scanning method is faster, It only takes an average of 0.27 seconds to resolve. However, TSA is 18.5% of the path scanning method Improved the results and took an average of 1021.1 seconds [18]. A set of 40 BHOSLIB (Benchmark with Hidden Best Solutions) events arose from the SAT'04 competition. BHOSLIB events are translated from difficult Random SAT events, and they are theoretical Practically and practically the maximum click algorithms are known to be difficult. BHOSLIB definitions have been widely used in recent literature to test new MCP heuristics. [19]. A set of 40 BHOSLIB (Benchmark with Hidden Best Solutions) events arose from the SAT'04 competition. BHOSLIB events are translated from difficult Random SAT events, and they are theoretical Practically and practically the maximum click algorithms are known to be difficult. BHOSLIB definitions have been widely used in recent literature to test new MCP heuristics. [20]. Comparisons were made with the discrete case and the simple creative process. Two Hornists also have the ability to solve more realistic events than previously thought by other authors with. Our two horistics can handle different aspects of real life issues, including Includes Time Win Doves, favorite and acceptable berthing areas. Objective function Will easily accept the weighted amount of shipping service hours. Allocation of berthing and quay cranes The integration of issues will be the subject of further study. Med center Container Terminal is its end Plans to integrate our horistics into the support system.

4. Optimization

Optimization is a business of adjusting variables used for technical analysis Is the process of making the system more effective. Some transaction costs or risks A business that targets assets with a reduction or higher expected return The system can be improved. Optimization is a way to reduce costs or increase efficiency The process of upgrading a portfolio, algorithm or trading system. Reducing risks by, by increasing the expected return or by changing the frequency of the restructuring Portfolios can be improved. Optimization as markets and laws are constantly changing Is a static and ongoing process. Fixed for trading algorithms Optimization is required, both of which fix changing market conditions and programming errors Reduce the risk. To improve a factor There is a risk of over-optimization as other factors may require exchanges. [21] The mathematical nature of this optimization problem, a linear non-mixed integer problem, over the past 25 years Is in the origin of many contributions to the literature. In fact, the perfect optimization for this kind of problem Methods have not been invented, and in the past, classical such as linear and non-linear programming Optimization methods were attempted at the expense of drastic simplifications. [22] Different types of procedures in the technical literature to find the optimal solution to the optimization problem Are proposed as follows. Common to access all possible optimization issues Creating technique is a great situation. [23]. To date, Hu9's only paper dedicated to TS's adaptation to continuous optimization Only we know. But the algorithm proposed by Howe is far from the original TS Is far away. Instead, our aim is to keep it as close as possible to the original simple TS. The sheet follows Organized. In Section 2, we will deal with the adaptation of TS for continuous functional improvement. [24] Tab Search is an optimization used to solve combinatorial optimization problems Is the technique. This method was introduced by Clover. [25]. Of the incorrectly defined nature of optimization problems and the weakness of mathematical approaches Due to the increasing interest in meta-holistic search, moreover, optimization issues are differentiated There is no need to meet strict requirements. It has the same advantages as real world applications, since an example to solve a problem in the signal system is to improve the indistinguishable system by the way we usually end [26]. The sum of the square error (SSE) used for optimization and the forecast error Basically the networks were compared. Six hidden for all problems in each network Covers nodes. A pronoun was used for both the input

and the hidden layers, so a total of 25 weights for problems 14 and 19 weights for problem is best for problems given Network configurations may be, but since we are comparing optimization methods, we have chosen a common architecture. [27]. This creation has no shape control and can be upgraded to its centroid-to-centroid distance measurement Can cause unreal form fields. All to control the patterns of Tate and Smith (1995) They extended the problem by adding a maximum rate (MAR) to the sectors. Similarly, Coyote et al. (1996) Establish a minimum-side-length (MSL) barrier for each port. [28]. These strategies can be specified in terms of a term optimization. These two main procedures are as follows Have been explained. This is a multi-search process of optimization in taboo search. Intensification of TS and Strategies in diversification practices are proposed to accelerate integration in multidisciplinary. [29]. In combinatorial optimization, the best example of such a common technique is GRASP, which has many Successfully applied to optimization problems, for example, to the quadratic allocation problem. Different to obtain a set of solutions, the creative phase of GRASP involves some elements of randomization. [30]. The definition of POP in multiobjective optimization is that of efficient set of efficient points "Connected" by a curve inside. Features of Multiobjective Optimization to handle, we have changed the role of Refused. In particular, the solution quality p takes into account the objective functions Is measured and the solution diversity is measured at the objective-functional space. Standard (single- Purpose) In the scatter-search framework, diversity is usually measured at the solution location. However, in multidisciplinary optimization, the concept of diversity is related to the ability to find solutions that cover the boundaries of efficiency. [31] It has been proven to be effective in solving various integrated optimization problems. Two different Implemented continuous form in forms (CTSSsingle, CTSSmultiple) called Simplex Search (CTSS) Our algorithm is made up of two steps: first, the adaptation of the TSto series optimization issues, Allows localization. A "hopeful area"; Later, intensification within this hopeful area, SS was involved. [32] Monte-Carlo on current holistic approaches to solving global optimization problems Methods (MCs), multi-level random search methods, adaptive simulated annealing and genetic Includes algorithms, clustering methods, taboo search, etc. As Multi-Level Tab Search (MLTS) Developed to solve so-called, global optimization problems successfully Used. The recently proposed variable neighborhood search (VNS) in this paper Metaheuristics was first used for consecutive minimum-maximum global optimization problems. [33] Basic variable for the first time for consecutive minimum-maximum global optimization problems Neighbor country search (VNS) hubristic is used. NP- arising from a set of radar polyphaser codes This method is being tested in a class of hard global optimization issues, which is already through tabu search Successfully treated. Calculation results show that on average VNS outperforms taboo search. [34] Implemented by Su used in this study. These Fortran codes are UNIX Compiled with f77 compile rat optimization level 3 under the operating system [35] Tabu Search (TS) is a metaheuristic originally developed by Clover, with a variety of integrations Used successfully for optimization problems. However, with respect to continuous variables Very few works dealing with its application to the global reduction of functions. Until now, the lesson We only know related works. In this paper, directly from Clover's approach We propose TS's adaptation to a series of optimization issues known as inspired Advanced Continuous Tab Search (ECTS).

5. Combinatorial optimization

Combinatorial optimization is a subfield of mathematical optimization that is limited Consists of finding an optimal object from the set of objects, where possible solutions The package can be separate or reduced to a separate package. Regular combinatorial Optimization Problems Traveling Salesman Problem ("DSP"), Minimum Spawning Tree Problem ("MSD") and the Knopf problem. In many issues, as mentioned earlier, use a thorough search No, so special algorithms or approximations that quickly dismiss large areas of search space Resort to algorithms. Integrated optimization is functional research, algorithm theory and Related to the theory of computational complexity. Artificial intelligence, machine learning, cardamom It has important applications in many fields, including theory, software engineering, applied mathematics, and theoretical computer science. [36] Various in the technical literature, in order to find the optimal solution to the integrated optimization problem Techniques are constantly proposed. Very efficient at dealing with large optimization issues One of the heuristics is certainly the taboo search technique (abbreviated TS) recommended by Clover for a particular application [37] It is very comprehensive for treating difficult problems such as transmission expansion planning Is an integrated optimization technique. This method includes Horistic Search, Simulated Annealing and Includes features of various approaches such as genetic algorithms. All examined in test cases, the new generation, loaded with the existing main network There are sites: such connections may require more than one line, transformer addition, which complicates the problem [38] Taboo Search is a high-level hubristic algorithm for solving integrated optimization problems. It starts with any initial solution and is the best It is a restructuring development process that seeks to determine the solution. TS was proposed in its current form a few years ago. It is now Installed optimization has become the norm, which spreads rapidly to many new ends. Others like GA, TS Horizontal search algorithms have been isolated as "very promising for future treatment of practical applications". [39] The schedule problem described in the previous section is for the integrated optimization problem in the following sense Will be integrated. One that gives an unacceptable amount of a schedule T Let us define the function f (T). The principle of our approach is to look for the T * schedule Contains, which reduces the value of f in the X set of all possible timetables. In other words, the problem to be solved takes shape. [40] End users of Combinatorial Optimization algorithms in solving tasks with minimal time and effort Are interested. It is difficult to estimate the total effort, but of course it is the parameters in the correct order Includes contributions to the organization. Of the following, CPU time is limited in our opinion Exists and we

answer the following question: Which algorithm is expected to provide the best performance if the same CPU time is allocated. [41] Through the performance number examples of the TS method to solve the integrated optimization problem of the capacitor deposit Has been proven. In our experience, control parameters of the TS, e.g., tab list size, search Ambient reduction rate and frequency counter threshold are easily tuned into the solution process Are done. When the results of TS are compared with SA, the proposed solution method is capacitor Whether it is possible to provide an almost optimal solution to the deposit problem within less estimated time Reveals. Capacitor deposit problem and other integrated optimization in power systems Future potential practical applications of the proposed TS-based method for problems are encouraged. [42] In particular, the proposed algorithm seeks new solutions to 69 experimental problems that appear in the literature Found. Good at a reasonable time using the reusable taboo search algorithm provided The amount of problem cases for which solutions can be obtained reaches 5000 variables. Many of the similar policies are difficult We hope that the combination optimization can be used successfully to develop practical guidelines for problems. [43] As mentioned in exile, the Presented ETS system in Beep is well suited for other integrated optimization issues. ETS-type Algorithms create a growing frame work in computer programming that will be more sophisticated in the future. The mechanisms will be challenged. New adaptations and polishes of the original idea are currently under study. [44]. Numerous studies have been used to solve metaheuristics, especially simulated analgesics, integrated optimization problems involving multiple objectives. Consider. Nevertheless, some works are dedicated to taboo search approaches. In this paper, the good of the set of Barret-optimal (efficient) solutions to create approximations, we provide a hubristic one based on Tabu search principles. [45]. For metaheuristic methods that can be used for combinatorial optimization problems Parallel designs are attractive because they achieve the best solution quality and the best solution May provide both reducing running time. The recurrence of metamorphic patterns and the complexity of the solution, characteristic of the many problems used in metamorphosis, makes parallel use an attractive alternative.

6. Meta-heuristics

In computer science and mathematical optimization, meteoritic is a high-level process or Designed to find, create or select a Horistic (area search algorithm). Limited computational ability. Metaheuristics model to fully calculate the subgroup of solutions or Would be too large to explore. Metaheuristics make some assumptions relatively Upgrade can solve the problem and can be used for various problems. [46]. In recent years, there has been a growing interest in metamorphosis in the optimization community. Tabu Search (TS) Refers to the popular class of metaheuristics. However, the genetic algorithm and Continuous, compared to other metamorphosis such as simulated analgesia The contributions of TS to dealing with problems are even less. [47] In single-objective optimization, diversity is measured with solution space (i.e., different Diversity increases when solutions with structural properties are included in the reference package), whereas The purpose of multipurpose metamorphosis is to find different solutions. Objective function location. Most multipurpose-programming techniques in finding a set of efficient points for a given problem Focus on _E_ or, in the case of hubristic practices, the efficient set Approximate _ _ E_. In this paper, fi_x_ is the linear function for i = 1_ _ _ _ _ p and x is the continuous and Are finite variables. Because our approach is not precise, our goal is the best Searching _ E. Metaheuristics has been used for this problem, so our proposed Before discussing the process, we review the approaches appropriate to our current investigations [48] However, it can easily get caught up in the local minimum. In recent years, meta- Heuristics has been studied to solve an integrated optimization problem. Global as a functional method that uses horistics to obtain a rough approximate solution They are defined. Simulated Annealing (SA) [Low], Genetic Algorithm (GA) [LL] and Tab Search (DS) are included in conventional metamorphosis. SA for restructuring of distribution systems and GA was used, SA is equivalent to the annealing process of a hot bath of metal and The solution is enhanced by a cooling parameter called temperature. GA is the natural selection of biology Based on. GA using genetic functions such as reproduction, cross-breeding, and mutation Improving the solution. Also, getting more accurate solutions and reducing the calculation time with that in mind, SA and GA have developed parallel SA (PSA) and parallel GA (PGA), respectively.

7. Conclusion

Tabu Search is one of the local search methods used for mathematical optimization Metaheuristics search method. It was founded in 1986 by Fred W. Developed by Clover and in 1989 Formalized. A hubristic or hubristic technique is anything that solves a problem The approach is to optimize solutions using a practical method or various shortcuts Without but will suffice. Given a limited time limit or deadline. Horistics The methods are flexible and used for quick results, especially when it is impossible or impractical to find an optimal solution and when working with complex data. Optimization is the process of adjusting the variables used for a technology to make the most of a trading system Is an effective conversion process. Analysis. By reducing some transaction costs or risks or with higher expected returns A business system can be improved by targeting assets. Optimization is a portfolio that minimizes costs or enhances performance. Is the process of upgrading an algorithm or trading system? By reducing the risks, or by increasing the expected return Portfolios can be improved by changing the frequency of restructuring. Combinatorial optimization is an adjunct to mathematical optimization Field, which consists of finding an optimal object from a set of finite objects, where a set of possible solutions Can be separate or reduced to a separate set. Typical Combinatorial Optimization Problems Traveling Salesman Problem ("DSP"), Minimum Spawning

Tree Problem ("MST") and Knopf Problem. In computer science and mathematical optimization, metaheuristic is a to find, create or develop a high-level process or horistic (area search algorithm) Designed to select. Limited computational ability.

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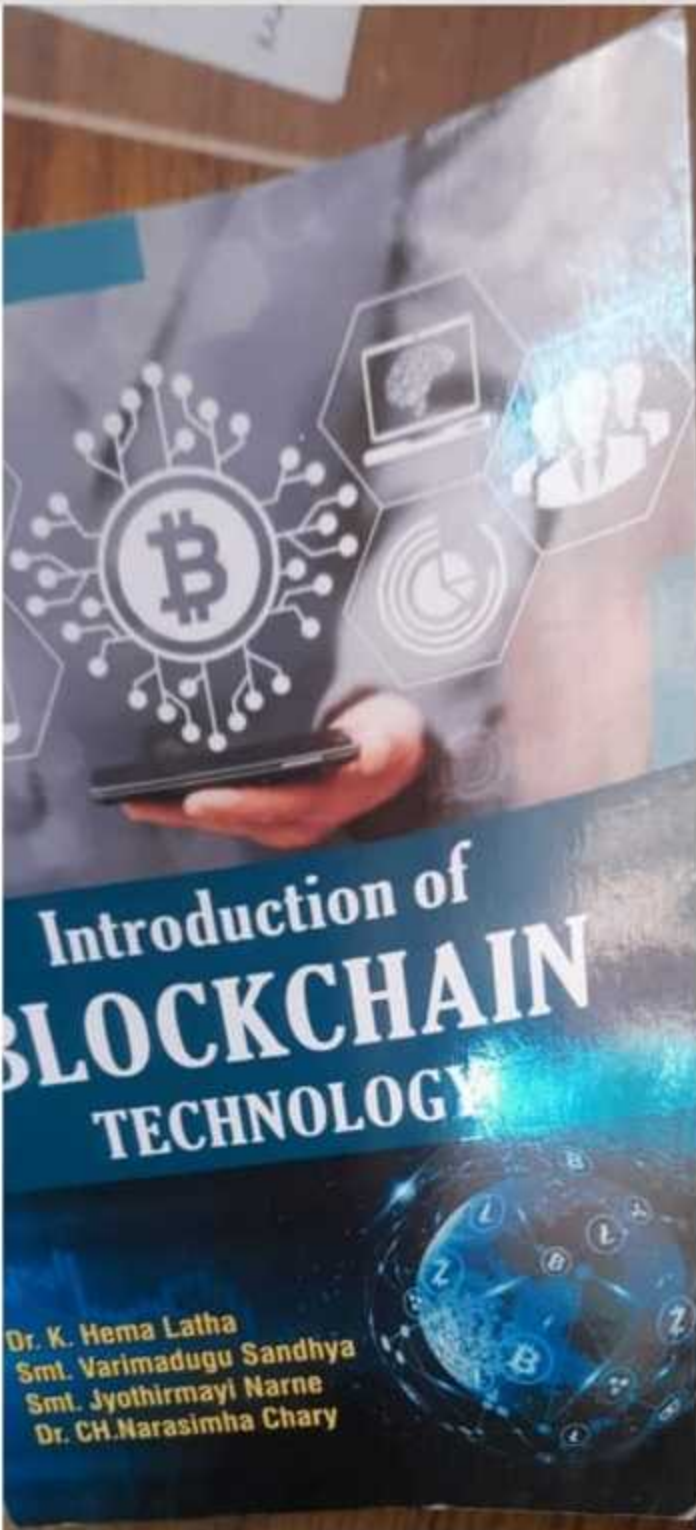
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PREFACE

This book aims to provide a broad INTRODUCTION OF BLOCKCHAIN TECHNOLOGY for its importance in various engineering fields. The book uses explains the fundamentals of this subject.

It provides a logical method of explaining various complicated concepts and stepwise methods to explain important topics. Each chapter is well supported with the necessary illustrations. All the chapters in the book are arranged in a proper sequence that permits each topic to build upon earlier studies.

AI is an important research area. The techniques developed in this area so far require to be summarized appropriately. In this book, the fundamental theories of these techniques are introduced. Particularly, the functions required in image processing techniques are introduced.

The brief content of this book is as follows:

INTRODUCTION OF BLOCKCHAIN TECHNOLOGY

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IDENTIFICATION AND CLASSIFICATION OF THE REUSABLE SOFTWARE COMPONENTS USING EQUIVALENCY METRIC

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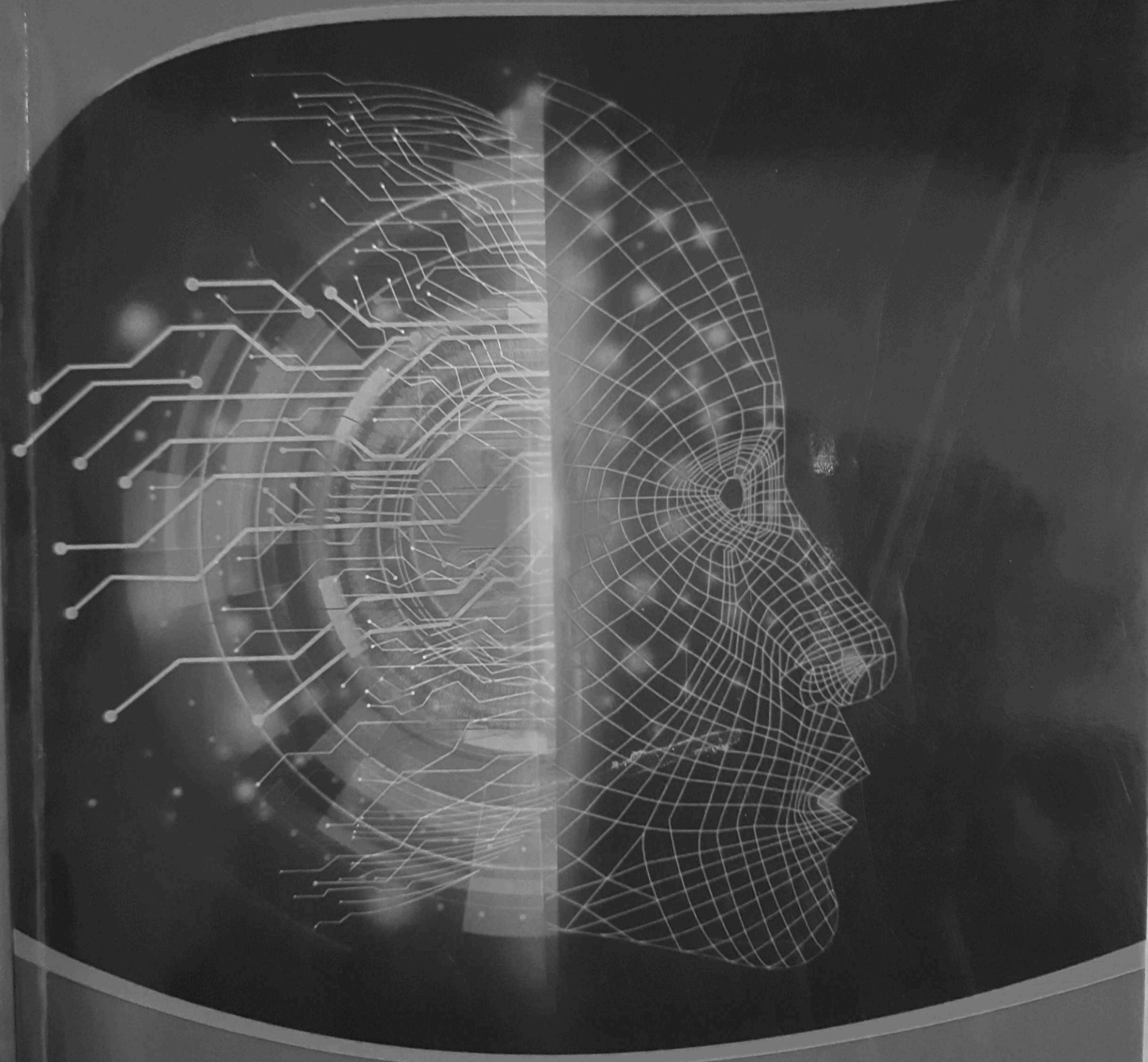

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Novel Techniques for Records Matching Process and De-Duplication using Rough Sets

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Simulation based Predictive analysis of Indian Airport transportation system using Computational intelligence techniques

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ABSTRACT

Normally, flight delays and cancellations have significant impact on airlines operations and passenger's satisfaction. Flight delays reduce the performance of airline operations and make significant effect on airports on time performance. Previously statistical models have been used for flight delays analysis. This study was applied in Indian aviation industry and it has given statistical analysis of domestic airlines. In this research paper, we have applied Machine Learning models with the help of computational intelligence techniques for predicting airport transport management system. We have also applied computational intelligence techniques such as Particle Swarm Optimization (PSO) and Ant Colonization Optimization (ACO) to optimize the prediction model for delay period time and calculating the most optimal dependability. We have made comprehensive analysis of Data Efficiency Model for different airlines with various approaches as well as comparative analysis of accuracy for predicting airport model by using various machine learning models. In this study we have presented invaluable insights for the analysis of flight delay models.

Keywords: Particle Swarm Optimization; Ant Colonization Optimization; Delay Period; Airport delay; Air transport.

INTRODUCTION

India is on the verge of overtaking the UK and becoming the third largest aviation market in 2024, with growing traffic. In 2018, air passenger traffic amounted to 341.05 million. Travel and tourist contributions are expected to produce the Indian GDP (gross domestic product) by increasing US$247.3 billion in 2018. The expenditures in business travel climbed in 2018 from $201,71bn in 2017 to $234,44bn in 2018 and from $11,61bn in 2017 to $12,86bn in 2018. Pilots, flight attendants and aircrafts can also have extraordinary schedules to preserve plans for maintaining airplanes. Hence, any disruption in the device can have an impact on the subsequent flights of the identical airline (Rebollo and Balakrishnan 2014). Flight extends prediction difficulty can be handled by taking distinct factors of view: (i) lengthen propagation, (ii) root extend and cancellation. Reynolds-Feighan and Button (1999)

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SECURING DATA WITH BLOCKCHAIN AND AI

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ABSTRACT

Data is the input for various artificial intelligence (AI) algorithms to mine valuable features, yet data in Internet is scattered everywhere and controlled by different stakeholders who cannot believe in each other, and usage of the data in complex cyberspace is difficult to authorize or to validate. As a result, it is very difficult to enable data sharing in cyberspace for the real big data, as well as a real powerful AI. In this paper, we propose the SecNet, an architecture that can enable secure data storing, computing, and sharing in the large-scale Internet environment, aiming at a more secure cyberspace with real big data and thus enhanced AI with plenty of data source, by integrating three key components: 1) block chain-based data sharing with ownership guarantee, which enables trusted data sharing in the large-scale environment to form real big data; 2) AI-based secure computing platform to produce more intelligent security rules, which helps to construct a more trusted cyberspace; 3) trusted value-exchange mechanism for purchasing security service, providing a way for participants to gain economic rewards when giving out their data or service, which promotes the data sharing and thus achieves better performance of AI. Moreover, we discuss the typical use scenario of SecNet as well as its potentially alternative way to deploy, as well as analyze its effectiveness from the aspect of network security and economic revenue.

INDEX TERMS: Data security, data systems, artificial intelligence, cyberspace

I. INTRODUCTION

With the development of information technologies, the trend of integrating cyber, physical and social (CPS) systems to a highly unified information society, rather than just a digital Internet, is becoming increasing obvious [1]. In such an information society, data is the asset of its owner, and its usage should be under the full control of its owner, although this is not the common case [2], [3]. Given data is undoubtedly the oil of the information society, almost every big company want to collect data as much as possible, for their future competitiveness [4], [5]. An increasing amount of personal data, including location information, websearching behavior, user calls, user preference, is being silently collected by the built-in sensors inside the products from those big companies, which brings in huge risk on privacy leakage of data owners [6], [7]. Moreover, the usage of those data is out of control of their owners, since currently there is not a reliable way to record how the data is used and by who, and thus has little methods to trace or punish the violators who abuse those data [8]. That is, lack of ability to effectively manage data makes it very difficult for an individual to control the potential risks associated with the collected data [9]. For example, once the data has been collected by a third party (e.g., a big company), the lack of access to this data hinders an individual to understand or manage the risks related to the collected data from him. Meanwhile, the lack of immutable recording for the usage of data increases the risks to abuse them [10]. If there is an efficient and trusted way to collect and merge the data scattered across the whole CPS to form real big data, the performance of artificial intelligence (AI) will

Original Article

HYBRID FIREFLY META OPTIMIZATION FOR BIO MEDICAL IMAGE PROCESSING USING DEEP LEARNING

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Abstract

Signal and image processing is a part of biomedical science. In that, Biomedical image processing have a great value such as recognition, segmentation and classification for disease diagnosis. In one part of biomedical science, brain tumor classification is considered with Magnetic Resonance Images (MRI) images using state of art models. Initially, the Convolutional Neural Network (CNN), Fast Convolutional Neural Network (FCNN), U-Net and M-Net model was considered for classification. Further, the Hybrid Firefly Meta Optimization (HFMO) is proposed for the better prediction purpose. The proposed work has three phases like normalization with augmentation, deep attention segmentation and classification. In the first phase, data augmentation is applied to increase the scope of the dataset. In the second phase, a deep attention technique is applied to concentrate on hotspot in the image during segmentation. Finally, a hybrid firefly optimization is applied to enhance the performance of the model in convolution neural network by backtracking the process. The measuring parameters like Dice coefficient, Jaccard index, Positive Projected Value (PPV), True Positive Rate and False Positive Rate were evaluated. The comparative analysis of various state of art models with proposed classifier were demonstrated. Thus the proposed technique produces the training accuracy as 98.62%, testing accuracy as 95.31 % and 1 % of loss.

Keywords: Augmentation, Central Nervous System, Dice Coefficient,Firefly optimization, Jaccard Index, Meta Learning, MRI.

1. INTRODUCTION

A brain tumor is dangerous illnesses that can upset both adults and children. More number of patients is identified with a brain tumor each year. Brain malignancies are classified as glioma, meningioma and pituitary. To extend the patients' lives, proper arrangement and system should be enhanced. MRI is the most effective method for noticing brain tumors (MRI). The MRIs yield a huge amount of image data.The radiologist inspects these pictures and understand the complexity of brain tumors and their potentials [7-10].

Deep learning is being used to predict various types of brain tumors. The primary goals are to achieve high levels of accuracy in brain tumor prediction. Deep learning approaches assist in the early identification of tumor. The abstraction of features is crucial in the grouping of brain tumors. The deep learning algorithm performs the feature abstraction and data reconstruction.

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A Novel Framework for Effective Information Data Mining in Big Data Domain by Using Machine Learning Techniques

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Abstract: Traditionally, education assets are shared insufficiently, and up to date slowly; the education records aren't applied adequately. What is worse, the traditional information filtering technique can't successfully mine preferred information, if the huge records has a heavy noise. This article offers an information mining technique from education huge records, on the premise of aid vector machine (SVM), and cleans the sampled odd records via records integration and conversion. Besides, the authors supplied a technique that mechanically builds education expertise image. Based at the filtered and mined education records, a neural community turned into designed to retrieve the subject matters of lecture room expertise, and the education correlations among those notions had been diagnosed from the assessment records via way of means of opportunity correlation rules. The outcomes display our technique carried out fantastic outcomes on coaching belief retrieval and education correlation recognition.

Keywords: Knowledge mining, neural network, knowledge image, education big data.

I. INTRODUCTION

The usage of learning management systems in education has been increasing in the last few years. Students have started using mobile phones, primarily smart phones that have become a part of their daily life, to access online content. Student's online activities generate enormous amount of unused data that are wasted as traditional learning analytics are not capable of processing them. This has resulted in the penetration of Big Data technologies and tools into education, to process the large amount of data involved. This study looks into the recent applications of Big Data technologies in education and presents a review of literature available on Educational Data Mining and Learning Analytics.

In the 21st century, social progress is mainly driven by the Internet and education. Thanks to the rich education resources on the Internet, online learning and education have been integrated with various education notions into various education models, namely, massive open online course (MOOC) and computer supported collaborative learning (CSCL), forming numerous knowledge images [1]. In the field of education, knowledge images are often adopted in course teaching. Many popular MOOCs platforms apply knowledge images visualize notions and recommend education resources. These knowledge images are usually prepared artificially by field experts [4]. However, the artificial preparation consumes too much time, and cannot be extended to many notions and correlations. Due to the explosive growth of courses and themes on MOOC platforms, it is extremely hard to artificially plot a knowledge image for each new course [5].

Besides, artificial preparation has another huge problem: Teaching research shows that every expert has his/her blind spot, that is, the same notion could be perceived differently by experts and learners. Learning that initially started in the class room was based on three models namely behavioral, cognitive and constructivist models [2] The behavioral models rely on observable changes in the behavior of the student to assess the learning outcome. The cognitive models are based on the active involvement of teacher in the learning which helps in guided learning. In the constructivist models, the students have to learn on their own from the knowledge available to them. Siemens (2004) [4] proposed a new model termed “Connectivism” which was characterized as the “amplification of learning, knowledge and understanding through the extension of personal network”. According to this model, learning is no longer an internal activity [5] Connectivism proposed learning in a network of nodes which improved the learning experience of students and reduced the need for the direct involvement of an instructor. Since then, traditional learning environments have gradually mutated into community-based learning environments.

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ORIGINAL CONTRIBUTION

Performance of MIMO MC-CDMA System with Relay using Adaptive Pilot Channel Estimation

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Abstract The time dispersion, frequency dispersion, and spectral demand are major limiting factors in dealing with a higher data rate in mobile communication. The increase of customer demand and fluctuating the signal obtained on the mobile device because of multi-path fading becomes a significant challenge in recovering the transmitted signal. The Multicarrier Code Division Multiple Access (MC-CDMA) along with antenna diversity can reduce the fading effect considerably and provide high-speed data for future mobile communication systems. The use of Multi-Input and Multi-Output MC-CDMA mitigates the multipath effect of the transmission impairments caused by the frequency selective nature of the channel. However, successful implementation depends on proper Channel State Information. In this work, the Adaptive Pilot technique is proposed and incorporated, in which, the location and number of pilots in time and frequency domain are dynamically varied with the help of channel estimation itself thus increases spectrum utilization. This modification shows a clear improvement in performance and is observed through simulation. Further to enhance the performance, relaying technique is incorporated into the channel to reduce the Energy per Bits to the Spectral Noise Density (E_b/N_o), increase coverage area, reduce power requirements at mobile stations and will effectively reduce the number of base station.

Keywords Adaptive pilot · MIMO · Relay and MC-CDMA

Introduction

Parameters such as transmission rate, transmission range, and spectral efficiency determine the quality of a wireless connection. This can be achieved through the MIMO and massive MIMO antennas resulting in high data rate with an accuracy of transmission without raising bandwidth through spatial multiplexing and diversity in the dense fading area with less power consumption. In addition, MC-CDMA is a hopeful technique for a mobile hostile environment, which has a hybrid of multicarrier modulation and CDMA. However, the performance of the system is severely limited by a variety of ways like Additive White Gaussian Noise (AWGN), amplitude; frequency and phase distortion caused by the multipath environment, resulting in Inter Symbol Interference (ISI). To defeat ISI in the receiver it is necessary to be aware of the channel quality that maintains efficient equalization at the receiver, in order to extract the transmitted signal, which is possible with an assistance of channel estimation [1].

In wireless communication the radio channels are highly dynamic and random in nature, so the channel estimation is a challenging task in the mobile receiver. In the receiver end, recovering the transmitted information depends upon the CSI to reduce the error between the transmitted and the received symbol. Therefore, truthful extraction of CSI is required for symbol detection in the mobile unit. Although differential demodulation can be used to detect the data in

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Spotted Hyena Optimization and Simulated Annealing-Based NLOS Nodes Localization Scheme for Improving Warning Message Dessimination in VANETs

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Abstract

An accurate localization technique is considered as the significant entity in vehicular ad hoc networks (VANETs) for facilitating emergency message data transmission in diversified critical safety applications. In VANETs, the system of global positioing is generally used for estimating the position of the vehicles in the network for attaining neighborhood awareness in the event of warning message dissemination. However, the existence of green foliages, buildings, indoor parking lots and urban streen canyons introduces NLOS situation that introduces unwanted errors that crumbles the degree of data dissemination in emergency situations. In this paper, spotted hyena and simulated annealing optimization algorithm (SHSAOA)-based positioning scheme was proposed for precise estimation of NLOS nodes. İt included the advantages of improved simulated annealing (SA) integrated into SHOA for establishing better balance between the process of exploitation and exploration in the search space. This positioning approach generated candidate solutions by deriving the merits of the trajectory-based charateristics of SA throughout the algorithmic development process in order to improve the local optimization process. This proposed SHSAOA utilized the distance infotmation that are associated with the vehicle trajectory, number of vehicles and error in distance information for assessing the precise location of the NLOS nodes in the network. The simulation results of the proposed SHSAOA scheme confirmed minimized localization error with maximized accuracy in transmission, warning message transmission rate, channel utilization degree and neighborhood awareness degree with different vehicular density and NLOS nodes.

Keywords Vehicular ad hoc networks (VANETs) · Spotted hyena optimization · Simulated annealing · Veins simulator · NLOS nodes

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Improving Data Transmission by Efficient Communication Protocol to Control Wearable Sensors with Risk Level Analysis in Smart E-Health

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Submitted: 26/04/2023 **Revised**: 24/06/2023 **Accepted**: 04/07/2023

Abstract: A single paragraph of about 200 words maximum. For research articles, abstracts should give a pertinent overview of the work. We strongly encourage authors to use the following style of structured abstracts, but without headings: (1) Background: Place the question addressed in a broad context and highlight the purpose of the study; (2) Methods: briefly describe the main methods or treatments applied; (3) Results: summarize the article's main findings; (4) Conclusions: indicate the main conclusions or interpretations. The abstract should be an objective representation of the article and it must not contain results that are not presented and substantiated in the main text and should not exaggerate the main conclusions. Wearable biosensors are attracting much attention in the medical and physiological therapeutic disciplines due to their ability to offer patients time-sensitive data, non-intrusive assessments of biochemical markers dispersed across the body in the bloodstream, and real-time diagnostic devices. These types of sensors are a new option for evaluating human health and take advantage of some technology that needs to be put in hospitals. Wearable sensors have come a long way, but there are still numerous potentials and problems in substances, sensing efficiency, and practical application. Therefore, we still have a ways to go before human health metrics are continuously monitored over an extended period. This is achievable by using the right methods of communication and patient risk-level decision-making techniques. Since MQTT is an effective communication protocol for data transmission, Smart E-Health (SEH) is designed in this study. In addition, Fuzzy-based Back Propagation Neural Network (FuzzBPNN) is made to determine the risk level of a patient's health state based on the results of their vital signs. A risk variable with a value range of 0 to 1 is a proxy for the risk level. A patient's health is more critically ill and requires more medical care, the higher the risk value. The MIMIC II dataset is taken and compared with the state-of-the-art methods for experimental analysis. It is found that Smart_FuzzBPNN achieves a 98.4% of detection rate, 11% of packet drop rate, 94% of risk level analysis detection, and 97.5% of energy efficiency in 12.5ms.

Keywords: *wearable sensor; smart healthcare; message queuing telemetry transport; decision making; risk priority.*

1. Introduction

Due to substantial advancements in healthcare and medicine and greater public awareness of the need for personal and environmental hygiene, life expectancy has been rising globally [1]. Additionally, throughout the past few decades, there has been a rise in interest in family planning, which has helped to lower birth rates worldwide. The World Health Organization (WHO) predicts that by 2017, more people will be 65 and older than children under the age of five [2]. In terms of social services and medical needs, this massive ageing population would tremendously impact society's socioeconomic makeup. In addition, the cost of hospitalization, pharmaceuticals, and healthcare supplies continues to rise, which drives up the cost of medical services [3]. In order to offer superior medical care to the ageing population or those living in areas that have restricted access to medical care while guaranteeing the maximum level of convenience, autonomy, and engagement between individuals, novel approaches and technology must be developed and put into practice. Instead of paying for expensive medical services like hospitals or retirement communities, continuous health surveillance enables individuals to keep living at home. Thus, it offers a viable substitute for on-site medical surveillance that is less expensive [4]. These devices, which come with integrated sensors that are non-invasive and discreet, may serve as useful diagnostic instruments for medical staff when

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Comprehensive Characterization and Electrochemical Analysis of Zinc-Doped Manganese Ferrite Nanoparticles: Potential for Supercapacitor Applications

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Abstract:

Zinc-doped manganese ferrite nanoparticles were synthesized using the co-precipitation technique and subsequently annealed at different temperatures (400℃, 600℃, and 700℃). The synthesized samples underwent characterization using several techniques including TG/DTA, XRD, FTIR, SEM, TEM, EDX, XPS, BET, and CV. The sample's thermal behaviour and decomposition were examined using differential thermal analysis and thermo gravimetric analysis. The crystal structure and phase purity of the nanoparticles were examined using X-ray diffraction (XRD). Fourier transform infrared spectroscopy was used to identify the chemical bonds present in the samples. The surface morphology and particle size of the $Mn_{0.5}Zn_{0.5}Fe_2O_4$ nanoparticles, annealed at 700℃, were investigated using scanning electron microscopy and High- Resolution transmission electron microscopy with selected area electron diffraction patterns providing crystal structure and orientation information. Energy dispersive X-ray spectroscopy (EDX) analysis confirmed the presence of manganese, zinc, iron, and oxygen in the synthesized nanoparticles. The specific surface area of the samples was examined using the Brunauer-Emmett-Teller method, providing insights into nanoparticle porosity and surface characteristics. X-ray photoelectron spectroscopy was utilized to measure the binding energy of the samples, yielding information about their electronic structure and chemical composition. Cyclic voltammetry (CV) was employed to analyze the electrochemical properties of the samples, revealing a specific capacitance value of 388.35 Fg^{-1} at a lower scan rate of 2mVs^{-1}. This high specific capacitance suggests the potential suitability of $Mn_{0.5}Zn_{0.5}Fe_2O_4$ nanoparticles for supercapacitor applications.

Keywords: Co-precipitation, Surface morphology, particle size, supercapacitor.

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Nanostructured nickel doped zinc oxide material suitable for magnetic, supercapacitor applications and theoretical investigation

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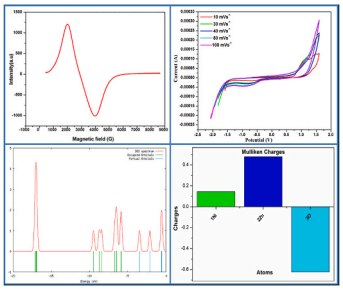
HIGHLIGHTS

- Synthesis and characterizations of nickel doped zinc oxide NPs.
- The nickel doped ZnO materials are highly demanded in high-energy potential applications.
- The EPR spectral peaks at geff~2.001 indicating that the transition of Ni2+ ZnO nanoparticles from (−half to + half) spin.
- The highest value of capacitance 133 Fg-1 at the lower scan speed of 10 mVs^{-1}.
- DFT study.

GRAPHICAL ABSTRACT



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ABSTRACT

This Paper describes the synthesis of nickel doped ZnO is planned by chemical co-precipitation techniques. The prepared nanostructured nickel doped zinc oxide samples were analyzed by thermogravimetric differential thermal analysis (TG/DTA), X-ray diffraction (XRD), Fourier transform infra red (FTIR), field emission scanning electron microscopy (FESEM), high resolution transmission electron microscopy (HRTEM), electron paramagnetic resonance (EPR), and cyclic voltametry (CV). Nanostructure nickel doped ZnO materials have developed as promising for the basis of its broad range of employing in diverse areas. The attractive properties of nickel doped ZnO materials are highly demanded in high-energy potential applications. The nickel doped zinc oxide materials are hexagonal wurtzite arrangement is confirmed by XRD. The morphological -features of FE-SEM show nickel doped zinc oxide NPs are the structure of spherical type with agglomeration. The calculated particle size 11 nm is confirmed by HR-TEM. EPR spectra of nickel doped zinc oxide nanoparticles are ferromagnetic nature. Further, CV studies of Ni doped ZnO materials of the specific capacitance value is 133 Fg^{-1} at the scan rate 10 mVs^{-1} it is suitable for super capacitor application. The quantum chemical calculations were done by using DFT techniques through B3LYP/LANL2DZ level of basis set.

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Melanoma Malignancy Prognosis Using Deep Transfer Learning

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***Abstract* – Melanoma is a type of Skin cancer that spreads rapidly and has a significant death risk if it is not detected early and treated. A prompt and accurate diagnosis can improve the patient's chances of survival. The creation of a skin cancer diagnostic support system based on computer technologies is highly essential. This study suggests a unique deep transfer learning model for categorizing melanoma malignancy. The proposed system comprises of three main phases including image preprocessing, feature extraction and melanoma classification. The preprocessing phase employs image filters such as mean, median, gaussian and non-local means filter along with histogram equalization techniques to obtain the preprocessed images. Feature extraction and classification are performed using pre-trained Convolutional Neural Network architectures such as DenseNet121, Inception-Resnet-V2 and Xception. Using the ISIC 2020 dataset, the suggested deep learning model's effectiveness is assessed. The experimental findings show that, in terms of precision and computational expense, the suggested deep transfer learning model performs better than cutting-edge deep learning algorithms.**

Keywords— Deep learning, Transfer Learning, Skin cancer, Convolutional Neural Network

I. INTRODUCTION

One of the most prevalent cancers in the world is skin cancer and it significantly impacts the quality of life. Overexposing skin to UV light from the sun is the most frequent cause of this type of cancer. Individuals with fair-skin and high sensitivity to solar light experience effects from UV radiation at a higher rate than individuals with dark skin and less solar sensitivity. The deadliest form of skin cancer, melanoma now accounts for over 79% of skin cancer fatalities. Over the past 30 years, the prevalence rate of melanoma skin cancer has increased significantly. In the US, 125,650 new melanoma cases are anticipated to be diagnosed in 2025, while 8950 people are anticipated to pass away from the disease[1]. Melanocytes are the cell layer that is impacted by melanoma. It may be further split into benign and malignant categories depending on the aggressiveness of the tumor cells. A mole or mark that doesn't contain malignant cells is referred to as a benign skin lesion. Treatment is required right away for malignant lesions since they contain a lot of cancer cells.

Early identification and monitoring skin cancer are the safest ways to manage it. It is important to be aware of any emerging or developing growth of lesions on the skin, especially those that appear peculiar. A doctor should examine any new lesions that gradually change in size, shape, or color. Skin cancer detection can be categorized into eight diagnostic groups, including dermatofibroma, vascular lesions, melanocytic nevi, actinic keratosis, basal cell carcinoma, benign keratosis-like lesions, squamous cell carcinoma and melanoma [2]. A medical professional who specializes in the identification of skin cancer typically follows a set protocol, first examining the alleged lesion with the unaided eye, then performing a dermoscopy, and ultimately performing a colonoscopy [3].

These processes could take a while, and the person might move on to an advanced stage. Dermoscopic image identification has improved by 50%, with an improvement in complete precision of 79% to 89% [4]. Definitive detection is also distinct and heavily reliant on the skills of the doctor. Physical diagnosis for skin illness is exceedingly difficult and exhausting for the patient [5]. Diagnosis assisted by computers aids medical professionals in analyzing dermoscopy operations in the event of a lack of professional accessibility or analytic process competence. Modern dermatological image categorization systems aided by computers have two inherent problems such as insufficient information and secondly, the difficulty involved in the imaging process, which includes obtaining skin images using a special device called a dermoscopy as opposed to other medical images. The most recent methods required intensive data pre - processing, fragmentation, and feature selection procedures to classify skin image-data.

Machine learning (ML) techniques make it possible to complete classification problems quickly by skipping the phase of physically selecting features. Employing ML techniques to aid in precise cancer diagnosis has recently attracted increasing attention [6]. Over the past two decades, machine learning algorithms have greatly improved cancer prediction accuracy by 20% to 25%. Due to the wide number of applications, it is used for, Deep learning (DL) is one of most quickly expanding fields. Convolutional neural networks (CNNs), one of the most effective deep learning approaches in image recognition and

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DIAGNOSIS AND TREATMENT USING COVID-19 DEEP LEARNING APPROACHES AND ARTIFICIAL INTELLIGENCE

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Abstract:
The COVID-19 outbreak has put the whole world in an unprecedented difficult situation bringing life around the world to a frightening halt and claiming thousands of lives. Due to COVID-19's spread in 212 countries and territories and increasing numbers of infected cases and death tolls mounting to 5,212,172 and 334,915 (as of May 22 2020), it remains a real threat to the public health system. This paper renders a response to combat the virus through Artificial Intelligence (AI). Some Deep Learning (DL) methods have been illustrated to reach this goal, including Generative Adversarial Networks (GANs), Extreme Learning Machine (ELM), and Long /Short Term Memory (LSTM). It delineates an integrated bioinformatics approach in which different aspects of information from a continuum of structured and unstructured data sources are put together to form the user-friendly platforms for physicians and researchers. The main advantage of these AI-based platforms is to accelerate the process of diagnosis and treatment of the COVID-19 disease. The most recent related publications and medical reports were investigated with the purpose of choosing inputs and targets of the network that could facilitate reaching a reliable Artificial Neural Network-based tool for challenges associated with COVID-19. Furthermore, there are some specific inputs for each platform, including various forms of the data, such as clinical data and medical imaging which can improve the performance of the introduced approaches toward the best responses in practical applications.

I.INTRODUCTION

The The novel Coronavirus designated SARS-CoV-2 appeared in December 2019 to initiate a pandemic of respiratory illness known as COVID-19 which proved itself as a tricky illness that can emerge in various forms and levels of severity ranging from mild to severe with the risk of organ failure and death. From mild, self-limiting respiratory tract illness to severe progressive pneumonia, multiorgan failure, and death [1][4]. With the progress of the pandemic and rising number of the confirmed cases and patients who experience severe respiratory failure and cardiovascular complications, there are solid reasons to be tremendously concerned about the consequences of this viral infection [5]. Determining appropriate approaches to reach solutions for the COVID-19 related problems have received a great deal of attention. However, another huge problem that researchers and decision-makers have to deal with is the ever-increasing volume of the date, known as big data, that challenges them in the process of fighting against the virus. This justifies how and to what extent Artificial Intelligence (AI) could be crucial in developing and upgrading health care systems on a global scale [6]. AI has been recently attracted increasing research efforts towards solving the complex issues in a number of fields, including engineering [7][9], medicine [10][13], economy [14], and psychology [15]. Hence, a critical situation like this necessitates mobilization and saving medical, logistic and human resources and AI can not only facilitate that but can save time in a period when even one hour of the time save could end in saving lives in all locations where Coronavirus is claiming lives. With the recent popularity of AI application in clinical contexts, it can play an important role in reducing the number of undesired deletions as well as improving the productivity and efficiency in studies where large samples are involved [16], and higher degrees of accuracy in prediction and diagnosis are intended [17]. Utilizing big data can also facilitate viral activity modeling studies in any country. The analyses of results enable health care policymakers to prepare their country against the outbreak of the disease and make well-informed decisions [18]. Nevertheless, while treatment strategies, crisis management, optimization and improvement diagnosis methods, such as medical imaging and image processing techniques could take benefit from AI which is potentially capable of helping medical methods, it has not been desirably employed and well-appropriated to serve health-care

Leveraging artificial intelligence Techniques for a Chabot

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ABSTRCT

In this paper we've advanced the working of Assistant conversational agent(Chabot) utilizing deep education conceptions with the perversion of tensor flow[1] archive. The LSTM is applied over here, so that the input taken with added than 30- 40 words in a finding can be reacted or answered with added good converse. The movie dateset exploited to train the model is taken from Cornell. The model is designed to achieve a movie confabulation augury discussion between the druggie and chatbot. The main end is to boost the accurateness and estimation of the model. In the proffered model, we've developed a Seq2Seq AI[4] Chatbot with absorption routine employing LSTM and libraries like tenser flow.

Keywords: LSTM, TensorFlow, Seq2Seq model, absorption operation, deep teaching, Cornell, stoner.

PRIVACY PRESERVING MEDIA SHARING WITH SCALABLE ACCESS CONTROL AND SECURE DEDUPLICATION IN MOBILE CLOUD COMPUTING

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ABSTRACT

Benefiting from cloud computing and mobile devices, a huge number of media contents such as videos are shared in mobile networks. Although scalable video coding can be utilized to provide flexible adaptation, the cloud poses a serious threat to media privacy. In this paper, we propose a privacy-preserving multi-dimensional media sharing scheme named SMACD in mobile cloud computing. Firstly, each media layer is encrypted with an access policy based on attribute-based encryption, which guarantees media confidentiality as well as fine-grained access control. Then we present a multi-level access policy construction with secret sharing scheme. It ensures that the mobile consumers who obtain a media layer at a higher access level must satisfy the access trees of its child layers at the lower access level, which is compatible with the characteristics of multi-dimensional media and also reduces the

complexity of access policies. Moreover, we introduce decentralized key servers to achieve both intra-server and inter-server deduplication by associating different access policies into the same encrypted media. Finally, we conduct experimental evaluation on mobile device and cloud platform with real-world datasets. The results indicate that SMACD protects media privacy against cloud media center and unauthorized parties, while incurring less computational and storage cost.

I. INTRODUCTION

WITH the quick development of mobile computing technique and the prevalence of interpersonal sociality, mobile network has rapidly become popular in people's daily life for facilitating communications and building relationship with others [1], [2]. By using mobile devices, people can receive information from their service providers at any time or place, and also share their own data interactively to all related and connected users. Actually, along with the increasing population of mobile services and cloud computing [3], people are more likely to distribute and view media data (e.g. videos) rather than text data with the media center, such as YouTube and Netflix. Moreover, the cloud services such as Google Cloud and Microsoft Azure make it easy to use high-definition video services on most popular mobile devices. For example, with Google Cloud, the open platform Vimeo is able to provide high-definition videos hosting and sharing services, in which media creators can upload their videos, and also restrict access to specific people [4].

Although the media services allow media distributors to configure their privacy settings so that they are able to grant the media to be accessed by selected friends or subscribers, the media distributor may not trust the media center, especially the cloud media center [5]. In particular, once the media content is posted to cloud media center, the media distributor's

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Big Data Framework for Effective Performance Based Deep Reinforcement Learning in Cloud Environments

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Abstract: Big data frameworks which include Spark and Hadoop are broadly followed to run analytics jobs in each study and industry. Cloud gives low priced compute sources that are less complicated to manage. Hence, many businesses are transferring in the direction of a cloud deployment in their huge facts computing clusters. However, activity scheduling is a complicated trouble withinside the presence of diverse Service Level Agreement (SLA) goals which include economic fee reduction, and activity overall performance improvement. Most of the prevailing studies does now no longer cope with a couple of goals collectively and fail to seize the inherent cluster and workload traits. In this article, we formulate the activity scheduling trouble of a cloud-deployed Spark cluster and endorse a unique Reinforcement Learning (RL) version to deal with the SLA goals. We expand the RL cluster surroundings and enforcement Deep Reinforce Learning (DRL) primarily based totally schedulers in TF-Agent's framework. The proposed DRL-primarily based totally scheduling retailers' paintings at a fine-grained stage to area the executors of jobs at the same time as leveraging the pricing version of cloud VM instances. In addition, the DRL-primarily based totally retailers also can analyze the inherent traits of various forms of jobs to discover a right placement to lessen each the whole cluster VM utilization fee and the common activity duration. The consequences display that the proposed DRL-primarily based totally algorithms can lessen the VM utilization fee as much as feasible.

Keywords: Cloud computing, cost-efficiency, performance improvement, deep reinforcement learning, big data.

I. INTRODUCTION

Big records processing frameworks which includes Hadoop [1], Spark [2], Storm1 have become extraordinarily famous because of their use in the records analytics area in lots of good sized regions which includes science, business, and research. These frameworks may be deployed in each on-premise bodily assets or at the cloud. However, cloud service providers (CSPs) provide flexible, scalable, and low cost computing assets on a pay-as-you-go-model. Furthermore, cloud assets are clean to manage and installation than bodily assets.

Thus, many organizations are shifting in the direction of the deployment of large records analytics clusters at the cloud to keep away from the problem of managing bodily assets. Service Level Agreement (SLA) is an agreed provider phrases among clients and provider providers, which incorporates diverse Quality of Service (QoS) necessities of the users. In the activity scheduling trouble of a large records computing cluster, the maximum critical goal is the overall performance development of the roles. However, whilst the cluster is deployed at the cloud, activity scheduling will become greater complex withinside the presence of different important SLA objectives which includes the economic fee reduction.

In this work, we awareness at the SLA-primarily based totally activity scheduling trouble for a cloud-deployed Apache Spark cluster. We have selected Apache Spark as it's miles one of the maximum prominent frameworks for large records processing. Spark shops intermediate consequences in reminiscence to hurry up processing. Moreover, it's miles greater scalable than different systems and appropriate for running a whole lot of complicated analytics jobs. Spark applications may be carried out in lots of high-stage programming languages, and it additionally helps unique records resets which includes HDFS [3], Hbase [4], Cassandra [5], Amazon S3.2 The records abstraction of Spark is referred to as Resilient Distributed Dataset (RDD) [6], which via way of means of layout is fault-tolerant. When a Spark cluster is deployed, it is able to be used to run one or greater jobs.

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INFERENCES BASED ON PROBABILITIES AND ASSESSMENTS OF THE RELIABILITY OF LINKS ARE USED TO IDENTIFY FRAUDULENT ACTIVITY IN ONLINE RECOMMENDATIONS

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Abstract—Because of the inherent weaknesses and openness of recommender systems, their growing usage as customised suggestion services like Amazon, TripAdvisor, and Yelp has increased the need for safe and practical anomaly detection methods. Defense against the ever-growing variety of harmful attacks targeting internet recommendations is a formidable problem. Moreover, there has been a recent uptick in both theoretical and practical investigation into the age-old challenge of describing and assessing sparse rating behaviours. This research takes an innovative approach to threat detection by studying probabilistic inference and evaluating the trustworthiness of behavioural linkages using coupled association networks derived from rating behaviours. Initially, using the users' innate rating motivation and the atomic propagation principles of coupled networks, an association graph is built from the original rating matrix. Then, using a factor graph model of a coupled network, we re-determine linkages of interest in the targeted network and assess the reliability of their behaviours. Lastly, by thoroughly examining the trustworthiness of both linkages and nodes in the targeted network, suspicious persons and things may be deduced experimentally. Comprehensive studies on synthetic data for profile injection assaults and co-visitation injection attacks, as well as real-world data including Amazon and TripAdvisor, illustrate the efficacy of the suggested detection technique compared with competing benchmarks.

Index-Terms— Recommender system, malicious attack, trustworthiness assessment, rating behaviour, and detection of attacks.

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Development of Cyber Security Mechanism to Detect Cyber Attacks on Cyber Physical Systems by Using Bayesian Belief Networks

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Abstract: A cyber physical systems (CPS) is a complicated device that integrates sensing, computation, manipulate and networking into bodily methods and items over Internet. It performs a key function in cutting-edge enterprise because it connects bodily and cyber worlds. In order to fulfill ever-converting commercial requirements, its systems and capabilities are continuously improved. Identifying cyberattack vectors on cyber supply chains (CSC) withinside the occasion of cyber assaults are very vital in mitigating cybercrimes successfully on Cyber Physical Systems CPS. A ubiquitous hassle is the truth that cyber assaults can purpose full-size harm to commercial systems, and as a result has received growing interest from researchers and practitioners. However, withinside the cyber protection domain, the invincibility nature of cybercrimes makes it hard and hard to are expecting the chance opportunity and effect of cyber assaults. Although cybercrime phenomenon, risks, and treats include a number of unpredictability's, uncertainties and fuzziness, cyberattack detection have to be practical, methodical and affordable to be implemented. We discover Bayesian Belief Networks (BBN) as information illustration in synthetic intelligence which will be officially carried out probabilistic inference withinside the cyber protection domain. The goal of this paper is to apply Bayesian Belief Networks to hit upon cyberattacks on CSC withinside the CPS domain. We version cyberattacks the usage of DAG approach to decide the assault propagation. Further, we use a clever grid case observe to illustrate the applicability of assault and the cascading effects. The consequences display that BBN will be tailored to decide uncertainties withinside the occasion of cyberattacks withinside the CSC domain. In this paper, we gift a Bayesian community technique for mastering the causal family members among cyber and bodily variables in

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Detecting Cyber Attempts and Attacks on Mesh Usage by Applying Non Identical

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ABSTRACT

Added use of shadow services, a excrescency in the number of online use fiends, changes in network frame that connects aptitude running portable operating systems, and constantly expanding network technologies all feed new cyber aegis demurrals. As a result, network cover fashions, detectors, and defense artifices must remake to accommodate the requirements and effects of druggies in order to fight arising dangers. Because growing employment grade cyber aggressions are recognized as top hazards and the critical challenge for network and cyber cover, we will rivet on battling them in this essay. The essay's main donation is the hint of a engine erudition path for modeling usual exercise bearing and detecting cyber assaults. Patterns(in the shape of Perl Compatible Regular Expressions(PCRE) regular expressions) are attained utilising a graph- hung segmentation form and dynamic programming to produce the model. The model is grounded on data gathered from customer- generated HTTP queries to a trap garçon. On the CSIC 2010 HTTP Dataset, we tried our fashion and set up it to be operative.

Keywords : Perl Compatible Regular Expressions (PCRE), Cyber Aggressions, Demurrals, Hazards

I. INTRODUCTION

The number of security incidents reported around the world has recently risen. The number of attacks has increased dramatically in comparison to prior years, according to national CERTs (for example, CERT Poland [1]). According to the report [7] there were 1082 incidents in 2012, an increase of about 80% over the previous year, owing primarily to malware and phishing. The rise in occurrences is directly tied to the growing number of mobile device users, who make up the population of connect-from-anywhere terminals and routinely test the traditional network security boundaries. The so-called BYOD (bring your own

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Big Data in Healthcare Systems and Research

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Abstract:- Big data analysis challenges include capturing data, data storage, data analysis, search, sharing, transfer, visualization, querying, updating, information privacy, and data source. Big data was originally associated with three key concepts: volume, variety, and velocity.[4] The analysis of big data presents challenges in sampling, and thus previously allowing for only observations and sampling. Thus a fourth concept, veracity, refers to the quality or insightfulness of the data. Without sufficient investment in expertise for big data veracity, then the volume and variety of data can produce costs and risks that exceed an organization's capacity to create and capture value from big data.

Keywords:- *Monumental data, monumental data analytics, Healthcare, Public health.*

I. INTRODUCTION

The quantities, characters, or symbols on which operations are performed by a computer, which may be stored and transmitted in the form of electrical signals and recorded on magnetic, optical, or mechanical recording media.

Access to health care may vary across countries, communities, and individuals, influenced by social and economic conditions as well as health policies. Providing health care services means "the timely use of personal health services to achieve the best possible health outcomes".[3] Factors to consider in terms of healthcare access include financial limitations (such as insurance coverage), geographical and logistical barriers (such as additional transportation costs and the possibility to take paid time off work to use such services), sociocultural expectations, and personal limitations (lack of ability to communicate with health care providers, poor health literacy, low income).[4] Limitations to health care services affects negatively the use of medical services, the efficacy of treatments, and overall outcome (well-being, mortality rates)

Fig. 1 Analytics in Healthcare [2]

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RESEARCH ARTICLE

Nanostructured semiconducting properties of Sn-doped graphene synthesised by the hydrothermal method

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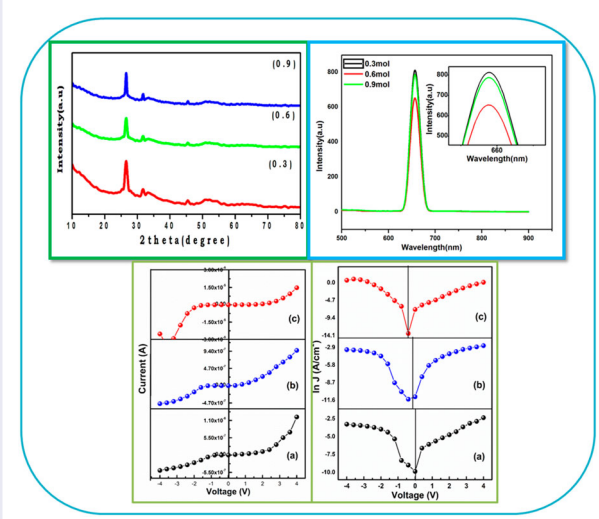
ABSTRACT

This work developed a hydrothermal process for the effective synthesis of Sn-doped graphene nanoparticles. To prepare the samples at 180°C in carbon tetrachloride organic solvent and different levels of Sn concentrations (0.3, 0.6 and 0.9) were used. A variety of analyses were carried out on the prepared materials, including XRD, SEM with EDX, TEM, AFM, UV, PL and I-V. The XRD analysis revealed good crystallinity and hexagonal structure in Sn-doped graphene nanoparticles. An SEM micrograph reveals that the morphology is flower, nano-chalk pieces and agglomerated at some places. The TEM images clearly specify the spherical and are agglomerated at some places. Topography images (AFM) show that hydrothermal treatment at different concentrations influences the growth of Sn-doped graphene NPs. The bandgap of Sn-doped graphene nanoparticles is estimated as 2.23, 3.7 and 4.7 eV. All the p-Si/n-graphene diodes exhibited excellent rectification with less reverse current. The impact of metal (Sn) doping concentration favourably decreases the n value of the p-Si/n-Sn-doped graphene diode. In the current work, it is shown that the p-Si/n graphene diode is highly sensitive to various concentrations of graphene.



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Nanoparticles; graphene oxide; hydrothermal method; I-V characterisation; p-n junction diode

1. Introduction

Graphene has attracted unprecedented attention and sparked numerous experiments in recent years. It has exceptional properties such as high electronic mobility, unique electronic structures, high thermal conductivity and high mechanical strength [1]. As a novel two-dimensional graphitic carbon, graphene is of interest and is preferred over alloys or metal oxides as a support material [2]. Various types of rechargeable battery systems can benefit from its excellent mechanical flexibility, excellent electrical conductivity and high chemical stability [3–6]. The development of Sn-graphene hybrids

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A Dominant Feature Selection Method for Deep Learning Based Traffic Classification Using a Genetic Algorithm

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ABSTRACT

Internet data handling is becoming a challenging issue to networking organizations now a days. To have an efficient throughput of network functions various traffic classification techniques were propose so far. These types describe encrypted traffic classification which uses the support of deep learning approaches. While packet inspecting payload is another stuff of classification. A malfunction of the deep learning model may occur if the training dataset includes malicious or erroneous data. Security and confidentiality of users data while in networking is another open issue which can be solved by using Explainable artificial intelligence (XAI) somehow. In this paper, we propose a strategy for making sense of the functioning system of deep learning-based traffic grouping as a technique for XAI in view of a hereditary calculation. We depict the component of the deep learning-based traffic classification by measuring the significance of each element by using genetic algorithms. Moreover, we influence the hereditary calculation to produce an element determination veil that chooses significant highlights in the whole list of capabilities. To exhibit the proposed clarification technique, we carried out a deep-learning based traffic classifier with an exactness of roughly 96.55%. Likewise, we present the significance of each component got from the proposed clarification technique by characterizing the predominance rate.

Keywords : XAI, classification, deep learning, genetic algorithms, security, network traffic.

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Optimizing QoS-Based Clustering Using a Multi-Hop with Single Cluster Communication for Efficient Packet Routing

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ABSTRACT: Modern day communication systems have gained a revolutionized growth in long-distance wireless data transmission. High speed packet transfer impacts quality requirements. Critical factors that ruin service quality (Qos) are calculated by the primary factors involving power efficiency, packet delivery ratio, and overall transmission and reception delay. A well-developed routing protocol with unique attributes should be deployed to give improved QoS. The drawback of single path routing in delivering a packet at traffic is challenging since it does not have an alternative path in case of path failure. This problem can be targeted by a properly structured protocol with a multipath mechanism. In this article, Multi-hop with single cluster (SCMC) protocol is designed to increase the overall system efficiency by improving bandwidth, packet delivery ratio (PDR), reducing communication delay, and quality improvement. Adopting a single cluster and several hop protocol achieves power conservation for an additional period and balances the energy level. In multi hopping communications, numerous paths with various members can be produced by a single cluster is an added advantage. The proposed work is tested in NS-2 in comparison with equal cost multipath and protocol SPEED. The outcome of the designed protocol outperforms all other protocols in terms of minimum latency, lower power usage and improved packet delivery ratio.

Keywords: WSN, QoS, Single Cluster, Multi-hop Communication, End - to-End.

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1. INTRODUCTION

All around the geographical area the sensor wireless networks found a pathway of connecting efficiently through distributed approach. The randomly placed sensors all over the network are connected to one another by efficient routing protocols. The merit of WSN is to keep efficient tracking of various physical and climatic factors. They are noise pollution, pressure, temperature variations, and contaminants, all of which are significant contributors in a country's development. These WSNs aren't just for monitoring natural phenomena; they're also for noise detection, congestion analysis in networks, trespasser identification, earthquake monitoring, army trafficking, healthcare monitoring, and smart gadgets. Numerous nodes were connected via sub-nodes to produce a communication way for information sharing. Inside a network covering a large geographical area. Forming a large network on a global scale is not an easy task, as it involves dealing with a variety of challenges such as bandwidth, high failure rates, and limited power, among others. Because there are so many facets to leading the network by conquering difficult difficulties, the system may concentrate on building potential and power-efficient set of rules. To maintain a longer network life, individual sensor node's power must be properly utilized. It is dependent on the type of sensor and the application for which it will be used to track the data properly. These data should be used indefinitely with little energy use to avoid potential issues. In practice, nuclear reactors and data monitoring should be properly aligned with energy consumption as well as network lifetime. As a result, there is a worry that a protocol should be designed that takes into account several crucial characteristics such as application and network density, among others. Most WSN routing techniques have been developed in the past based on the unique qualities of WSN.

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An Intelligent Heuristic Manta-Ray Foraging Optimization and Adaptive Extreme Learning Machine for Hand Gesture Image Recognition

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Abstract: The development of hand gesture recognition systems has gained more attention in recent days, due to its support of modern human-computer interfaces. Moreover, sign language recognition is mainly developed for enabling communication between deaf and dumb people. In conventional works, various image processing techniques like segmentation, optimization, and classification are deployed for hand gesture recognition. Still, it limits the major problems of inefficient handling of large dimensional datasets and requires more time consumption, increased false positives, error rate, and misclassification outputs. Hence, this research work intends to develop an efficient hand gesture image recognition system by using advanced image processing techniques. During image segmentation, skin color detection and morphological operations are performed for accurately segmenting the hand gesture portion. Then, the Heuristic Manta-ray Foraging Optimization (HMFO) technique is employed for optimally selecting the features by computing the best fitness value. Moreover, the reduced dimensionality of features helps to increase the accuracy of classification with a reduced error rate. Finally, an Adaptive Extreme Learning Machine (AELM) based classification technique is employed for predicting the recognition output. During results validation, various evaluation measures have been used to compare the proposed model's performance with other classification approaches.

Key words: hand gesture recognition; skin color detection; morphological operations; Multifaceted Feature Extraction (MFE) model; Heuristic Manta-ray Foraging Optimization (HMFO); Adaptive Extreme Learning Machine (AELM)

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Biometric Security with a Robust Multimodal Features Level Fusion Using Modify Incremental Principal Component Analysis

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Abstract

Biometric Authentication (BA) has been recently identified as a significant paradigm on maintaining the security level to improve individual person's authenticity. With more and more advanced technology, the BA has to be enhanced to cope up with the increased insecure environment. Several schemes employing multimodal biometric system fuses the face image with certain other traditional biometric modalities to ensure security. However, changes in the facial expression significantly updates the facial geometry, thereby reduces the ranking score level. Some of the multimodal biometric research group has designed different algorithms on personal biometric feature based authentication. But, fusion multimodal biometric system did not provide robustness compromising the security level. To develop high robust multimodal biometric system, person multimodal biometric using Covariance Matrix Incremental Principal Component Analysis (CMI-PCA) method is proposed in this paper. The main goal of CMI-PCA method is to work with three principle steps and attain rank level fusion integration on the faces, ears and hand dorsal vein. First, the person's multimodal biometric features are sensed and feature extraction is performed using Gabor Filter based Incremental PCA to improve robustness level. Second step is to match the extracted features with stored test image from the database using Score Matching based on Covariance Matrix Incremental PCA. The score matching based on Covariance Matrix Incremental PCA maintain the scale of extracted features and compute the mean score value to match with test images without any Covariance Matrix range. Finally, the CMI-PCA method involves combining different biometric identification ranks for making final decision. The extended Borda Count Multimodal Ranking system is used in CMI-PCA to determine the integrated biometric outcome and ensures higher security level for individual information. Experiment is conducted on factors such as robustness level, multimodal matching score rate, rank level fusion efficiency rate.

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REVERSE ENGINEERING FOR ARTIFICIAL INTELLIGENCE TO PREVENT HEALTHCARE OF HUMAN BRAIN

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ABSTRACT

The world's first artificial brain is known as the "Blue Brain." A virtual machine is a computer that can perform the functions of a nervous system with Artificial Intelligence. Reverse engineering is a popular method of simulating the human mind on a molecular basis. Therapy of cognitive impairment, academic interest in awareness and the human healthcare condition, a lower part method to creating thinking machines, and archives of all neuroscience research findings and associated previous tales are the 4 major motives behind its Blue Brain Science. Information collection, modelling, and display of outcomes are the three main phases in creating a virtual brain. The Blue Brain science aims to collect all current

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NOVEL TECHNIQUES FOR COMPONENTS CLASSIFICATION AND ADAPTATION

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ABSTRACT

More than thirty years have passed since the software introduced the idea of reuse. There are many successful cases that have been reported, but people believe that the programs are still in the re-development phase and are not reaching its full potential. The software requires us to anticipate the future needs of software systems so that new units can be built, some functions, features are fragmented and reused easily by the engineers. These tools are designed to achieve this aspect of software reuse through component adaptation and enhance existing applications. Use software information to reuse a large number of platforms and tools in the presence. This work does not think of the classification based on the naming services and components, but this work tries to use the most relevant features of components such as software developers and it explains the functional requirements to make a definite decision. In the way, the proposed algorithm is very generic and widely available to all technologies. It is only for a short period of time for the selection of software components and all types of services.

Keywords: *Software Reuse, Architecture, Domain Engineering, Indicators, Components.*

1. INTRODUCTION

This article debates the summary of some important aspects of component classification technique. Because the main purpose of reusable components is to increase efficiency and reduce costs, which ultimately affects the economy of the software industries and summarized in three ways to reuse the software[1].

The reuse of software is considered to be the ability to increase productivity in software development and quality of software. The key benefits of newly introduced software are the support for the design method and the important event is not the construction of the new system from scratch, but the modification of the integration and the description of the existing ones. CBSE was used to support evolution [2] of the components of the different technologies. However, it is sufficient to keep the repository empty outstanding, types of software reuse: One is the software component management that consists of the specification, classification, and extracts of the existing components, and the other is the integration part which includes integration of the reusable component into the application. Several approaches are developed in recent years to address the issues of reuse. However, the lack of approaches to smooth integration constitutes a significant obstacle to effective recovery. Reusability tools that can be used to reactivate low functionality changes or modify the source code [3].

Reusability is a basic concept of software engineering. The new software engineering research and practices are dealing with reducing the cost as well as reduces time with better quality and apart according to the development of reusability is a matter about creating a library element, thus allowing the development of new programs, applications of available components. Reusability software is the use of engineering knowledge or software component objects that are available. Creating a new system reusability is the main paradigm in increasing the quality of software development. This is an important area of technical research software that tends to improve software significantly for production and quality. The main advantage CBSD is a cheap and quality solution. Higher productivity, Flexibility, and quality applications changing capacity, efficient storage and resizing are some of the additional benefits CBSD. If there are many components available, it is necessary to develop certain software metrics for different feature components. It is

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Research Article

A Deep Learning Framework for Earlier Prediction of Diabetic Retinopathy from Fundus Photographs

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Diabetic patients can also be identified immediately utilizing retinopathy photos, but it is a challenging task. The blood veins visible in fundus photographs are used in several disease diagnosis approaches. We sought to replicate the findings published in implementation and verification of a deep learning approach for diabetic retinopathy identification in retinal fundus pictures. To address this issue, the suggested investigative study uses recurrent neural networks (RNN) to retrieve characteristics from deep networks. As a result, using computational approaches to identify certain disorders automatically might be a fantastic solution. We developed and tested several iterations of a deep learning framework to forecast the progression of diabetic retinopathy in diabetic individuals who have undergone teleretinal diabetic retinopathy assessment in a basic healthcare environment. A collection of one-field or three-field colour fundus pictures served as the input for both iterations. Utilizing the proposed DRNN methodology, advanced identification of the diabetic state was performed utilizing HE detected in an eye's blood vessel. This research demonstrates the difficulties in duplicating deep learning approach findings, as well as the necessity for more reproduction and replication research to verify deep learning techniques, particularly in the field of healthcare picture processing. This development investigates the utilization of several other Deep Neural Network Frameworks on photographs from the dataset after they have been treated to suitable image computation methods such as local average colour subtraction to assist in highlighting the germane characteristics from a fundoscopy, thus, also enhancing the identification and assessment procedure of diabetic retinopathy and serving as a skilled guidelines framework for practitioners all over the globe.

Original Article

HYBRID FIREFLY META OPTIMIZATION FOR BIO MEDICAL IMAGE PROCESSING USING DEEP LEARNING

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Abstract

Signal and image processing is a part of biomedical science. In that, Biomedical image processing have a great value such as recognition, segmentation and classification for disease diagnosis. In one part of biomedical science, brain tumor classification is considered with Magnetic Resonance Images (MRI) images using state of art models. Initially, the Convolutional Neural Network (CNN), Fast Convolutional Neural Network (FCNN), U-Net and M-Net model was considered for classification. Further, the Hybrid Firefly Meta Optimization (HFMO) is proposed for the better prediction purpose. The proposed work has three phases like normalization with augmentation, deep attention segmentation and classification. In the first phase, data augmentation is applied to increase the scope of the dataset. In the second phase, a deep attention technique is applied to concentrate on hotspot in the image during segmentation. Finally, a hybrid firefly optimization is applied to enhance the performance of the model in convolution neural network by backtracking the process. The measuring parameters like Dice coefficient, Jaccard index, Positive Projected Value (PPV), True Positive Rate and False Positive Rate were evaluated. The comparative analysis of various state of art models with proposed classifier were demonstrated. Thus the proposed technique produces the training accuracy as 98.62%, testing accuracy as 95.31 % and 1 % of loss.

Keywords: Augmentation, Central Nervous System, Dice Coefficient,Firefly optimization, Jaccard Index, Meta Learning, MRI.

1. INTRODUCTION

A brain tumor is dangerous illnesses that can upset both adults and children. More number of patients is identified with a brain tumor each year. Brain malignancies are classified as glioma, meningioma and pituitary. To extend the patients' lives, proper arrangement and system should be enhanced. MRI is the most effective method for noticing brain tumors (MRI). The MRIs yield a huge amount of image data.The radiologist inspects these pictures and understand the complexity of brain tumors and their potentials [7-10].

Deep learning is being used to predict various types of brain tumors. The primary goals are to achieve high levels of accuracy in brain tumor prediction. Deep learning approaches assist in the early identification of tumor. The abstraction of features is crucial in the grouping of brain tumors. The deep learning algorithm performs the feature abstraction and data reconstruction.

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Elevating Supercapacitor Performance in Cadmium doped nickel Ferrite Nanoparticles as a Promising Innovation

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Abstract

Supercapacitors boast an extended cycle life, making them a reliable and durable energy storage solution. These compelling characteristics have spurred extensive research and exploration in the field, with the aim of developing advanced supercapacitors for various practical applications across multiple industries. In this work, $Ni_{0.5}Cd_{0.5}Fe_2O_4$ ferrite nanoparticles were successfully employed using a straightforward co-precipitation technique. The samples underwent structural and morphological characterization at different annealing temperatures (400℃, 600℃, and 700℃). X-ray diffraction analysis revealed the formation of a cubic crystal structure with a preferential orientation along the (311) plane. Through TG/DT analysis, the optimal annealing temperature was determined to be 700℃, which prompted further examination of the sample annealed at this temperature. Morphological studies using SEM and HR-TEM showed well-defined nanostructures with agglomerated spherical morphology. FTIR spectroscopy indicated an absorption range of 400 to 4000cm^{-1} for both organic and inorganic materials. The nanoparticles' surface area was measured using the BET technique, and XPS analysis identified the elemental composition and chemical states of the constituent elements. In terms of application potential, the CV study for the sample $Ni_{0.5}Cd_{0.5}Fe_2O_4$ annealed at 700 °C demonstrated a high specific capacitance of 347 Fg^{-1} at a low scan rate of 2 mVs^{-1}, highlighting its suitability for use in supercapacitors.

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Exploring the effect of partial RE (Nd, Eu, Tm) substitution on Sn sites on the electronic and physical properties of $BaSnO_3$

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ARTICLE INFO

Keywords:
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$BaSnO_3$
Electronic structure
Elastic modulus
Mechanical and optical properties

ABSTRACT

We have studied with the help of density functional calculations of the structural, phonon, elastic, mechanical, thermodynamic, electronic and optical properties of pure and RE (Nd, Eu, Tm) substituted $BaSnO_3$ compounds. For this purpose, we have been used VASP. Our calculated ground-state and elastic properties of $BaSnO_3$ are consistent with available experimental and other theoretical results. The phonon spectrum and elastic modulus results confirmed that pure and RE substituted compounds are dynamic and mechanically stable. Our calculated results suggest that both pure and RE substituted compounds exhibited brittle behaviour. The free energy, entropy, heat capacity as a function of temperature from 0 K to 1000 K have been estimated and discussed. The optical properties such as the real and imaginary part of the dielectric constant, refractive index, reflectivity, absorption and energy loss function have been computed and discussed. In addition to this, the electronic band structure results reveal that RE substitution on $BaSnO_3$ has changed the significant effect on the bandgap value. Our obtained electronic and optical results of these materials reflect that they are suitable for optoelectronic device applications.

1. Introduction

An ABO_3 (A = alkaline earth metals; B = group IV elements) perovskite materials have tremendous industrial and technological interest due to their chemical flexibility and physical properties [1]. In particular to the above, researchers were interested in the stannate perovskites [2,3] in the past decades in this regard. In which, n-type $BaSnO_3$ semiconductor [4] has attracted many research activities in solid-state material science. This material has potential application in diverse techniques such as optoelectronic devices [5], capacitors [6] and high-performance insensitive material [7–10]. $BaSnO_3$ also exhibits high electron mobility, excellent thermal stability, structural versatility, high transparency, and flexible doping ability [11].

Several experimental and theoretical investigations on $BaSnO_3$ [12–20] have been carried out. A. J. Smith and J. E. Welch [12] confirmed that $BaSnO_3$ exhibit a cubic crystal structure. Takuji et al. [13] have investigated the thermal and mechanical properties of the $BaSnO_3$ compound. Moreover, the dynamical and dielectric properties of the $BaSnO_3$ compounds has been done by Emil Bevillon et al. [14]. Djellal Chaerrad et al. [15] also studied the structural, elastic, electronic and optical properties of A_3SnO and $ASnO_3$ (A = Ca, Sr and Ba) using ab-initio techniques. The structural, electronic, photo-catalytic, thermal and dielectric properties of pure and doped forms of $BaSnO_3$ have been reported [16–20].

Lanthanide doped $BaSnO_3$ offers vast advantages in technological interest [21–25]. However, a few per cent of La-doped with $BaSnO_3$ has high mobility at room temperature and excellent thermal stability [21,22]. It also exhibits a large bandgap and reflects excellent prospects as a candidate transparent conductive oxide to replace Sn doped In_2O_3. Further, it is propitiously applied for epitaxial multilayer devices. Mesoporous TiO_2 replacing La-doped $BaSnO_3$ material improves the power conversion efficiency and stability in organic-inorganic perovskite ($MAPbI_3$) solar cells [23]. La-doped $BaSnO_3$ used channel layer exhibit the large on-off ratio (>107), it was recognized in all-perovskite

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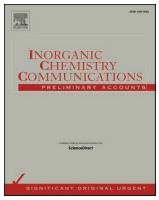

Short communication

Preparation of $CoFe_2O_4/SiO_2$ nanocomposite as potential electrode materials for supercapacitors

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ARTICLE INFO

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$CoFe_2O_4$
$CoFe_2O_4/SiO_2$ nanocomposite
Supercapacitor

ABSTRACT

In the present work, the magnetic $CoFe_2O_4/SiO_2$ nanocomposites were prepared by the simple sol-gel method for supercapacitor applications. Various characterization techniques, including powder X-ray diffraction (PXRD), Fourier transform infrared (FT-IR) and Raman spectroscopy, transmission electron microscopy (TEM), X-ray photoelectron spectroscopy (XPS), vibrating sample magnetometer (VSM), cyclic voltammetry, and galvanostatic charge–discharge (GCD) analysis, were used to investigate the $CoFe_2O_4/S\ iO_2$ composites. The same materials were used to perform the electrochemical activity for electrode applications, thus confirming their comparable efficiency and reversibility. The prepared electrode exhibited a maximum specific capacitance of 316.14 Fg^{-1}, a maximum energy density of 295.6 Wh kg^{-1} [1] (4 Ag^{-1}), and a maximum power density of 9.1 kW kg^{-1} (4 Ag^{-1}). Excellent capacitance retention of 95.4 % over 5000 cycles showed outstanding cycle stability.

1. Introduction

The development of green energy storage systems was prompted by the reduction of fossil fuels, the energy disaster and environmental pollutions caused by the burning of fossil fuels for producing electric power generation. Supercapacitors (SCs) have been used as an electrochemical device to store the electrical energy at the interface of electrode-electrolyte [1]. Supercapacitors have a greater power density than batteries, have a longer lifetime, and can be charged and discharged quickly [2,3]. Many efforts have been conducted to increase the supercapacitor's power density and energy density by altering the electrolyte, electrode materials and the structure [4,5]. Pseudocapacitors and Electric double-layer capacitors (EDLCs) are the two types of SCs depending on their operating charge–discharge storage mechanism. The energy is being stored by trapping ions in the electrolyte/electrode contact in EDLCs, which function on the principle of electrostatics [6,7].

A pseudocapacitor is one which depends on the faradaic charge transfer process that is based on utilizing intercalation at electrodes and reversible redox reactions to store charge. As a result, Pseudocapacitive materials may attain high specific capacitances and energy densities, making them a potential material for developing new energy storage devices [5,7]. Because of incomplete reversible redox processes and the loss of electrical contact caused by the breakdown of crystal structure, this in turn affects its electrochemical performance. Hence, the pseudocapacitor has a shorter life cycle compared to an EDLC. Hybrid supercapacitors, which combine a pseudocapacitive material with conductive support, can overcome this issue. Researchers have been investigating a variety of materials as supercapacitor electrodes, which includes transition metal oxides, carbon-based materials and polymers [6].

Nanomaterials have some special characteristics due to their distinct structures, sizes, surface-area-to-volume ratios, material purity and composition [8]. Especially transition metal-oxide based nanomaterials such as SiO_2, α-Fe_2O_3, Co_3O_4 and RuO_2 possessed as an active material for supercapacitors because of high capacitances, oxidation states are changeable, nature of environmentally benign and low cost [9]. In recent years, mixed metal oxide with spinel ferrite compounds of MFe_2O_4 (M = Mg, Co, Ni, Mn, and Zn) have been focused on due to unique soft or hard magnetic characteristics, as well as superparamagnetism, chemical stability and a wide range of oxidation states

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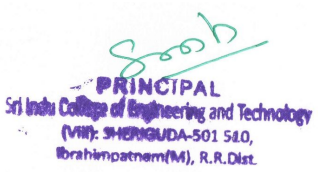

Comprehensive Study on Multi-Operator Base Stations Cell Deployment of B5G Utilizing Blockchain-Enabled SDN Architecture

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Abstract

Beyond five (B5G) networks, or "6G," many user connections and multi-gigabit transmission rates are supported. Blockchain and AI are expected to be two critical technologies for successfully developing future B5G or 6G networks. Despite the massive deployment of Base operators (BS), the MNOs still confront the formidable issue of sufficient coverage and capacity in interior settings. Moreover, the trust-free environment in which MNOs operate makes interoperability among carriers even more challenging to accomplish. The idea of micro operators (uO) has recently arisen as a potential solution to this issue by using small cells. The lack of a framework for establishing and managing commercial agreements between major parties - MNOs & uOs - has seriously hindered their performance. This article offers an SDN method for managing agreements and radio resources between MNOs across small cell networks. Our solution utilizes an intelligent contract to verify transactions between MNOs in particular. Simulation findings demonstrate that our solution ensures a smooth handoff and high availability across various operators instead of breaking the connection without an agreement.

Index Terms— Beyond five (B5G) networks, Base operators, Multi-operator, SDN, micro operators, Blockchain, Interoperability.

I. INTRODUCTION

5G is the fifth-generation broadband cellular network technology standard, which cell phone operators started implementing globally in 2019, which is the intended replacement to the 4G networks that link most existing cellular networks. [2] According to the GSM Association, 5G networks are expected to have more than 1.7 billion users globally by 2025. [3] 5G networks are, like their predecessors, mobile networks with a service area split into small geographic regions known as cells. All 5G cell wireless devices are linked through radio waves via a local antenna to the Internet and the phone network. The primary benefit of the new networks is that they have more capacity, which allows higher download speeds[2], up to ten gigabits a second (Gbit/s). [4] As a result of the increased bandwidth, networks are expected to be used more and more as a general internet service provider for laptops and desktop computers that compete with existing ISPs such as the cable Internet and allow new applications for Internet services (IoT) and machine-to-machine applications. 4G cell phones cannot utilize new networks requiring 5G wireless devices enabled.

Energy-Conscious Reinforcement Approach to Dynamic VM Placement in Cloud Data Centers Based On Learning

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ABSTRACT

Almost all applications are now hosted on the cloud, and as the demand for cloud services grows, so does the number of data centres required to support them. In Cloud computing, energy efficiency has become an important study area since data centres require a lot of electricity. It's difficult, however, to reduce energy use without increasing SLA violations or decreasing model performance. In addition, the majority of current VM consolidation approaches look at system performance as a restriction, which results in scheduling delays and energy waste. This study proposes an efficient framework made up of three blocks: the Resource use prediction model in the first block, the optimal learning-based controller in the second block, and storage of the Q-values in the third block. Furthermore, these parameters are included into the framework for optimum VM placement, which is built and assessed using the PlanetLab data and Cloudsim simulator by taking into account energy usage, VM migration, and SLA-violation. Furthermore, a comparison of the suggested mechanism to the current model shows that it outperforms the existing model.

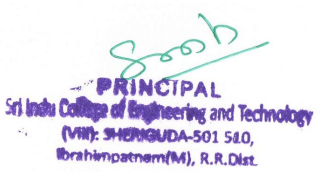
Keywords *VM placement; Temporal Difference learning; Energy usage; cloud computing are some of the key concepts.*

I. INTRODUCTION

Using the internet to provide compute services to a large number of people across the world has become a major element of cloud computing [1]. Because of the rising demand and quick expansion of cloud services and data centres, cloud infrastructure and data centres are becoming more costly, sophisticated, and energy-intensive than ever before. According to a study and research, there would be a 66 percent rise in power consumption by 2035[2] as a result of cloud computing's many risks. Even if the benefits of cloud computing are many and its execution seems to be outstanding, it is being hampered by high energy consumption and costs. The server uses 80 percent of the energy and gives only 20 percent of the utilisation in a cloud computing environment because of the hundreds of virtual machines that are working to facilitate the client. In order to minimise energy consumption, a number of researchers and professionals have devoted themselves to designing an efficient process. Additionally, virtualization is a major method for reducing the number of virtual machines on a single physical server. It is more effective to operate two virtual machines (VMs) on the same physical server than to run two VMs on two separate physical servers, as the power consumption of two servers is reduced by half. VMWare consolidation is a well-defined strategy for the effective administration of cloud computing's resources, and it consists of three independent approaches:

VLSI Tree-Based Inference Design Applications for Low-Power Learning

RF Based Lo-Ra Transceiver Patient Health Detection System



Internet of Things Based Indoor Smart Surveillance and Monitoring System using Arduino and Raspberry Pi

an empirical model for the investigation of effective intrusion detection systems by using k-nearest neighbor (knn) and fuzzy (fuzzy knn) algorithms in mobile ad-hoc network (manet)

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An Empirical Model for the Investigation of Effective Intrusion Detection Systems by Using K-Nearest Neighbor (KNN) and Fuzzy (Fuzzy KNN) Algorithms in Mobile Ad-Hoc Network (MANET)

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Abstract

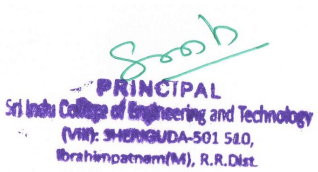
A mobile ad hoc network (MANET) is a high-speed network that does not have any infrastructure or centralized management. In recent years, MANET has been popular and widely used by various applications. The important concern of MANET is security. In MANET, Intrusion detection systems (IDSs) are a prominent solution for achieving security. Among these, Clustering-based IDSs are highly noticeable mainly for their proper scalability behaviors. In this paper, the K-nearest neighbor (KNN) algorithm with fuzzy (Fuzzy KNN) inference is proposed to detect the MANET's black hole attack. The implementation of fuzzy inference is effective in the selection of cluster heads. Additionally, Josang mental logic along with beta distribution increases each node's trustiness. The destination node detects by the trust servers using the reputation and remaining energy. In each cluster, the cluster head is responsible for detecting the node which involved in suspicious activity like black hole attack. The proposed work performance is examined using parameters like total network delay, throughput, packet loss rate, and normalized routing load. The obtained result proves that the proposed system is very effective in detecting the black hole than the other methods.

Keywords: MANET, Intrusion Detection, KNN, Cluster Mechanism,IDS

1. Introduction

Technology evolution and its advancement rise to new heights within a short period. The networking technology is the most noticeable one that provides data exchange from one medium to another. Commonly, the centralized system manages the network, and the emergence of MANET gives rise to an infrastructure-less environment. MANET is referred to as a Mobile Ad hoc Network, which has

Novel Approach of Designing of a Low-Cost Artificial Ventilators



Internet Connected Modern Fire Fighting Robot

Wireless Personal Communications
https://doi.org/10.1007/s11277-022-09768-x

Sea Turtle Foraging and Hydrozoan Optimization Algorithm-based NLOS Node Positioning Scheme for Reliable Data Dissemination in Vehicular Ad hoc Networks

P. Subramanian[1] · C. Vijayakumaran[2] · M. I. Thariq Hussan[3] · N. Tamilarasan[4] · J. Martin Sahayaraj[5]

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Abstract
Vehicular Ad hoc NETworks (VANETs) is considered as an indispensable and predominant research area for facilitating public safety applications due to their ever increasing demand. The vehicular nodes in VANETs interact among them for the objective of exchanging traffic information, road maps and warning messages during emergency scenarios. In most of the applications supported by vehicular network, accuracy in localization is the major challenge when the location-based services are their core service. This major problem of localization is mainly due to Non Line of Sight (NLOS) nodes in the vehicular node whose position is unknown or unpredicted due to the existence of static and moving obstacles in the vehicular network. The problem of NLOS node localization is a Non Polynomial (NP) hard problem that could be potentially solved through the use of intelligent metaheuristic nature-inspired optimization algorithms. In this paper, Sea Turtle Foraging (STFOA)-and Hydrozoan Optimization Algorithm (HOA)-based NLOS node positioning scheme is proposed by embedding the exploitation capabilities of STFOA into exploration tendency imposed HOA algorithm for achieving reliable warning message delivery during emergency situations in vehicular networks. This proposed STFHOA scheme adopted a dynamic crossover operator through the incorporated hybrid algorithm in order to enhance the tendencies of exploration. The simulation results of the proposed STFHOA confirmed better mean warning message rate of 16.38%, mean channel utilization rate of 18.84%, mean neighborhood awareness rate of 17.21% with minimized mean localization error rate of 17.64% compared to the baseline approaches under scalable increase in the number of vehicular nodes in the network.

Keywords Sea turtle foraging optimization algorithm (STFOA) · Hydrozoan optimization algorithm (HOA) · Non line of sight (NLOS) nodes · Warning message dissemination · Vehicular Ad hoc networks (VANETs)

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FOCUS

Modified device key generation algorithm and A* algorithm to optimize the security measures based on trust value in device-to-device communications

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Accepted: 26 October 2021

Abstract
Security plays a vital role in communication networks. Since the nodes are mobile in mobile ad hoc networks (MANET), they are vulnerable to different types of attacks. Because of its mobility nature, any node can enter the network at any time based on the coverage of the network. No centralized mechanism is found to verify or authenticate the nodes that are arriving/leaving the network. An algorithm is proposed for secure communication between source and destination based on the QoS parameters is called modified device key generation algorithm (MDKGA). This algorithm elects an agent node based on the QoS parameters. Agent node is responsible for secure key generation and distribution of keys among the nodes. The neighboring node selection is based on trust value which acts as a heuristic function to select the node using A* algorithm. Various performance metrics are also analyzed. Comparison study has been carried out between the protocols of MANET.

Keywords Mobile ad hoc networks · Quality of service · Trust value · Agent node · MDKGA

1 Introduction

Mobile ad-hoc networks employ a major part in wireless communication. This acts as a base for vehicular communication. Since there are many advantageous features with MANET, it lacks majorly on synchronization and security. Since the nodes are mobile, there is a high level of chance that attacker node joins the network and slows down or corrupts the entire communication. Due to the lack of centralized authority to track the in and out nodes of the network, the MANET is highly prone to the network attacks. It is mandatory to provide some authentication system to identify the characteristics of the node. Based on the characteristics, the node will be identified as attacker node or not. In addition, encapsulating the data is much more required.

A key-based communication within the network and measuring metrics for analyzing the performance of the network is proposed. In key-based communication, an algorithm is designed for generating and distributing the keys. QoS metrics such as delay factor, reliability ratio and energy utilization/efficiency are measured and analyzed for various simulation strategies. Different simulation scenarios are considered, compared and analyzed for efficient transmissions. The proposed MDKGA prevents the attacker nodes to join the network without compromising the performance of the network.

AODV, DSR protocols and NS2 simulator are used for the implementation. Trust value is calculated for each node in the network, and based on the calculated trust values of

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FPGA Based Approximate Digital VLSI Circuit Validating Focused on Fault Diagnosis

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Abstract. In this report, a Duty Approximate Testing framework is introduced that generates modulation schemes for only separate faults. The fundamental idea is to draw up a list of flaws that may be overlooked or left unproven. The current issues are tested by generating modulation schemes for certain flaws. We examine the implications of skipping any faults by adding glued errors at the circuit's proper position. With a system limitation standard, the output standard deviation is calculated. In the near past, the FPGA method was a leading method of addressing dynamic automated system architecture or systems. Multiple timers operate the devices in all full-duplex modes. This report examines responsibility to fix multipurpose structures on FPGA for just a grid of dynamic and partially located coordinated balanced regular intervals. For both the FPGA, throughout the irregular clock operation model, the modular component reconstruction system's load balancing based on the remote monitoring method is used.Furthermore, DPR uses the open-goal approach's proposed technique to eliminate the flaws throughout processing in the presence of damages. The DPR cuts the lifespan, and device storage is saved by limited restructuring in concurrent FPGA computing. The power consumption of the development method is very significant for many clock realms and throughout the grid. The balanced development consistency is compared with the concurrent balanced matrix to measure the DPR's reliability. It is also noted that even the fault-tolerant DPR for FPGAs is highly efficient and reliable. The experimental finding shows that irrespective of the flawed findings obtained, such electronics can be used in some kinds of fault structures such as video editing, image recognition, and digital communication. The number of fault positions is reduced by 15-25% concerning both of those benefit, leading to a decline in the number of switching devices.
Keywords: Fault diagnosis, Error rate, dynamic partial reconfiguration

1. Introduction

FPGA is defined as an optimised multifunctional circuitry which can change the customer's tough requirements. Any of these duplexer circuits are sold to customers. The key advantage of the FPGA

Hybrid Genetic Algorithm and Simulated Annealing for Clustering Microarray Gene Expression data

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Abstract. Gene expression is the process by which information in gene is used to create proteins. The gene expression studies generate large amount of data. These data, referred to as the gene expression matrix, represent the expression levels for thousands of genes recorded at a few time instances. A typical microarray experiment involves the hybridization of an mRNA molecule to the DNA template from which it is originated. Many DNA samples are used to construct an array. The amount of mRNA bound to each site on the array indicates the expression level of the various genes. This number may run in thousands. All the data is collected and a profile is generated for gene expression in the cell. Clustering is a process of partitioning a set of meaningful subclasses called clusters. Clustering is a key step in the analysis of gene expression data. Genetic Algorithms are a family of computational models inspired by evolution. The searching capability of genetic algorithms is exploited in order to search for appropriate cluster center in feature space such that a similarity metric of resulting clusters is optimized. The chromosome which are represented as strings of real numbers, encode the centers of fixed number of clusters. The experiment results are demonstrated on real data sets and the performance of GA is evaluated in comparison with the state-of-the art algorithm K-Means with use of internal validation criteria.

1. Introduction

1.1 Gene Expression

A Gene is a unit of heredity in a living organism. It normally resides on a stretch of DNA that codes for a type of protein or for an RNA chain that has a function in the organism. All living things depend on genes, as they specify all proteins and functional RNA chains. Genes hold the information to build and maintain an organism's cell and pass genetic traits to offspring. The vast majority of living organism encodes their genes in long strands of DNA. The most common form of DNA is in a cell is in a double helix structure, in which two individual DNA strands twist around each other in a right-handed spiral. DNA consists of a chain made from four types of nucleotide subunits such as adenine, cytosine, guanine, and thymine. In this structure, the base pairing rules specify that guanine pairs with cytosine and adenine pairs with thymine [1][23].

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Cascaded Multi-Level Inverter with APOD Based PV System for Induction Motor using DTFC Control

To cite this article: R Murugesan and N C SendhilKumar 2020 *IOP Conf. Ser.: Mater. Sci. Eng.* **925** 012018

Area Efficient Reconfigurable Buffer for NoC Router

To cite this article: N C Sendhilkumar and R Murugesan 2020 *IOP Conf. Ser.: Mater. Sci. Eng.* **925** 012065

A Sensitive Model For Aggregation Of Significant Whatsapp Messages In Social Networking

Dr.S.R. Mugunthan, Dr.A.P. Shanmugamurthy, Mr.A. Lakshmeekanth

Abstract: Instant messaging plays an important role in competitive social networking market and lot of efforts has been taken for making it simple. One can receive many notifications from social networking Apps in a day. There are some easier and smoother ultimate solutions needed in Digital Mobile world. In this paper, we propose an aggregate and sensitive model to read the contents of WhatsApp messages. These messages are grouped by aggregate and sensitive mathematical models based on the keywords given. The simulation results show that the proposed method can work better in terms of number of message reading, delay and grouping of messages.

Index Terms: Aggregation, Aggregate function, Dataset, Instant Messages, Sensitive model, Social Network, WhatsApp Groups.

1.INTRODUCTION

Clients, customers, friends, classmates and family uses an internet-based programs to maintain connections between them is called social networking. Social networking is established by sites like Twitter, Classmates.com, Facebook and LinkedIn for social purposes. The marketers use Social networking as a primary tool for engaging users [1]. Internet could be used to offer instant messaging in Mobile Applications. MMS or SMS are the medium to offer low-cost messaging. Instant messaging plays an important role in sharing emotional content and sensitive information. Therefore, it upsurges the number of practical applications [2]. QQ Mobile and WeChat having the user base of 1.2 billion in 2017.Snapchat, Skype, Viber and Telegram are having a user base of 300 million. With new social networking sites being introduced every year, deciding which one is right for your business, professional use or personal use is an overwhelming affair. So, it becomes imperative that you have to be aware which social media sites willfit into your requirements and communication strategy. Using too many social networking sites to convey your message could dilute the entire social media strategy and your entire planning and effort will be ineffective. The best strategy is to focus on those social media sites, which are relevant to you so that you can share your content with appropriate audience. Our communication is modernized by the Internet. The ever-known communication model in the 20th century is E-mail. Millions of people in this world uses E-mail to communicate with each other. You might not know if a person you want to e-mail is online at that moment. Also, if you're e-mailing back and forth with someone, you usually have to click through a few steps.

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This is why instant messaging (IM) has become so popular. [4] With IM, you can keep a list of people you interact with. You can IM with anyone on your buddy list or contact list as long as that person is online. You type messages to each other into a small window that shows up on both of your screens. Most of instant messaging programs provides instant messaging, video sharing, sharing images, chat etc.,[5]. The paper is systematized as follows: Section II describes the related work regarding Aggregation of WhatsApp Group messages. The dataset collection and used in this paper is discussed in Section III. The proposed WhatsApp aggregation message algorithm is discussed in Section IV. The Section V provide the Simulation Results and Section V discusses about the conclusions.

2. RELATED WORK

Anika Schwind et al. [6] approach indicates that all the WhatsApp chat histories is analysed by a web-based service named WhatsAnalyser. The input is in the form of text of histories of chat. As end-end encryption followed in WhatsApp, the text format is the method to access histories of chat. Thus, the real data could be composed without any deviation. The users privacy is involved in the collection of histories of chat. So that the type of the messages, timestamps, length of the messages and anonymous users activities can be analysed. The volume and frequency of network traffic and WhatsApp is inferred from the analysis.Fig.1 illustrates the processing procedure of WhatsAnalyser. Users and Companies are expecting a tool for analysing WhatsApp activities. There are some third-party tools used for analysing chat histories of WhatsApp. Some of the WhatsApp analysis tools are discussed below:

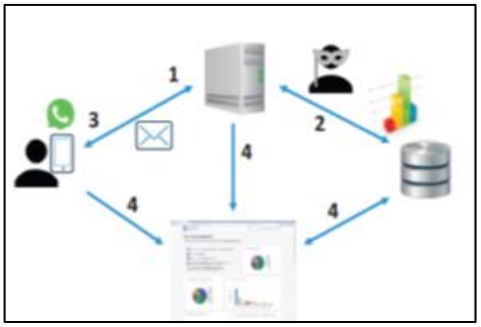

Fig. 1: *Processing procedure of WhatsAnalyzer*

EVALUATION OF MINING HIGH SPEED DATA STREAMS WITH VARIOUS ADVANCED DECISION TREE ALGORITHMS

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ABSTRACT

Numerous associations today have more than huge databases; they have databases that develop unbounded at a pace of a few million records for each day. Mining these ceaseless data streams brings interesting chances, yet additionally new difficulties. A large portion of the current models have three guideline steps. In the initial step, the framework would make a model incrementally. In the subsequent advance, the time taken by the guides to finish a recommended method with their appearance speed is registered. In the third and last advance of the model the size of memory required for algorithms is anticipated ahead of time. To defeat these limitations we proposed this new data stream classification algorithms, where the data can be divided into the flood of trees. Hoeffding Anytime Tree creates the asymptotic group tree in the breaking point, is normally strong to idea float, and can be utilized as a higher exactness swap for Hoeffding Tree in many situations, at a little extra computational expense. Right now, new data set can be refreshed with the current tree. This algorithm, called incremental classification tree algorithms, is end up being an incredible answer for handling bigger data streams. Right now, present the exploratory aftereffects of our new algorithms and demonstrate that our technique would destroy the issues of the current strategy.

KEYWORDS

Decision tree, Data mining, Machine learning, incremental decision tree, classification tree, data streams, High speed data streams.

I. INTRODU CTION

Databases are wealthy in data that can be utilized in the decision procedure. These days, the vast majority of the organizations and associations have monstrous databases that develop to a furthest reaches of a large number of registers every day. In conventional utilizations of data mining the volume of data is the fundamental obstruction to the utilization of memory-based methods due the limitations in the computational assets: memory, time or space in hard circle. Hence in the vast majority of these frameworks, the utilization of all accessible data gets unimaginable and can result in under filtering. The development of KDD frameworks that utilization the whole measure of data and keep the precision of the conventional frameworks gets tricky.

Decision trees, because of its qualities, are one of the most utilized strategies for data-mining. Decision tree models are non-parametric, circulation free, and strong to the nearness of exceptions and superfluous characteristics. Tree models have high level of interpretability. Worldwide and complex decisions can be approximated by a progression of more straightforward and local decisions. Uni-variate trees are invariant under all (carefully) monotone changes of the individual info factors.

IRIS DETECTION AND REFORMATION SYSTEM USING NOVEL ALGORITHMS IN MACHINE LEARNING THROUGH SVM CLASSIFIERS

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ABSTRACT- Biometric systems will be systems that empower people to be recognized in the electronic condition utilizing some physical and social attributes. Iris recognition framework is one of the viable biometric recognition systems. The primary objective of this investigation is one that Machine Learning recognition of the human from the iris images according to the nearby surface structures. The advanced iris images were gotten from the CASIA database. The surface highlights were removed from the four neighborhood iris locales of the portioned image by utilizing Gray Level Co-Occurrence Matrix. The element extraction of the iris was finished by biometrics GSCM (Gray Scale Co-occurrence Matrix), Gray Level Run Length Matrix, and Hausdorff Dimension. The Biometric Graph Matching calculation is utilized, which is utilized to coordinate the graph between the preparation image and the test image of the iris biometric. The BGM calculation utilizes graph topology to characterize distinctive element estimations of the iris layouts. A SVM -Support Vector Machine classifier is utilized to recognize certifiable and deception. The outcomes give preferred execution and validation over the current technique. These outcomes gave an improved execution against present strategies.

Keywords: *Iris Recognition, Image Processing; Classification; K-NN; GLCM, GLRLM,* SVM , BGM

I. INTRODUCTION

The significance of security in numerous zones has empowered the advancement of various systems identified with this subject. There are a few kinds of systems that people can use to advance themselves. The most commonly utilized techniques are ID cards, uncommon passwords, and so on. Be that as it may, there are a few drawbacks to these strategies on the off chance that ID cards can't be found or the passwords are overlooked. That is the reason; expanding security question has uncovered different security systems as of late. One of these systems is biometrics systems that can distinguish character in an electronic domain [1]. Biometrics is the study of checking character by examining organic information. It is utilized for mechanized systems that are created to identify the personality by recognizing the person's quantifiable physical and social attributes. In rundown, biometrics communicates quantifiable natural hints of the individual and it very well may be physical, for example, fingerprints, retinal vessels, face, eyes, and hands, or conduct, for example, mark and composing mood.

Among all these physiological properties, iris designs have a structure of great and complex tissues. The iris surface is all around saved all things considered and the copying, recording, and copying of the iris tissue is troublesome. These surface properties differ from individual to individual. Every iris has its own one of a kind structure and it gives a complex framework that is steady and doesn't change over its lifetime [3].

These days, the compositional structure of iris recognition systems is commonly comparable. Acquiring the surface highlights from preprocessed images and the assessment of the outcomes by utilizing diverse classification strategies are a common way in thinks about. The utilization of different element extraction and classification strategies makes the uses of iris recognition systems extraordinary.

II. RELATED WORK

Considering iris recognition systems; broad research has been conducted in this field and different methodologies have been displayed.

Multi Object and Dynamic Query Based CBIR System using DCT Incorporated with HOG and HTF

G. Suresh, N.C. Sendhil Kumar, R.Murugesan, P.Mukunthan

Abstract: ***This work contributes multi object detection and dynamic query image based retrieval system. Generally, finding relevance and matching user expectations is very critical based on query key information and these results irrelevant responses which will produce low similarity index. Consequently, CBIR system took a major responsibility of identifying new objects, retrieving similar objects or contents based on multi query and dynamic keywords with improved recall and precision as per requirement of the users. At this juncture, Discrete Curvelet Transform with the incorporation of HOG and HTF based approach is proposed to handle commercial image, medical images and types of multi model images. This proposed approach mainly focuses on extracting scaled features for finding correlation among the query and database images. To start with the process, query image is decomposed into multi level sub images to extract set of texture features at two levels. These features are estimated by Gray Level Co-occurrence Matrix (GLCM) and HOG descriptor based techniques is adapted to find scaled vectors with reduced dimensionality. This method outperform compared as compared to existing method is authenticated from experimental results.***

Key Words: image retrieval, HOG, curvelet transforms, GLCM.

I. INTRODUCTION

With the advent of the digital technology, there is various form information with larger scale accessed in different types search engine. Timely data collection and more relevant data collection is one of the primary processes of retrieval system. Content Based Image Retrieval (CBIR) is the key component for availing instant resourceful data in the search engine, which is another thirst area in research scope [1], [2]. The basic step involved in CBIR is retrieving highly correlated images from database by feeding query image based on relevance. Practically, CBIR involves the contents like, texture, shape or color based searches. Therefore, feature selection is a key stage in content-based retrieval [3], [4]. Figure 1 describes the general process and operation of CMIR system. There are plenty of sources of information are accumulated in database and its profiles are maintained as feature vector during preprocess [5][6][8]. When query image is given as an input, its feature values are estimated and are compared with the database feature with some statistical measures. Then, based on rank from higher similarity index to the lower similarity index retrieved images are ordered.

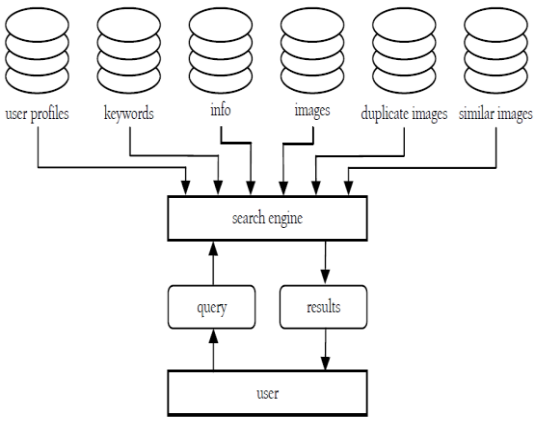

Figure 1 General CBIR system

II. RELATED WORK

Juan Miguel Medina et al (2012) proposed a novel approach to medical image retrieval using a fuzzy object-relational database management system (FORDBMS). This paper concentrates on X-ray images of patients suffering from scoliosis (a medical condition in which the patient's spine is curved) from which spine descriptions are obtained. Subsequently, query images are matched to retrieve relevant images with a certain oriented pattern. Results show high accuracy when evaluated by medical experts. A comparison study with other dynamic CBIR systems, the revealed work here is domain independent, flexible, and highly scalable.

SubrahmanyamMurala et al (2012) mitigated LTrP method for CBIR system. The proposed approach encompasses the connectivity between the current pixels to its surrounding pixels, based on the orientation of the image objects the movements of the feature vectors are evaluated using the differentiation scheme in X-Y directions. The efficiency of the proposed scheme is compared with LBP, Gabor filter and LTP based approaches and the synthesized results tested with benchmark data.

III METHODOLOGY

DCT with the incorporation of HOG and HTF based approach is proposed to handle commercial image, medical images and types of multi model images. This proposed approach mainly focuses on extracting scaled features for finding correlation among the query and database images.

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Differential CMOS Low Noise Amplifier Design for Wireless Receivers

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Abstract- This article presents the differential CMOS-LNA design for wireless receiver at the frequency of 3.4GHz. This differential LNA provides less noise figure (NF), high gain and good reverse isolation as well as good stability. The designed LNA is simulated with a 180 nanometers CMOS process in cadence virtuoso tool and simulate the results by using SpectreRF simulator. This LNA exhibits a NF of 0.7dB, a high voltage gain of 28dB, and good reverse isolation (S_{12}) of -70dB. It produces an input and output reflection coefficient (S_{11}) of -6.5dB and (S_{22}) of -14dB, and it maintains good stability of Rollet factor $K_f > 1$, and also alternate stability factor $B_{1f} < 1$, respectively.

Keywords: - Differential; Low Noise Amplifier; Wireless Receivers; Noise Figure.

I. INTRODUCTION

The fast development of recent wireless communication technology as well as market has raised good quality by means of telecommunications and portable electronic devices [1]. The majority of the communication systems could be hand-held; hence device with compressed size is a challenging task for IC manufacturer. The key challenge for compact device size of such systems, directly that it affects power usage and portability. These are broadly used in homes and offices to offer multi-standard receivers [3]. CMOS technology for high frequency integrated circuits is an appropriate solution.

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In an advanced CMOS process the challenging factors for design and development of the LNA building blocks are circuit linearity, decreasing supply voltage, low NF, and high gain. The receivers are broadly utilized in RF radio frequency systems.

In reality, a receiver is capable to accept every signal from low to high frequency, and the received signals are typically very noisy and weak [1]. So, this *LNA* is desired to strengthen the received signals and transfer to the subsequent stages. For the design of LNA, noise figure is one of the important key parameter, as it shows the entire system noise presentation in a receiver, and also more power gain [1].

Here, the easy way to design a differential LNA with cascode-stage to amplify weak and noisy signals for wireless receivers [4]. However, this approach requires increases the complication of the receiver, and bulky chip area [3]. The substitute technique employs the switched inductors, capacitors at the matching of input and output. This switching technique can't offer an appropriate match for all bands of frequency and it also restrictions to receive at a time one frequency band only [2,4,9]. But the cascode differential LNA design is able to offer an improved trade-off between power gain, & noise figure [3].

This paper is prearranged as follows. Section-2 covers the importance of low noise amplifier. Section-3 explains the cascode and differential amplifier techniques of LNA topologies and its fundamental theoretical calculations for design parameters. Section-4 is the description about the circuit design and analysis. The simulation plots are exposed in Section-5 and finally, Section-6 concludes this paper.

II. LOW-NOISE AMPLIFIER

A low-noise amplifier is the foremost stage of the receiver front-end and it is used to amplify the signal which is coming from the antenna terminals whilst introducing a smaller amount of noise by the same LNA [5]. Actually the LNA consist of five different parts, which are appropriate topologies, input impedance matching network, inductive source degeneration circuit, biasing circuit, and output impedance matching network.

The universal topology of any LNA circuit can be consists of three stages. It has the input matching block, core amplifier and finally output matching block. To get better design performance the input/output matching network can try to maintain similarity. It is measured from s-parameters i.e. input/output reflection co-efficient. Generally, these values should be in the range of less than or equal to -10dBm.

SOFT-STALLING CONTROL FOR SMALL WIND TURBINE POWER REGULATION

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Abstract
Wind energy is currently the fastest-growing energy source in the world, with a concurrent growth in demand. This project proposes a new strategy for grid-connected small wind turbines operating in high wind region by soft-stalling control strategy. The proposed method is driven by the rated current/torque limits of the electrical machine and/or the power converter, instead of the rated power of the connected load, which is the limiting factor in other methods. The developed strategy additionally deals with the problem of system start-up preventing the generator from accelerating to an uncontrollable operating point under a high wind speed situation. By using the voltage and currents sensors system start up can be avoided preventing the generator to an uncontrollable high wind speed situation. This method is applied to a small wind turbine system consisting of a permanent magnet synchronous generator (PMSG) and a simple power converter topology.

Keywords: PMSG, BoostConverter, H-Bridge Converter

1.0Introduction

The most widely used converter topology on the generator side for low power grid connected system consist of a Permanent synchronous micro generator, diode rectifier, boost converter, H-bridge inverter, line filter. To interface the generating system with the grid either or a H-bridge converter or the three phase inverter can be used. A special back to back inverter was proposed in order to reduce the number of power components in the passive rectifier plus boost converter plus H-bridge configuration. However the special back to back inverters are more complex control and the need of shaft position sensor. A sensor less controller was developed in order the use of shaft position sensor using such topology.

The controlling and protection under wind high speed regions are one of the biggest challenges in the operation. The turbine must be operated below the maximum efficiency point to prevent damage when the wind power exceeds is turbine power rating. Some breaking mechanism must be enabled if the wind power excess is too high furling control, stall control; pitch control, mechanical brakes and electrical brakes are the proposed methods in order to control the turbine power rating exceeding its maximum rate the electric brake using a lobar to shortcut the generator windings to produce a high braking torque is preferred option for small wind turbine due to its reduced cost & simplicity. However, this method has some drawbacks including a fissional torque in the wind turbine shaft of large current in the generator windings, which can eventually damage the system.

Soft stall methods operate the turbine at a non optimal tip speed ratio in order to decrease the extracted power from the wind. The proposed soft stall methods considered in the high wind speed condition where there is a mismatch between the maximum wind power that can be extracted with the turbine and the load demand. Therefore, the TSR is reduced to make the extracted power equal to load power. The Permanent magnetic synchronous generator if the power converted can produced a torque to contract the torque produced by wind.

2.0 Block Diagram& Description

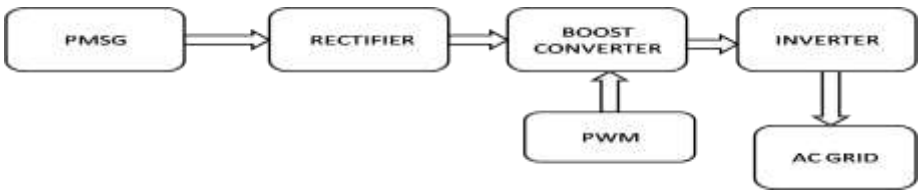

Fig.2.a Block diagram for wind Turbine Control

It deals with the problem of system start up during a high wind speed situation. The soft stall method uses current & voltage sensors only which are typically available in low cost micro wing turbines, a cost effective solution. The soft control method has been implemented on a 2.5kw wind generator system.

Online Traffic Prediction with Big Data: A Naive Bayesian Classification

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***Abstract*— Traffic information can be derived from various sources for developing traffic prediction techniques, which in turn improve navigation of the route, traffic regulation and urban area planning. One key challenge for predicting traffic is how much to depend on prediction models that are constructed using historical data in real time traffic situations which may differ from that of the historical data and change over time. Existing approach is used for predicting traffic models that are learned offline or they are retrained after long periods and thus they cannot adapt to dynamically changing traffic situations. To overcome this problem, online traffic prediction with Big Data: A Naive Bayesian Classification algorithm has been proposed. From the current traffic situations in real time, future traffic can be predicted by matching the current traffic situations to the most effective prediction model trained using historical data. When real time traffic data arrives the traffic context space is adaptively partitioned using machine learning algorithm in order to efficiently estimate the effectiveness of each base predictor in different situations. The proposed approach also obtains and proves both short term and long term performance for online algorithm. The proposed algorithm also works effectively in scenarios like, when the true labels are missing or become available with delay.**

Keywords*— *Naïve Bayesian classification; Machine Learning; Traffic Prediction.

I. INTRODUCTION

Traffic has been growing in major cities around the world. Traffic congestion causes tremendous loss in terms of both time and energy. Traffic congestion is caused when the traffic demand approaches or exceeds the available capacity of the traffic system. Traffic prediction should take place in order to avoid traffic congestion. Several traffic prediction techniques have been used. The majority of these techniques focus on predicting traffic in typical conditions like peak hours, weather conditions, etc. Various machine learning techniques are available. Naive Bayesian classification is chosen as one of the machine learning techniques. In this work, Naive Bayesian classification has been applied to predict the typical traffic conditions and the impact of accidents.

Traffic prediction can be made from the current traffic situation in real time data that is constructed using historical data and predicts the future traffic by matching the current traffic situation to the most effective prediction model. First, a finite number of traffic predictors are constructed for the same number of representative traffic conditions using historical data. Using a minimum number of base predictors, it reduces the training and maintenance costs. The most effective predictor can be selected that best suits the current traffic situation in real time.

Many features can be used to identify a traffic situation called context. The feature content include location, time of day, weather, number of lanes, area type etc., .The context space is a multidimensional space with D dimensions, where D is the number of feature content. Since the context space can be very large, learning the most effective predictor in each individual context using reward estimates becomes extremely slow.

The proposed approach also obtains and proves both long term and short term performance guarantees for online algorithm. Not only it will converge over time to the optimal predictor for each possible traffic situation but also provides a bound for the speed of convergence of the algorithm to the optimal predictor. Various machine learning techniques have been applied to impact of an accident. . The majority of these techniques are predicting traffic in typical conditions and more recently in the presence of accidents. Online ensemble learning is represented by prediction with expert advice and weight update. This technique assigns weights to experts and makes a final prediction by combining the expert's predictions according to the weights. The weights which are updated may enable regret bounds to be derived.

When establishing the regret bound of the proposed algorithm, the adapted techniques from multi armed bandit problems. Since techniques used for ensemble learning problems, such as weighted majority type algorithms, lead to weak regret bounds for the considered contextual learning scenario. In these settings, the prediction action does not have an explicit impact on reward realization and the learner can observe the realized rewards of all predictors. However, this would lead to weak regret bounds. To get strong regret bounds of the reward estimates in some slots than in others and use the different ways to bound the learning loss in different slots.

II. LITERATURE SURVEY

B.Pan, U.Demiryurek, and C.Shahabi and C.Gupta [1] have proposed "Forecasting spatiotemporal impact of traffic incidents on road networks". They proposed to use two real world transportation datasets such as, incident data and traffic data. Incident on traffic include any non-recurring events on road networks, including accidents, weather hazard, road construction or work zone closures. By analyzing archived data, incidents can be classified based on their features. The incidents are analyzed by archived traffic data at the time and location of the incidents. This info in turn can help drivers to effectively avoid impacted areas in real-time. To be useful for such real-time navigation application, and unlike current approaches and model the impact as a quantitative time varying spatial spanking addition to utilizing incident features improve classification approach further by analyzing traffic density around the incident area and the initial behavior of the incident.

B.Stephen, F.David, and W.S.Travis [2] have proposed, "Naive Bayesian classifier for incident duration prediction". They have proposed to choose the appropriate response to an incident, it is important to predict the potential impact of an incident, including its duration, as accurately as possible. They have developed a probabilistic model based on a naïve Bayesian classifier to assist with prediction of incident duration. Two significant advantages of this model are its

Energy Efficiency Improvement using Combined Deep Learning Neutral Network and Binary cuckoo search by Thermo economic analysis in Shrouded Wind Turbine

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Abstract

Thermo-economics analysis of energy-related systems is a combination of thermodynamic principles and its impact on economy. It primarily determines the difference between actual and expected performance based on exergy and the associated cost loss. This analysis can be beneficial for the construction of a new plant and for analyzing the existing system to enhance the performance. Various optimization techniques are used for this analysis for predicting the thermoeconomic potential and possible efficiency improvement in real systems. In this work, a shrouded type wind energy system is analyzed using the combination of neural network and optimization technique. The weight values of Deep learning neural network are converted into binary values using binary cuckoo search for the optimization. The results are compared with the previous experimental work and advantage of this technique is proved based on the sensible results obtained. Also the technique is compared with other optimization techniques. Henceforth this method can be used for predicting thermoeconomic of any energy systems with lest error.

Keywords: Shrouded wind turbine, Energy system optimization, DLNN, BCS, Thermoeconomic analysis, RBM.
DOI Number:10.14704/nq.2022.20.8.NQ44351 **NeuroQuantology 2022; 20(8): 3207-3223**

1. Introduction

Fourteen percentage of the world energy demand is met by renewable energy sources like biomass, hydropower, geothermal, solar, wind etc [5]. Thus improving the utilization of primary energy sources, as well as efficiency improvement in energy production and after conversion energy savings (demand side) are the critical factors for sustainable development [4]. The conventional horizontal axis wind turbine extracts the energy from wind. The maximum possible wind energy

CHINA COMMUNICATIONS

Stochastic Ranking improved Teaching-Learning and Adaptive Grasshopper Optimization Algorithm-based Clustering Scheme for augmenting Network Lifetime in WSNs

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Abstract: In Wireless Sensor Networks (WSNs), Clustering process is widely utilized for increasing the lifespan with sustained energy stability during data transmission. Several clustering protocols were devised for extending network lifetime, but most of them failed in handling the problem of fixed clustering, static rounds, and inadequate Cluster Head (CH) selection criteria which consumes more energy. In this paper, Stochastic Ranking Improved Teaching-Learning and Adaptive Grasshopper Optimization Algorithm (SRITL-AGOA)-based Clustering Scheme for energy stabilization and extending network lifespan. This SRITL-AGOA selected CH depending on the weightage of factors such as node mobility degree, neighbour's density distance to sink, single-hop or multi-hop communication and Residual Energy (RE) that directly influences the energy consumption of sensor nodes. In specific, Grasshopper Optimization Algorithm (GOA) is improved through tangent-based nonlinear strategy for enhancing the ability of global optimization. On the other hand, stochastic ranking and violation constraint handling strategies are embedded into Teaching-Learning-based Optimization Algorithm (TLOA) for improving its exploitation tendencies. Then, SR and VCH improved TLOA is embedded into the exploitation phase of AGOA for selecting better CH by maintaining better balance amid exploration and exploitation. Simulation results confirmed that the proposed SRITL-AGOA improved throughput by 21.86%, network stability by 18.94%, load balancing by 16.14% with minimized energy depletion by 19.21%, compared to the competitive CH selection approaches.

Keywords: Wireless Sensor Networks (WSNs), Cluster Head (CH), Teaching-Learning-based Optimization Algorithm (TLOA), Adaptive Grasshopper Optimization Algorithm (AGOA), Network Lifetime.

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I. INTRODUCTION

WSNs are employed for distribution as well as cooperative event sensing that are of great interest in every field of science[1]. As the nodes are battery powered, improving the lifetime of a network is the foremost goal in WSN. The key challenges include coverage area, network lifespan and aggregation. As sensor nodes are energy stringent and are small, the battery cannot be replaced[2]. They cooperate to collect, communicate, and send the detected data to BS. Data communication involves energy depletion[3]. For effective functioning of the network, data aggregation as well as communication of data to BS plays a significant role and should be efficient in adapting to the situation under which it is employed[4]. Clustering enables management of energy in WSNs. It is an effective scheme for energy-

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Autonomous detection of malevolent nodes using secure heterogeneous cluster protocol

C. Kotteeswaran [a,*], Indrajit Patra [b], Regonda Nagaraju [c], D. Sungeetha [d], Bapayya Naidu Kommula [e], Yousef Methkal Abd Algani [f,g], S. Murugavalli [h], B. Kiran Bala [i]

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ARTICLE INFO

Keywords:
Security
Malicious nodes
Wireless Sensor Networks
Autonomous detection

ABSTRACT

Surfing of internet by the users has been more vital from the inception of the network. However, the number of users using the internet is increasing gradually. As a result, it has also become a serious threat to users who are using the internet because due to the false information and security threat by malicious users. In this context, it is vital to provide the trusted information to the users. In order to achieve the same, the Heterogeneous Cluster-Based Secure Protocol (HCBSP) can be used to detect the malicious nodes and thereby, to provide a secure path for data transmission. Initially, the nodes are deployed, then clusters are formed and subsequently, the data are transmitted between cluster and base. The HCBSP operates over the cluster for effective attack detection and secures the data transmission in wireless network. This performance is evaluated and compared with the existing methods. Here, the result shows that the HCBSP is the most effective platform in detecting the malicious nodes with high accuracy rate.

1. Introduction

Wireless Sensor Network [1] is established in a wide range of wireless sensors in an ad-hoc way that consists of many nodes and base stations which are used for monitoring the physical and environmental conditions of the system [2]. It is evolutionary and can host new nodes or peripherals at any time. It is adaptable and accessible for physical scores. All WSN nodes [3] are accessible via a centrally located monitoring system. As it is inherently wireless, it needs neither cables nor wires. WSN is a small system of nodes that senses, captures, monitors, processes [4], and controls the situations like data or signals around an application to support the relationship between a computer and the immediate surroundings. These nodes can transfer the data from one node to another without any

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J Mater Sci: Mater Electron

Excellent performance of electrical and supercapacitor application of cadmium cobalt ferrite nanoparticles synthesized by chemical co-precipitation technique

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ABSTRACT

This manuscript describes the $Cd_xCo_{1-x}Fe_2O_4$ nanoparticles that have synthesized using a chemical co-precipitation technique. The preparation of as-synthesized products was annealed at 600, 700, and 800 °C for 3 h. The structural, electrical, and electrochemical properties of the $Cd_xCo_{1-x}Fe_2O_4$ nanoparticles were also discussed. The TG–DTA analysis of the as-prepared $Cd_{0.3}Co_{0.7}Fe_2O_4$ NPs sample is examined. XRD studies reveal the cubical spinel shape of the $Cd_xCo_{1-x}Fe_2O_4$ nanoparticles. The functional group assignment of FTIR results shows the two absorption bands observed at 585 and 434 cm^{-1}, which are connected with the vibration of stretching mode in the tetrahedral and octahedral sites. The surface morphology of NPs $Cd_{0.3}Co_{0.7}Fe_2O_4$ has been studied by FESEM and HRTEM, which specify that the nanoparticles were found in a crystalline and spherical structure. The EDAX analysis confirms the elementary composition, namely the presence of Cd, Co, Fe, and O. The electrical measurements were confirmed by dielectric constant (ε'), dielectric loss (tan δ), and AC conductivity with frequency in the range 50 Hz to 5 MHz and revealed that the dielectric constant and dielectric loss decrease with the increase of frequency, representing a decrease in polarization. The higher Ac conductivity value of 5.5×10^{-4} Sm^{-1} was observed for $Cd_{0.3}Co_{0.7}Fe_2O_4$ nanoparticles indicating the semi-conductive nature of the prepared samples. The CV analysis for the sample $Cd_{0.3}Co_{0.7}Fe_2O_4$ ($x = 0.3$) annealed at 600 °C reveals the highest Cs value of 395 Fg^{-1} was observed in the scan rate of 2 mVs^{-1} and concluded that it was suitable for supercapacitor application.

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MDPI

Article

Magnetic Application of Gadolinium Orthoferrite Nanoparticles Synthesized by Sol–Gel Auto-Combustion Method

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† These authors contributed equally to this work.

Abstract: In this manuscript, we present the synthesis of gadolinium orthoferrite nanoparticles using the sol–gel auto-combustion technique. The obtained gadolinium orthoferrite nanoparticles were annealed at various temperatures, such as 800 °C, 900 °C, 1000 °C, and 1100 °C. The synthesized materials were analyzed by various instrumental characterizations. The vibrational characteristics of the synthesized samples were verified by FTIR. The surface morphology of the gadolinium orthoferrite nanoparticles was analyzed by FE-SEM and HR-TEM, revealing their spherical structural morphology and uniform particle structure. The presence of the elemental features was analyzed in the gadolinium orthoferrite nanoparticles by EDAX. The surface analysis of the core ranges of the XPS-recorded spectra were obtained for the elemental states of the Gd, Fe, and O factors in the samples, and it additionally characterized the different levels of oxidative states by fitting the levels of the high-resolution parameters of Gd 4d, Fe 2p, and O 1s. The magnetic properties of the samples were investigated by VSM. The measurement of the magnetic parameters revealed that gadolinium orthoferrite nanoparticles exhibit a ferromagnetic nature.

Keywords: $GdFeO_3$; Sol–Gel auto-combustion method; synthesis; characterization

Citation: Guganathan, L.; Rajeevgandhi, C.; Sathiyamurthy, K.; Thirupathi, K.; Santhamoorthy, M.; Chinnasamy, E.; Raorane, C.J.; Raj, V.; Kim, S.-C.; Anand, P. Magnetic Application of Gadolinium Orthoferrite Nanoparticles Synthesized by Sol–Gel Auto-Combustion Method. *Gels* **2022**, *8*, 688. https://doi.org/10.3390/gels8110688

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1. Introduction

Perovskite-type materials have been emerging in importance in recent years due to their extensive applications in different technologies. Perovskite materials' photochromic behavior might open up applications in consumer products and electronic devices. There is visible photoluminescence peak in lead-halide perovskite materials under a two-photon absorption process while tuning the excitation wavelength. Recently, several lead-halide perovskites have been demonstrated to be functional materials with hydrochronic, thermochromic, and photochromic properties for anticounterfeiting applications [1–3]. $GdFeO_3$ is one of the most vital types of lanthanide metal-oxide perovskites ABO_3 (A = La, Sm, Eu, Gd). The best perovskite has a cubic crystal structure, composed of a 3D shape of corner-sharing BO_6 octahedral B-sites [4]. Orthoferrite materials have more properties, including optical, electrical, and magnetic ones; therefore, they are technologically and scientifically significant [5]. RE orthoferrites' ($ReFeO_3$) crystals have an orthorhombic, distorted perovskite-type belonging to Pbnm, with the space group D162h. $ReFeO_3$ materials exhibit interesting physical and chemical properties due to their ionic and electronic defects [6]. The ionic radius of Gd^{3+} is 0.093 nm, which is superior to that of Fe^{3+}, which is 0.067 nm, and as a result, the quantity of Fe^{3+} ions replaced by Gd^{3+} ions is confined, and

Relay node selection with energy efficient routing using hidden Markov model in wireless sensor networks

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Abstract: Wireless sensor based routing is a challenging issue in the context of convergecast routing. In order to counter these issues the relay nodes share the burden of forwarding in multi-hop routing. In this research to counter the effect energy efficient relay node routing (ERNR) algorithm is proposed. ERNR relay nodes are found among the group of member nodes based on the residual energy of the node using voronoi cells. The selected relay nodes with two hop neighbours form virtual subsets of cluster. The cluster head is then used to allocate the TDMA time slots to its neighbours based on the Hidden Markov prediction model. The proposed technique is evaluated with existing relay node based routing schemes and the performance of the ERNR algorithm yields significant improvements while considering energy related metrics.

Keywords: WSN; routing; Markov model; relay node, energy consumption.

Reference to this paper should be made as follows: Sahayaraj, J.M. and Ganaseakar, J.M. (xxxx) 'Relay node selection with energy efficient routing using hidden Markov model in wireless sensor networks', *Int. J. Networking and Virtual Organisations*, Vol. X, No. Y, pp.000–000.

Biographical notes: J. Martin Sahayaraj is currently working as an Assistant Professor in the Department of Electronics and Communication Engineering in Kurinji College of Engineering and Technology. He has considerable teaching and research experience. His area of interest is wireless sensor networks.

J.M. Ganaseakar is a Professor in the Department of Computer Science Engineering in Venkateswara College Engineering, Tamilnadu. He completed his BE in PSNA College of Engineering and Technology in 1993, ME in Computer science Engineering in College of Engineering, Guindy in 2001and PhD in College of Engineering, Guindy in 2010. His area of interest is cloud computing and wireless sensor networks.

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RESEARCH & DEVELOPMENT CELL

Organizes

Webinar on How to Start a Career in Machine learning and Artificial Intelligence

INSTITUTION'S INNOVATION COUNCIL
(Ministry of HRD Initiative)

Guest Speaker

Mr. Anil Sharma

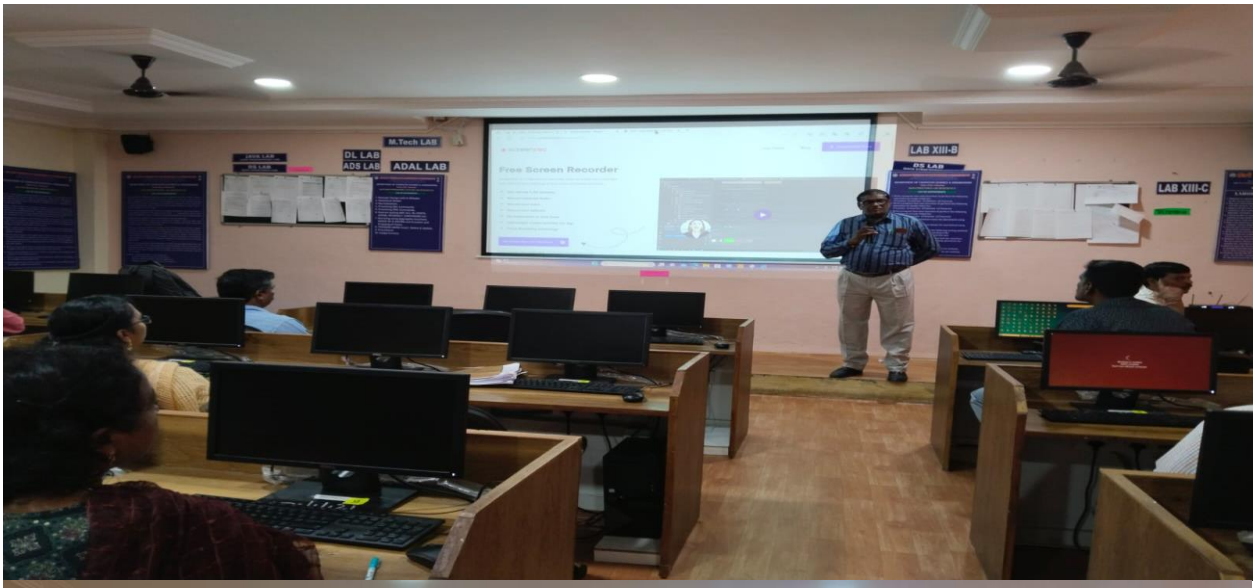
IIIT, Delhi

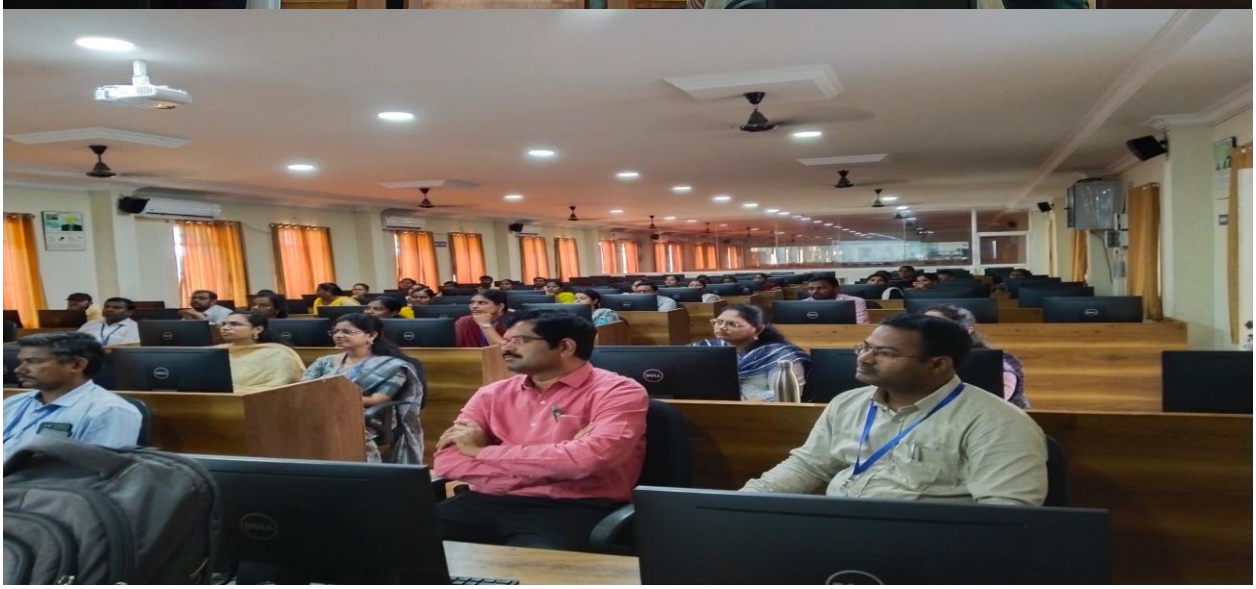
09.03.2021 @6.30 PM

Convener
Prof.K.Ashok Babu

Co-ordinators
Dr.S.R.Mukunthan, Prof./CSE
Dr.P.Mukunthan, Prof./ECE
Dr.P.Ramesh, Prof./ECE

Dr.G.Suresh
Principal,SICET





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Title	**How to Start a Career in Machine learning and Artificial Intelligence**		
Organized by	**R&D CELL**		
Academic Year	2020-2021	Program Type	Webinar
Start Date	09.03.2021 (One Day) (6.30 pm TO 7.30 pm)	End Date	--
Program Theme	To aware and enlighten the Career Opportunities in Machine learning and Artificial Intelligence for young engineering students		
No. of Students Participated	580	No. of Faculty Participated	40
No. of External Participants	-	Mode of Session	Online
Objectives	➢ To enlighten the Career Guidance and Opportunities in Machine learning and Artificial Intelligence among students and faculties. ➢ To develop R&D skills among students and faculties. ➢ To strengthen and motivate students through a supportive environment that helps them to establish their ideas and develop their concepts into publications and proposals. ➢ To build a vibrant R&D ecosystem, by establishing a network between academia, financial institutions, industries, and other institutes.		
Benefits in terms of Learning/Skill/Knowledge Obtained	➢ Inculcate R&D Opportunities in Machine learning and Artificial Intelligence among students and faculties ➢ The Cell provides a platform to ideas which have great potential to become successful publications. These should solve the existing Social Issues. ➢ Main benefit of the cell is to promote Project based learning and helping selected ideas to lead towards publications and proposals.		
Expert Member	**Mr. Anil Sharma**, **IIIT Delhi**.		
Video URL	Event recorded video available for further promotion of activities.		
Description	R & D Cell facilitates and encourages research culture among the faculty and students. Its prime role is to create contacts with the real world and promote research through a range of publications and Proposals. It takes upon the responsibility of creating a work place to attract the best talent and strives continuously in pooling of skills and resources, creating strategy and overcoming limitations.		

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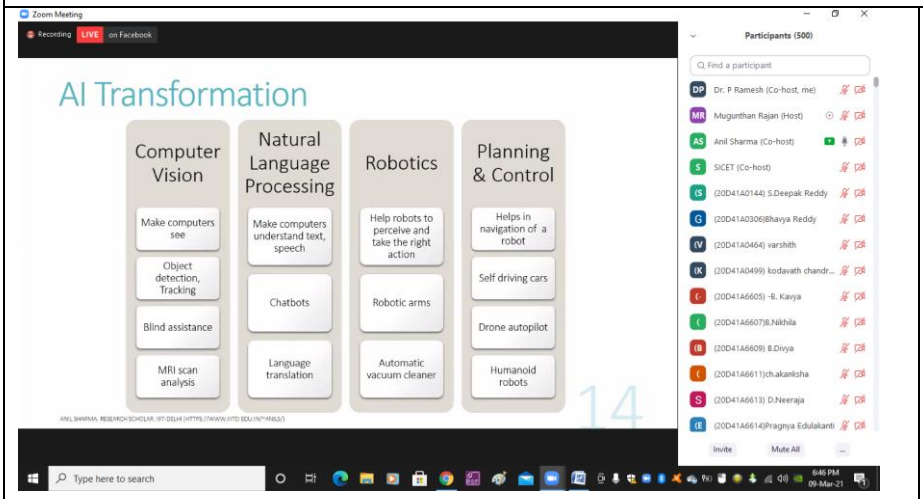
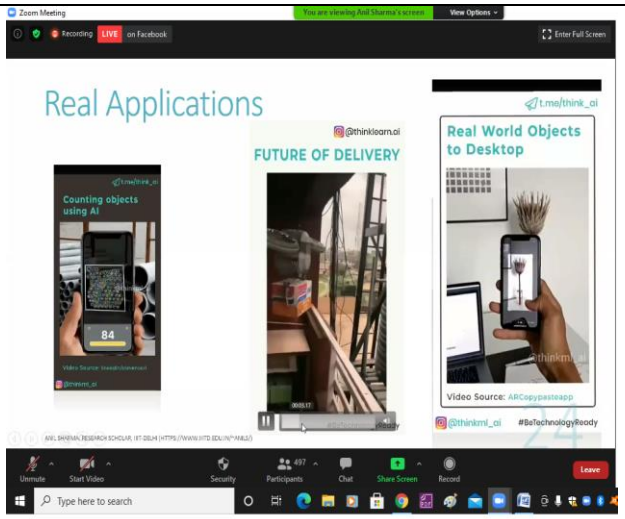
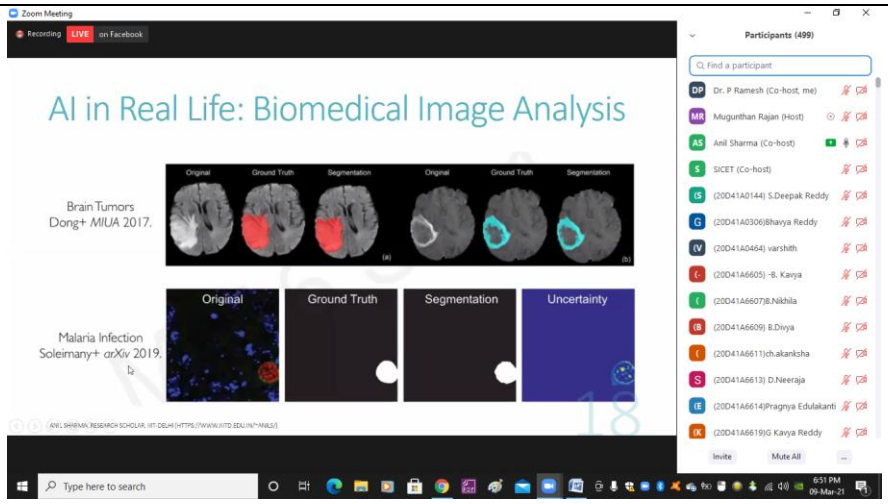
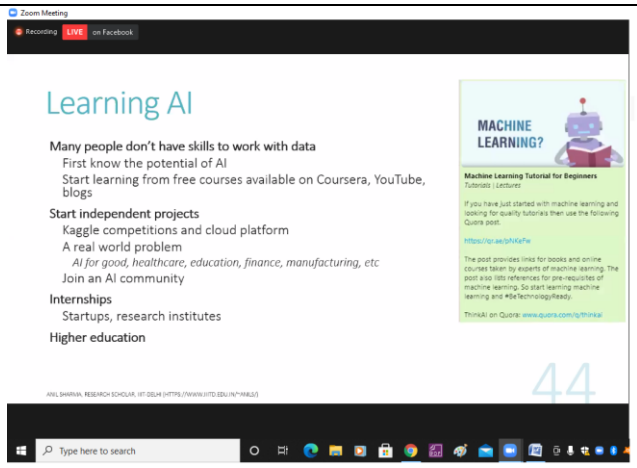
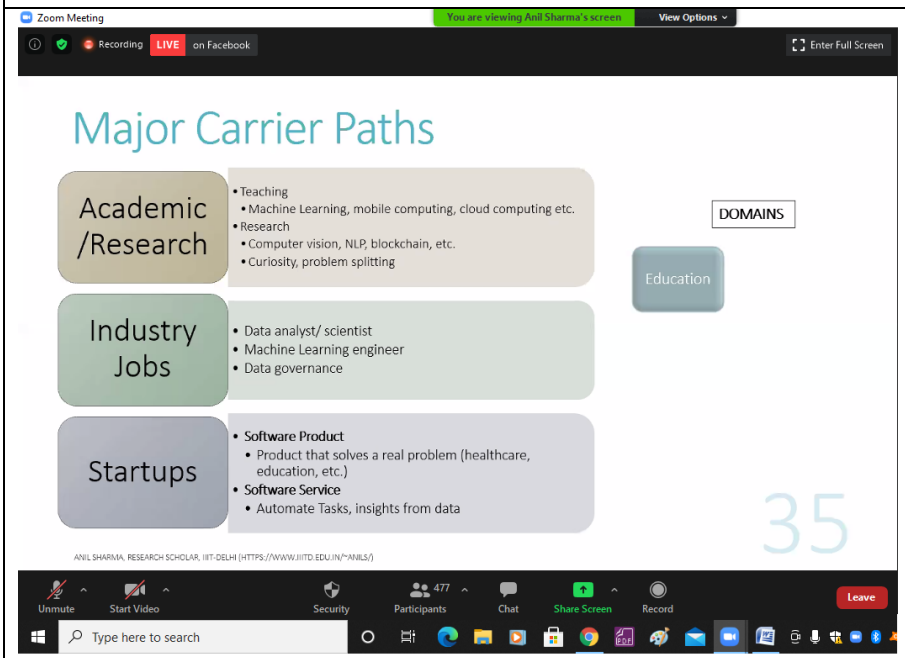
PHOTO GALLERY

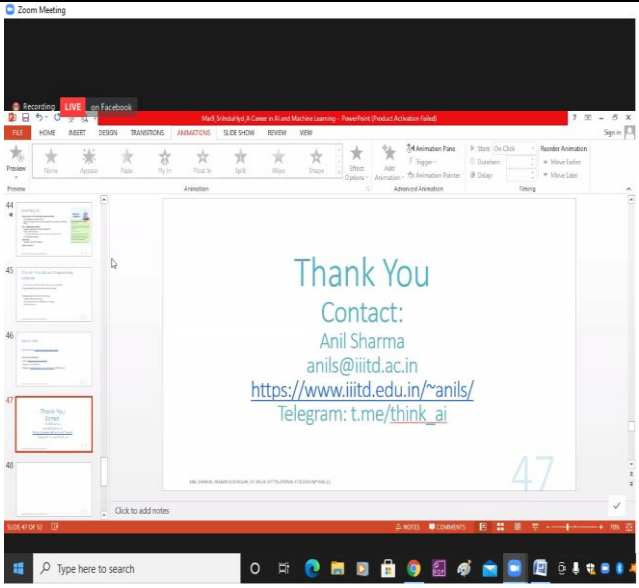












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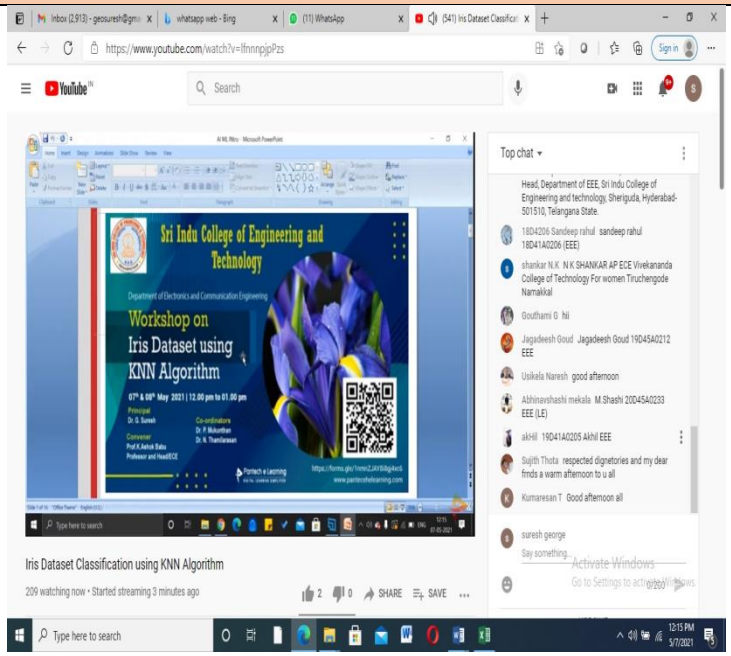
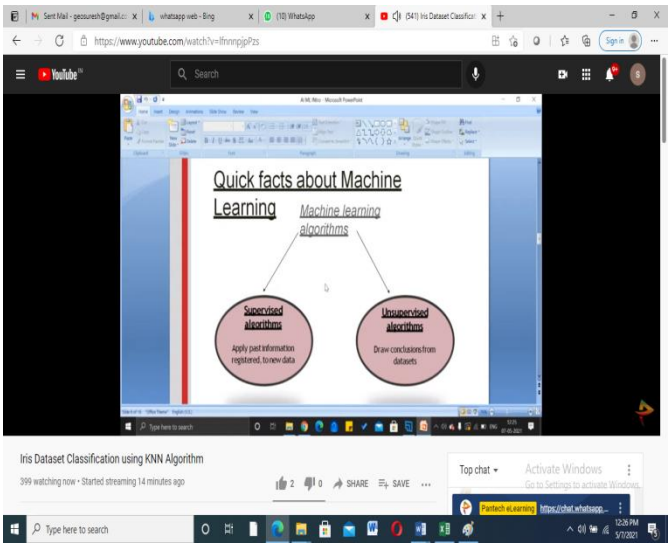
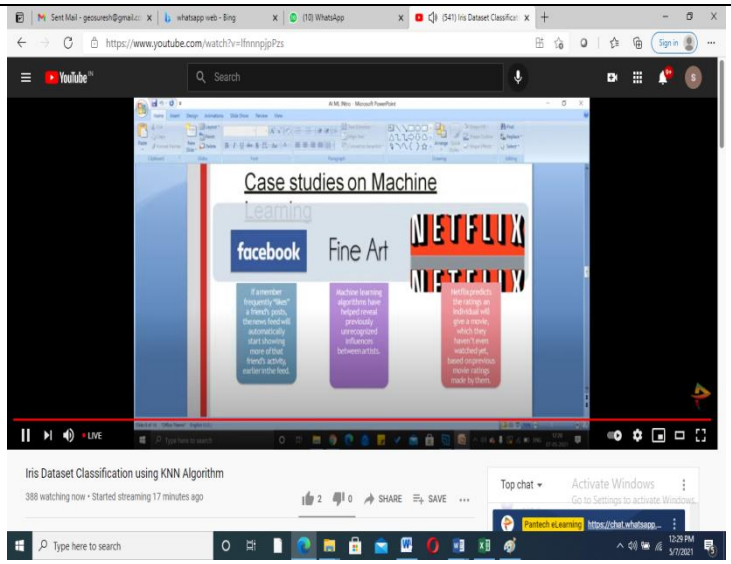
NAAC NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

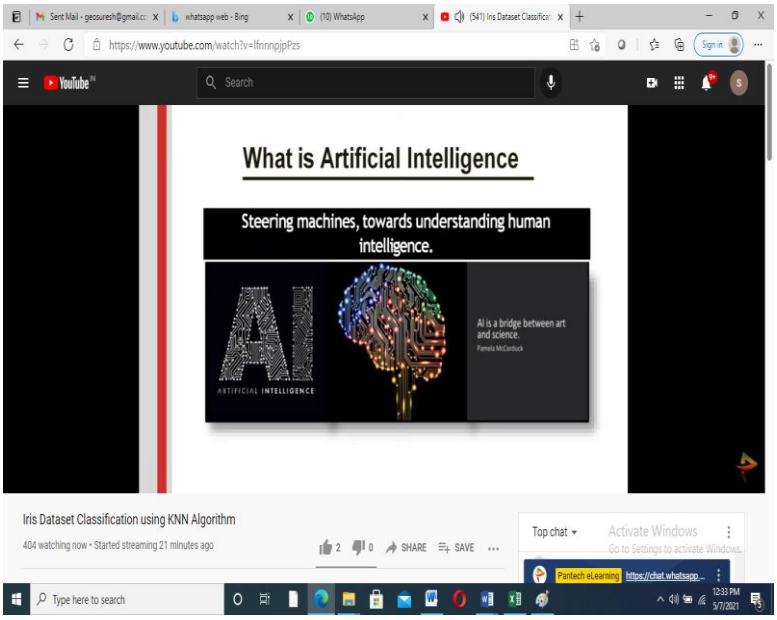
Title	**Workshop on Iris Dataset using KNN Algorithm**		
Organized by	Department of ECE		
Academic Year	2020-2021	Program Type	Workshop
Start Date	7.05.2021	End Date	8.05.2021
Program Theme	The workshop is to make the students able to do the real time project work by Iris Dataset Classification using KNN algorithm		
No. of Students Participated	703	No. of Faculty Participated	100
No. of External Participants	200	Mode of Session	ONLINE
Objective	The sole objective of the workshop is to make the students able to understand the various real-life situations by applying KNN algorithms and to analyze the key features on Iris datasets.		
Benefits in terms of Learning/Skill/Knowledge Obtained	On successful completion of the course the students will be able to: 1. Understand the basic concepts of Iris Dataset 2. Understand the basic concepts of KNN Algorithm 3. Acquire satisfactory competency in use of hands-on training programme 4. Exploring the Project Knowledge		
Expert Member	Mr.N.Srinivasan Project Leader, PANTECH e-Learning , Chennai.		
Video URL	https://bit.ly/3v3SUNQ		
Description	The primary goal of Workshop is to promote research and developmental activities in recent trends in communication, Computing, Internet of Things and Artificial Intelligence. It aims to bring together leading academic scientists, students and faculty to interchange and share their experiences, research results, real time issues and challenges. It provides opportunity for the students to present and discuss the practical challenges encountered and solutions adopted in these fields. It also provides the information regarding on the skills required to build real-life intelligent applications along with its social and economic impact using KNN algorithm. Attending this remarkable event will help participants sharpen their skills and refine their ideas as well as approaches by meeting with their peers and counterparts. Participants can build new networks to meet different personalities and learn about the emerging technologies to meet out the industry requirements and societal needs.		

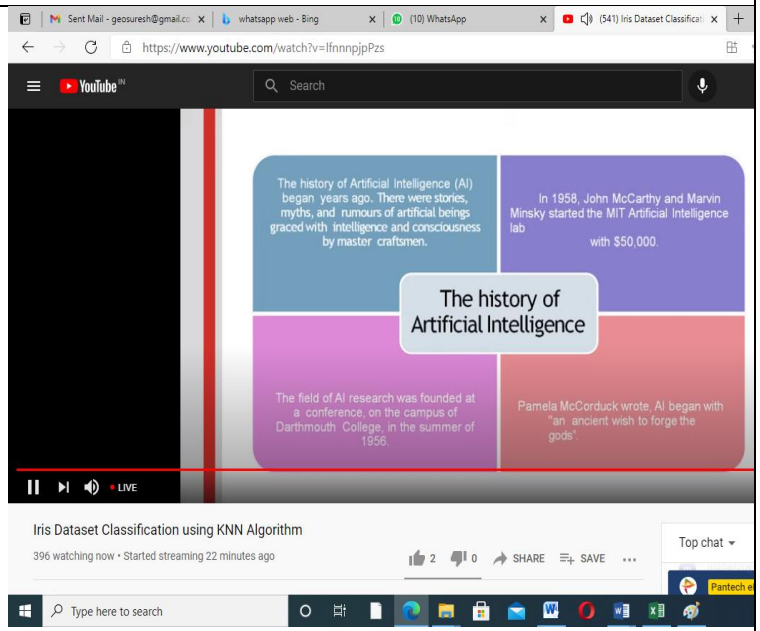
PHOTO GALARY











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A One Day FDP on

"Research Aspects: How to Read and Write a Research Paper"

Organized By:

Department of CSE & Allied Branches

in association with R&D Cell

Resource Persons :

Session I - Dr. GNR Prasad, Professor, Dept. of Informatics, CBIT.

Session II- Dr. S. Kishore Verma , Associate Professor / CSE.

Session III- Dr. R. Sugumar, Associate Professor / Data Science.

14th August, 2023

Venue : MAIN BLOCK, LAB – 13 (DEPT. OF CSE)

Session I : (10.00 am to 11.00 am) Session II : (11.00am to 12.40pm) Session III: (1.40pm to 4.00pm)

Objective of the workshop

1. To read research paper in proper sequence
2. To know the contents of a research paper
3. To know the types of research papers
4. To rightly locate the queries in a research paper
5. To compare contrast the works in the literature

SCAN RIGHT NOW !

Areas of coverage:

1. What type of papers are we discussing?
2. 3+ stage approach to reading a research paper
3. Mini Activity 1
4. Mini Activity 1 Discussion
5. Mini Activity 2
6. Mini Activity 2 Discussion
7. Frequently Asked Questions

Tips on Literature Review

1. What is a literature review
2. Why literature review
3. When should I do the literature review
4. What type of papers should I look for
5. Where should I look for papers?
6. What information should I track
7. How to report literature search

Free Registration

Link for Registration : https://forms.gle/MNG7uGkncBZZorzd9

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Professor, Dean- CSE
Prof. K. Ashok Babu
Professor - ECE

Coordinator
Dr. T Charan Singh
Associate Professor, HOD-CSE
Dept of CSE

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Prof.G.Uma Maheswari, HOD-AI&ML/CS
Prof.Suresh Ballala, I/C HOD-DS

Principal
Dr. G Suresh

Workshop on Design Thinking, Critical thinking and Innovation Design

20.01.2023

PRINCIPAL
Sri Indu College of Engineering and Technology
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Ibrahimpatnam(M), R.R.Dist.

Session on Achieving Problem-Solution Fit & Product-Market Fit

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SRI INDU COLLEGE OF ENG. & TECH.
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Organized By: Department of CSE & Allied Branches

in association with **R&D Cell**

INSTITUTION'S INNOVATION COUNCIL

Guest lecture On

Network Forensics Investigation Using Data Science

By

Dr.Rajesh Pasupuleti

Data Scientist in System Soft Technology, California , USA

Date: 02.03.2023 Time: 10:00AM

Venue: Lab 12,13 and CSE Labs

For Registrations:

https://forms.gle/AfhuCoPXNbHvS9r8A

Convener	Co-ordinators	Co-Coordinator	Principal
Dr.K.S. Sadasiva Rao Professor & Dean CSE & Allied Branches	Dr. T. Charan Singh, HOD-CSE Dr. K.Sampath, HOD-IoT Prof. B. Surekha, HOD-IT/CSIT	Mr M. Rajkumar Asst Prof, IoT	Dr.G.Suresh

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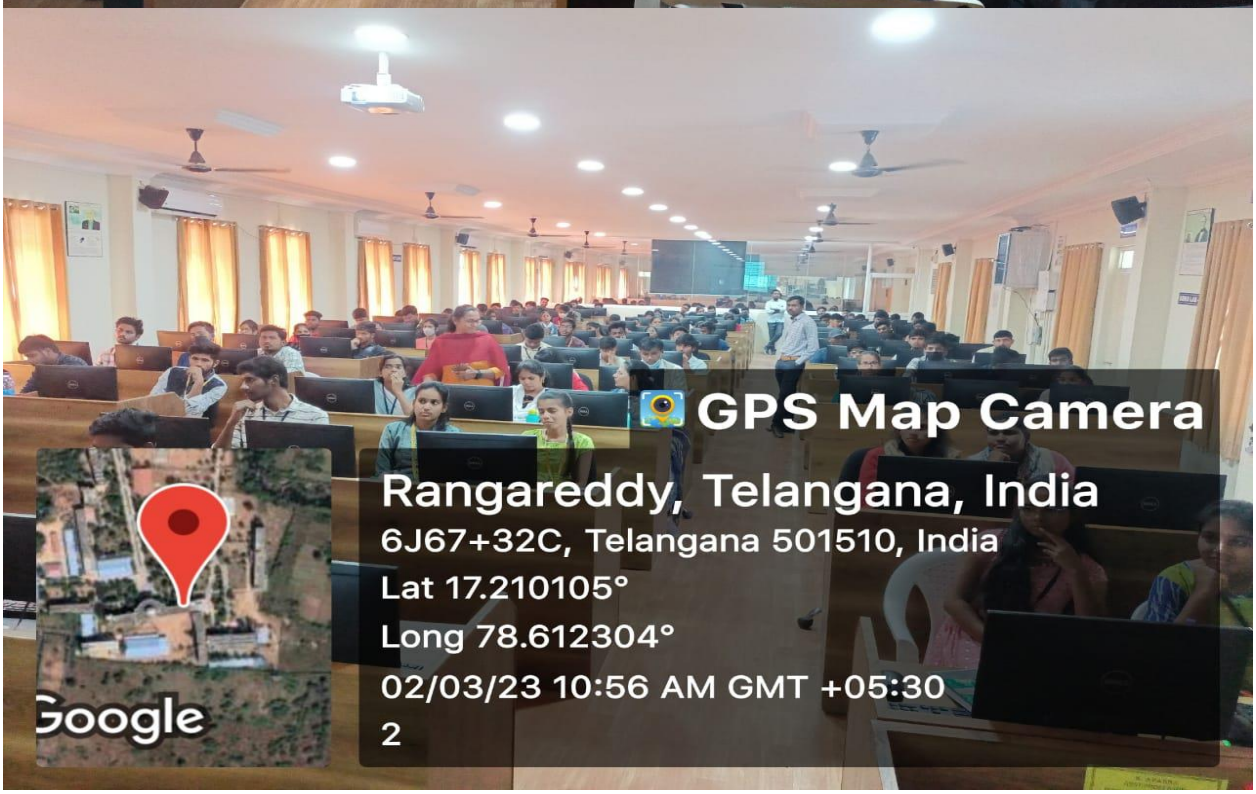

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