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ASSERTION
NEWS LETTER

Department of
ARTIFICIAL INTELLIGENCE
AND DATA SCIENCE (AI&DS)

ASSERTION
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ASSERTION NEWSLETTER

ABOUT THE COLLEGE

St. Martin's Engineering College (SMEC) was established in 2002 by St. Martin's Children's Education Society. SMEC offers 10 B.Tech Courses. Such as B.Tech in CSE (240), Artificial Intelligence and Data Science (180), CSE- AI & ML (180), Computer Science and Design (60), Artificial Intelligence and Machine Learning (60), IT (180), ECE (210), EEE (30), MECHANICAL (30), CIVIL (30) with an intake of 1200 (UG) students per year . SMEC is a prestigious Autonomous (UGC-Govt of India) engineering college and first choice by aspiring students and parents. Since inception, SMEC with a motto of providing Quality Education in a highly disciplined and conducive environment with International Standards. It is a beautiful, unique & ineffable place which exudes positive energy, spiritual epiphany, sense of serendipity and produces intellectual, cultural, social giants & academic leaders.

SMEC is awarded with prestigious grade A+ only 27 colleges in India, awarded A+ grade by NAAC),), NIRF ranked, National ranking by ARIIA, 2(f) & 12(B) Recognized by UGC Act of 1956, All courses are NBA accredited, Permanently Affiliated to JNTUH, Approved by AICTE, only young college in Telangana to receive UGC-Paramarsh, ISO certified, DSIR Recognition, J-Hub certified (JNTUH), TASK certified (Govt of Telangana), Part of Institute Innovation Council (MHRD-Govt of India), Remote center of IIT Bombay, Member of CII and MSME certified Institution. Signed more than 108 MoUs with major companies' and institutions. Careers 360 Certified as AAA+; Competition Success Review Ranked in top 3; and Wikipedia Ranked 2nd in Telangana.

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ABOUT THE COLLEGE

SMEC is bestowed with the glorious Governor Award Thrice: The Engineering Educators' Award : NIRDPR Award (Govt. of India); IDF Best Partner Award; Dewang Mehta Award; TCS ION Award; CSI Award (Students Chapter); Best Innovation by Federation of Gujarat Industries. Street Cause-Most Dedicated Division. Best college award from Education Matter. Best College in sports facility and achievement by Stumagz, Telangana. National Leadership Excellence Award by ICCI. Best Engineering College by American College of Dubai, Dubai. Rs. 21.46 Lakhs received from SERB, Government of India. Consultancy project worth of Rs. 594 Crores received from GHMC – Hyderabad, Government of Telangana. Only college to receive Consultancy work worth of 150 Crores from HMWSSB, Hyderabad, Government of Telangana. Recently, Rs.25 lakhs funding was also received from AICTE. Adding feather in the cap, now SMEC students started receiving international awards and funding (4000 USD) from George Mason University Virginia, USA for our best start up. Rs.1.3 crores funding received from MSME, Govt. of India.

The remarkable achievement by the faculty members of the college is that they have published 270+ books, 12886+ research papers, 288+ patents, 108+ copyrights and 50, 000+ international certification courses. The crowning glory in academic excellence was achieved by bagging gold medals from University every year. 138 innovative products are developed by students and faculties. SMEC has a strong vision of offering world class training to the promising engineers and Management professionals. SMEC is situated in an eco-friendly environment, the college has the best infrastructure. 100% ragging free campus.

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND
DATA SCIENCE (AI&DS)

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ABOUT DEPARTMENT

Artificial Intelligence and Data Science(AI & DS) is one of the most popular and demanded courses in today's era all. It is strongly recommended by AICTE and JNTUH as one of the finest courses for the future. Data is a Precious Thing and will Last Longer than the Systems themselves. In the next 10 years. Data Science and Software will do more for Medicines than all of the Biological Sciences together. Data Science makes use of several statistical procedures. These procedures range from data transformations, data modeling, statistical operations (descriptive and inferential statistics) and machine learning modeling. Statistics is the primary asset of every Data Scientist. This course gives an opportunity to became a Data Scientist.

The current era is an era of Combination of Computer Science and Engineering, Artificial Intelligence and Data Science. Can be widely used across in all the sectors of the human community. Today, India has become a hot destination for the IT industry due to the availability of skilled and talented manpower. Because of increasing demand for AI & Data Science professionals, now Artificial Intelligence & Data Science has become the most preferred career option all over the world. Department AI & Data Science was established in the year 2021 with an intake of 180 Capacity.

Student's chapters of professional societies like TAM, CSI, & ISTE, which aim at tapping the inner abilities and showcase their talents. Various social services through NSS, CLUBS, and ISR for holistic development of our students. We encourage student to improve Self-Learning skills, by providing round the clock on-line Resources from various sources like NPTEL, MOOCS, SWAYAM, OPAC, IEEE, SPRINGER, J-GATE etc., Students will be benefited to update their skills and they become a Global leader with latest technologies. The department has collaboration with various industries offering credit courses, conducting workshops & faculty development programs, offering internships, projects and placements etc. Students are sent on industrial visits to companies and they also undergo in-plant training at top level industries as well.
The department aims at working on consultancy based projects from industry. The department strives to build a highly motivated R&D team in collaboration with some of the top research based organizations. The research could be implemented as fund based projects from government/ private industry. The department has tied up with professional bodies like IEEE, CSI, ISTE and built professional student chapters. Students are eligible to obtain successful placements at leading companies like Infosys, Wipro, Cognizant, TCS, IBM, Microsoft, Oracle, Tech Mahindra etc.

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DEPARTMENT VISSION

- **To engender globally competent professionals contributing for the sustainable growth of the industry and society through their innovative ideas in the field of Artificial Intelligence and Data Science.**

DEPARTMENT MISSION

- **M1: To impart state-of-art value based education to the students and inculcate the creative talents to achieve the excellence.**

- **M2: To collaborate with industries and research organizations to meet the pressing demands of the nation.**

- **M3: To empower the students to become leaders and trend setters in their profession**

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Message from Group Director

Dr. P. SANTOSH KUMAR PATRA

Dear all,

Greetings from St. Martin's Engineering College !

It is my pleasure to present the newsletter of Artificial Intelligence and Data Science (AI&DS) department for the academic year 2023-2024. It is a matter of great pride and satisfaction for 'St. MARTIN'S ENGINEERING COLLEGE (AUTONOMOUS)' to bring out the newsletter 'ASSERTION' released from the Department of Artificial Intelligence and Data Science. The college has made a tremendous progress in all areas such as academic, non-academics, capacity building relevant to staff and students. The college has achieved another milestone in getting NBA (National Board of Accreditation), NAAC A+, AUTONOMOUS, NIRF, ARIIA. I am confident that this issue of department newsletter will send a positive signal to the staff, students and the people who are interested in the technical education and technology based activities.

A newsletter is like a mirror which reflects the clear picture of all sorts of activities carried out by a department and develops writing skills among students in particular and teaching faculty in general. The ways we teach and the ways our students learn are unique and creative. Many critics would confirm that the college has substantially contributed to the process of national development by providing quality education and thereby enabling the students to become globally competent engineers.

I congratulate the editorial board and designer board of this newsletter, who have played wonderful roles in accomplishing the tasks in record time. I express my appreciation to Dr. B.Rajalingam, HOD/AI&DS under whose guidance this technical work has been carried out and completed within the stipulated time. We have excelled in every initiative that we undertook and we have stood together in facing the challenges in realizing the quality education. I also convey my heartfelt congratulations to staff members and students for their fruitful efforts.

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Message from Principal

Dr. M. SRINIVAS RAO

As we embark on a new year filled with promise and potential. I extend a warm welcome to each of you by our Newsletter - "Yanthrik". The Department of Mechanical Engineering's journey towards excellence in education continues. I am thrilled to witness the dedication and enthusiasm that our students, staff, and parents bring to our learning community. As we navigate the challenges and celebrate the triumphs ahead, let us remain steadfast in our commitment to fostering a nurturing and innovative environment where every individual can thrive. Let's embrace the opportunities for growth, collaboration, and success this year holds. Thank you for your unwavering support, and I look forward to another year of inspiring achievements.

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MESSAGE FROM HOD

Dr. B. Rajalingam
Associate Professor & HOD

It gives me great pleasure to congratulate students, faculty members of artificial Intelligence and Data Science (AI&DS) department for the first publication of newsletter. Newsletter is believed to be a focus of the inside activities i.e. academics, students and faculty achievement as well as innovation occurring in the department. In the era of engineering and technology this newsletter will motivate the teachers and students of sharing their creativity and new ideas with the world and will help in their overall development. St. Martin's Engineering College is one of the Top autonomous institutions in Secunderabd, helping students to realize their dreams and to become valuable assets to the nation. The Department is committed to academic excellence in the fields of Computer Science, Artificial Intelligence and Data Science, leading to develop students through academia and industry linkages. The Department of AI&DS started its journey of UG program B.Tech (AI&DS) in the year 2021 with an intake of 60 now intake was increased to 180.

The department has a team of well qualified, experienced and motivated faculty members to prepare the young minds of our students for global competition. The Department has a team of good experienced and motivated academicians whose expertise spans the range of disciplines in Computer Science stream. There is a healthy work-culture and the students are eager to coup with the changes and demands of the Industry and Society. Faculty/students take initiative for social causes at individual level and as a team under different banners/clubs of the Institute. Turning a student in to a good and proficient citizen is the prime aim of the department. On behalf of the administration, AI&DS Department welcomes the students and wish them bright journey of learning in the field of Data Science. I wish best of luck for all the team members for publication of newsletter.

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FACULTY MESSAGE

Mr. N.Mahboob Subani
Assistant Professor
Department of AI&DS

I am very glad to inform you that the department of AI&DS is publishing a News Letter for this Academic year. As a part of education. AI&DS dept. always takes the initiative to take forward steps for the improvement of knowledge among the students. The department always gives importance to the practical and hands-on practice of engineering knowledge. Also promote the students for stage performance to display their knowledge from mediums like paper presentations, project competitions, quiz competitions, workshops, exhibitions, etc. We are trying to display this news in this letter and I am very glad to play an editor's role for this purpose. Thank you.

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FACULTY ACHEIVEMENTS

THE GO GETTER TEACHER AWARD

S. No.	Name of the Faculty	Subject Name	Average %
1	Dr. B.Rajalingam Associate Professor & HOD	CSE(II A):Python Programming – 96.88%	94.04
		CSE(III A): Computer Networks – 98.46	
		AI&DS(II): Python Programming – 86.8	
2	Mr. Veer Sudheer Goud Assistant Professor	CSE(II B):Discrete Mathematics – 89.23	92.81
		CSE(III C): Complier Design – 96.97	
		ECE(IV A): Data Base Management System – 96.97	
		ECE(IV C): Data Base Management System – 93.94	
		AI&DS(II): Computer Organization and Architecture – 86.96	
3	Mr. P.Krishna Reddy Assistant Professor	CSE(III C):Principles of Programming Language – 92.31	96.18
		CSE(III C): Software Testing Methodologies – 100	
		CIVIL(IV): Artificial Intelligence – 93.93	
		ECE(IV):Database Management Systems – 98.48	

THIRST FOR KNOWLEDGE TEACHER AWARD

S. No.	Name of the Faculty	Journals
1	Dr. B.Rajalingam Associate Professor & HOD	Plant Leaf Disease Prediction: A PLDD Net-SVM Model Proposed using Internet of Thing (IOT) and Integrated Learning Model, Journal of Optoelectronics Laser.
2	Dr. B.Rajalingam Associate Professor & HOD	Canny Edge Detection Algorithm using A Modern Traffic Control System, Journal of Optoelectronics Laser.

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE (AI&DS)

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FACULTY ACHEIVEMENTS

THIRST FOR RESEARCH AWARD

S. No.	Name of the Faculty	Book Chapter & Indexing Conferences
1	Dr. B.Rajalingam Associate Professor & HOD	Multimodality Medical Images for Healthcare Disease Analysis, Medical Imaging and Health Informatics, Artificial Intelligence and Its Applications. **(Scopus Indexed)**
2	Dr. B.Rajalingam Associate Professor & HOD	An Intelligent Traffic Control System using Machine Learning Techniques, Application of Virtual Reality (VR) And Augmented (AR) in Industry 5.0, De Gruyter, Germany. **(Scopus Indexed)**
3	Dr. B.Rajalingam Associate Professor & HOD	Medical Image Fusion Transforms Techniques-Based Comparative Analysis for Brain Disease, Concepts of AI and its Application in Modern Healthcare Systems, Taylor & Francis Online. **(Scopus Indexed)**
4	Dr. B.Rajalingam Associate Professor & HOD	Importance and Applications of Artificial Intelligence and Deep Learning Techniques in the Field of Medical Health Care, Artificial Intelligence and Its Applications, Artificial Intelligence and Its Applications
5	Dr. B.Rajalingam Associate Professor & HOD	A Smart System for Sign Language Recognition using Machine Learning Models, IEEE Xplore. **(Scopus Indexed)**
6	Dr. B.Rajalingam Associate Professor & HOD	An Intelligent Robust One Dimensional HARCNN Model for Human Activity Recognition using Wearable Sensor Data, IEEE Xplore. **(Scopus Indexed)**
7	Dr. B.Rajalingam Associate Professor & HOD	Smart Plant Leaf Disease Detection System using Internet of Thing (IOT) and PLDP Net-RF Model, IEEE Xplore. **(Scopus Indexed)**

HUMBLEBRAG

S. No.	Name of the Faculty
1	Dr. B.Rajalingam Associate Professor & HOD

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LISTS OF CONFERENCES

Sl. No.	Name of the Author	Title of the paper	ISBN/ISSN number of the proceeding	Name of the publisher
1.	Dr. B. Rajalingam	Design and Implementation of Telegram Based Object Motion Detection	978-81-961875-9-0	Bharath Institute of Higher Education and Research
2.	Dr. B. Rajalingam	Android Based Smart College Management System	978-81-961875-9-0	Bharath Institute of Higher Education and Research
3.	Dr. B. Rajalingam	Deep Barcoding: Deep Learning for Species Classification	978-81-961875-9-0	Bharath Institute of Higher Education and Research
4.	Dr. B. Rajalingam	A Comparative Study on Facial Expression Recognition	978-93-5406-579-8	Mallareddy Institute Of Engineering Technology
5.	Ms. Afreen Begum	Human Activity Recognition using Machine Learning with Data Analytics.	-	Manonmaniam Sundaranar University
6.	Ms. Afreen Begum	Modelling and Predicting Cyber Hacking Breaches using stochastic process models	-	Manonmaniam Sundaranar University
7.	Ms. Afreen Begum	Data-centric authentication integrating certific ate collection and data retrieval with IN-networks	-	Rohini College of Engineering & Technology
8.	Mr. P. Krishna Reddy	BlockChain Based Dynamic Secure Distributed Group management for key mobile computing	-	Rohini College of Engineering & Technology

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9.	Dr. B. Rajalingam	Blockchain-Based Outsourced Storage Schema in Untrusted Environment	978-93-91420-22-2	St.Martin's Engineering College
10.	Dr. B. Rajalingam	Blockchain E-Voting Done Right: Privacy And Transparency with Public Blockchain	978-93-91420-22-2	St.Martin's Engineering College
11.	Dr. B. Rajalingam	IOT And Wireless Sensor Network Based autonomous farming Robot	978-93-91420-22-2	St.Martin's Engineering College
12.	Dr. B. Rajalingam	IOT based Agri Soil Maintanance Through Micro- Nutrients and Protection Of Crops From Excess Watert	978-93-91420-22-2	St.Martin's Engineering College
13.	Dr. B. Rajalingam	Field Monotoring and Automation Using IOT in Agriculture	978-93-91420-22-2	St.Martin's Engineering College
14.	Dr. B. Rajalingam	Real Time Localized Air Quality Monitoring and Prediction through Mobile And Fixed IOT Sensing Network	978-93-91420-22-2	St.Martin's Engineering College
15.	Dr. B. Rajalingam	Feature Extraction For Classifiying Students Based On The Academic Performance	978-93-91420-22-2	St.Martin's Engineering College
16.	Dr. B. Rajalingam	An Automated Parking Allocation Using IOT	978-93-91420-22-2	St.Martin's Engineering College
17.	Dr. B. Rajalingam	Image Forgery Detection based on Fusion of Light Weight Deep Learning Models	978-93-91420-22-2	St.Martin's Engineering College

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18.	Dr. B. Rajalingam	Pulse and Spo2 Monitoring for Health Care	978-93-91420-22-2	St.Martin's Engineering College
19.	Dr. B. Rajalingam	Advanced Deep Learning Techniques: A Disease Hypothesis System	978-93-91420-22-2	St.Martin's Engineering College
20.	Dr. B. Rajalingam	Cognitive Internet of Vehicles: An Intelligent Multimode System Using Driving Pattern Recognition	978-93-91420-22-2	St.Martin's Engineering College
21.	Dr. B. Rajalingam	Comparison of Colorectal Histopathological Imaging Tissue Classification Performance Using Deep Learning	978-93-91420-22-2	St.Martin's Engineering College
22.	Mr. N. Mahboob Subani	Extracting Top-K High Productive Item Sets using B-Tree	-	Manonmaniam Sundaranar University
23.	Dr. R. Mohanraj	Speekar recognization in language text indepenent small-scale sysytem CNNs	-	Manonmaniam Sundaranar University
24.	Dr. R. Mohanraj	Design and Implementation of Telegram Based Object Motion Detection	978-81-961875-9-0	Bharath Institute of Higher Education and Research
25.	Ms. V.Jayasri	IOT based smart remote for disabled people	978-93-5913-204-4	Aditya College of Engineering
26.	Ms. V.Jayasri	IOT based wireless sensor network for air pollution monitoring	978-93-5913-204-4	Aditya College of Engineering
27.	Mr. Ch. Srinivas	Battery management system for electric vehicles using IOT	978-93-5913-204-4	Aditya College of Engineering

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28.	Mr. V Sudheer Goud	Management of Business using machine learning for decision making	979-8-3503-9926-4	Bharath Institute of Higher Education and Research
29.	Dr. B. Rajalingam	Artificial Intelligence Marketing: Chatbots	978-93-91420-60-4	St.Martin's Engineering College
30.	Dr. B. Rajalingam	Lung Cancer Detection Using CNN	978-93-91420-60-4	St.Martin's Engineering College
31.	Dr. B. Rajalingam	Cardiovascular Stroke Prediction Using Machine Learning Techniques	978-93-91420-60-4	St.Martin's Engineering College
32.	Dr. B. Rajalingam	Exploring Time Series Analysis of Residential Electrical Power Consumption	978-93-91420-60-4	St.Martin's Engineering College
33.	Dr. B. Rajalingam	Revolutionary Hard Landing Prediction System for Commericial Flights	978-93-91420-60-4	St.Martin's Engineering College
34.	Ms. Ch Divya	Design and Implementation of Women Safety Device using IoT	978-93-91420-66-6	St.Martin's Engineering College
35.	Ms. Afreen Begum	Multi-Format Data Concealment: Steganography Across image, Audio, Video and Text	978-93-91420-66-6	St.Martin's Engineering College
36.	Mr. N. Mahboob Subani	Criminal Identification System using Haar-Cascade Algorithm	978-93-91420-66-6	St.Martin's Engineering College
37.	Mr. Ch. Srinivas	Abnormal Activity Detection using Deep Learning	978-93-91420-66-6	St.Martin's Engineering College

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38.	Mr. V. Sudheer Goud	An Enhanced Approach to Detect Freshness of Food using IOT and Machine Learning	978-93-91420-66-6	St.Martin's Engineering College
39.	Mr. K.Kamala Kannan	Semantic Classification from Tweet using LSTM Algorithm	978-93-91420-66-6	St.Martin's Engineering College
40.	Mr. P. Krishna Reddy	Student Performance Prediction using Decision Trees	978-93-91420-66-6	St.Martin's Engineering College
41.	Ms. V.Jaya Sri	Early Detection of Parkinson's Disease using Adaptive Boosting	978-93-91420-66-6	St.Martin's Engineering College

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ADITYA COLLEGE OF ENGINEERING
(Approved by AICTE & Affiliated to JNTUA)
Valasapalle(p),Punganur Road ,Madanapalle
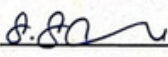RESEARCH & DEVELOPMENT CELL
National Conference
on
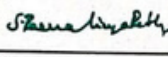" Contemporary Issues in Science, Engineering and Technology "
(NCCISET 2023)
CERTIFICATE
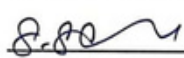
This is to certify that *Srinivas Cheera*
from *St. Martin's Engineering College, Hyderbad.* of *CSE*
Department has presented a paper entitled *Battery Management System for Electric Vehicles Using IOT* in
the **National Conference on "Contemporary Issues in Science, Engineering and Technology"** (NCCISET 2023) held at Aditya College of Engineering,
Madanapalle on 23rd & 24th June 2023.

Dr.J.Jegan
Convener
ACEM

Dr.K.Sathish Babu
Principal
ACEM

Dr.S.Ramalinga Reddy
Director
ACEM

St. MARTIN'S ENGINEERING COLLEGE

A NON MINORITY COLLEGE, AFFILIATED TO JNTUH, APPROVED BY AICTE, ACCREDITED BY NBA & NAAC A+,
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DHULAPALLY, NEAR KOMPALLY, SECUNDERABAD - 500 100, TELANGANA STATE, INDIA, WWW.SMEC.AC.IN

CERTIFICATE
This is to certify that
Dr. B. Rajalingam
Associate Professor, CSE
St. Martin's Engineering College, Dhulapally, Secunderabad
has participated and presented paper on
"A New Learning Approach to Malware Classification using Discriminative Feature Extraction"
in the International Conference
on
"Innovations and Recent Trends in Computer Science" (ICIRTCS-23)
Organized by
Department of Computer Science and Engineering
St. Martin's Engineering College, Dhulapally, Secunderabad, T.S, India
on 24th & 25th February 2023.

Paper ID:
ICIRTCS-23-070

Dr. R. Santhoshkumar
Convener &HOD (CSE)

Dr. P. Santosh Kumar Patra
Patron, Program Chair & Principal

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Certificate — ROHINI COLLEGE OF ENGINEERING & TECHNOLOGY. Approved by AICTE and Affiliated to Anna University, (An ISO Certified Institution). Near Anjugramam Junction, Palkulam, Variyoor (Post), Kanyakumari - 629 401. DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING Organizes INTERNATIONAL CONFERENCE ON AUTOMATION, INTELLIGENT COMPUTING AND COMMUNICATION. CERTIFICATE. This is to certify that AFREEN BEGUM, of St. Martin's Engineering College has presented the paper entitled Data-Centric Authentication Integrating Certificate Collection And Data Retrieval with IN-Network in International Conference on Automation, Intelligent Computing and Communication (ICAICC - 2023) held on 07th July 2023 organized by Department of Electronics and Communication Engineering, Rohini College of Engineering & Technology, Kanyakumari, India. Convenor. Principal. Chairman.

Certificate — St. MARTIN'S ENGINEERING COLLEGE. A NON MINORITY COLLEGE, AFFILIATED TO JNTUH, APPROVED BY AICTE, ACCREDITED BY NBA & NAAC A+, ISO 9001:2008 CERTIFIED, SIRO RECOGNITION BY MINISTRY OF SCIENCE & TECHNOLOGY, GOVT.OF INDIA. DHULAPALLY, NEAR KOMPALLY, SECUNDERABAD - 500 100, TELANGANA STATE, INDIA, WWW.SMEC.AC.IN. CERTIFICATE. Paper ID: ICIRTCS-23-096. This is to certify that Dr.B.Rajalingam, Associate Professor, CSE, St. Martin's Engineering College, Dhulapally, Secunderabad has participated and presented paper on "Cognitive Internet of Vehicles: An Intelligent Multimode System Using Driving Pattern Recognition" in the International Conference on "Innovations and Recent Trends in Computer Science" (ICIRTCS-23) Organized by Department of Computer Science and Engineering, St. Martin's Engineering College, Dhulapally, Secunderabad, T.S, India on 24th & 25th February 2023. Dr. R. Santhoshkumar, Convener &HOD (CSE). Dr. P. Santosh Kumar Patra, Patron, Program Chair & Principal.
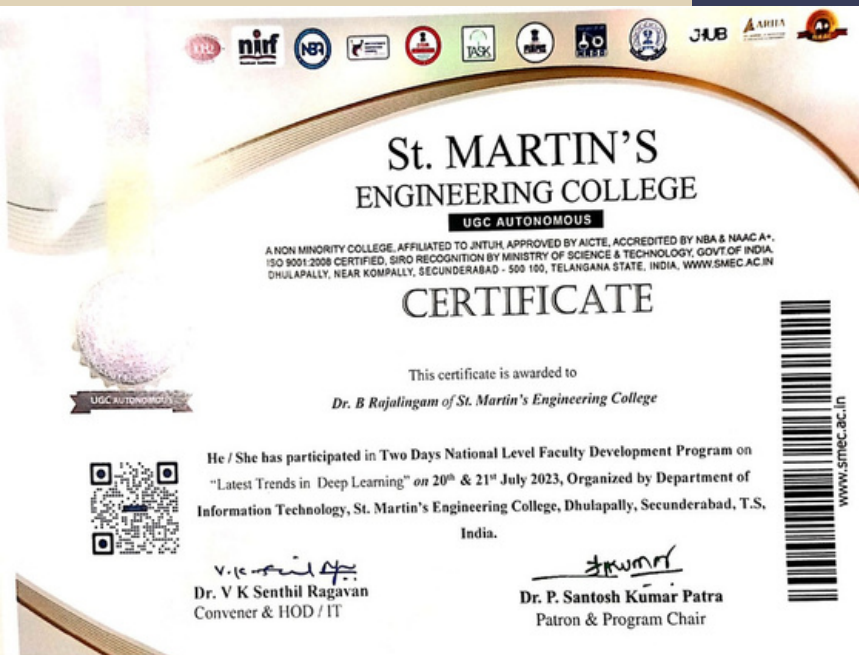
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List of FDP & Workshop Attended by Faculty Members

S.No.	Name of the Faculty	Title of the program	Duration (from – to) (DD-MM-YYYY)
1.	Dr. B.Rajalingam	Regional Meet Institutions Innovations Council MoE's Innovation Cell	11.12.2023 to 11.12.2023
2.	Dr. B.Rajalingam	Advanced Research Methodology	03.07.2023 to 18.07.2023
3.	Dr. B.Rajalingam	An Overview of Patents & Procedure for Protection	18.01..2023 to 20.01.2023
4.	Dr. B.Rajalingam	Latest Trends in Deep Learning	20.07.2023 to 21.07.2023
5.	Dr. B.Rajalingam	Python Programming and Its Applications	26.09.2022 to 30.09.2022
6.	Dr. B.Rajalingam	Research Pedagogy and Contemporary Research	21.06.2023 to 23.06.2023
7.	Dr. B.Rajalingam	Research Pedagogy and Contemporary Research	23.06.2022 to 25.06.2023
8.	Dr. R. Mohanraj	Latest Trends in Deep Learning	20.07.2023 to 21.07.2023
9.	Dr. R. Mohanraj	Research Pedagogy and Contemporary Research	21.06.2023 to 23.06.2023
10.	Ms. V. Jayasri	Latest Trends in Deep Learning	20.07.2023 to 21.07.2023
11.	Mr. V. Sudheer Goud	Latest Trends in Deep Learning	20.07.2023 to 21.07.2023
12.	Mr. V. Sudheer Goud	Research Pedagogy and Contemporary Research	21.06.2023 to 23.06.2023
13.	Ms. Afreen Begum	Latest Trends in Deep Learning	20.07.2023 to 21.07.2023
14.	Ms. Afreen Begum	Research Pedagogy and Contemporary Research	21.06.2023 to 23.06.2023
15.	Mr. N. Mahboob Subani	Research Pedagogy and Contemporary Research	21.06.2023 to 23.06.2023
16.	Mr. Ch.Srinvas	Latest Trends in Deep Learning	20.07.2023 to 21.07.2023

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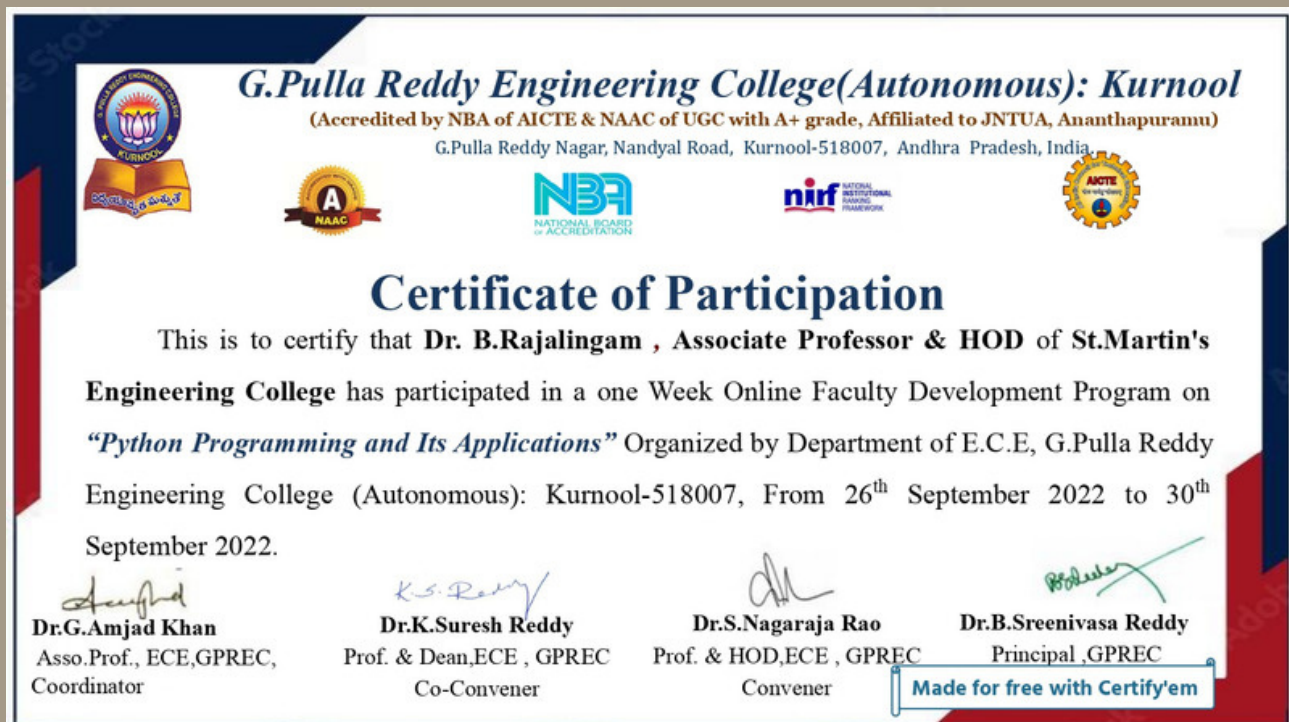
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UGC AUTONOMOUS

Certificate of Participation

This is to certify that

Dr. B. RAJALINGAM

Associate Professor & HOD in Dept. of Artificial Intelligence and Data Science(AI&DS)
St.Martin's Engineering College
participated in Three Day National Level Online FDP on
"Research Pedagogy and Contemporary Research"
Organized by Research and Development Cell,
St. Martin's Engineering College,
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NEWSLETTER
LIST OF JOURNEL PUBLICATIONS

S. No.	Title of paper	Name of the authors	Name of journal	ISSN number
1.	Hybrid Integration of Transforms with Neural Network based Fusion Techniques for clinical and Healthcare Applications	Dr. B. Rajalingam	Turkish Online Journal of Qualitative Inquiry	1309-6591
2.	An Effective Multi-class Object Detection Model for Remotely Sensed Image using Mask R- DCNN	Dr. B. Rajalingam	Turkish Online Journal of Qualitative Inquiry	1309-6591
3.	Fuse the Multimodality Medical Images using Transforms with Neuro Fuzzy based Hybrid Fusion Techniques	Dr. B. Rajalingam	Turkish Online Journal of Qualitative Inquiry	1309-6591
4.	Music Genre Classification Using Deep Learning Techniques	Dr. B. Rajalingam	Turkish Online Journal of Qualitative Inquiry	1309-6591
5.	Highway Adaptation-Based Car Safety Application Based on GPS and GMS Technologies	Dr. B. Rajalingam	Turkish Online Journal of Qualitative Inquiry	1309-6591
6.	A Real Time Prediction and Classification of Face Mask Detection using CNN Model	Dr. B. Rajalingam	Turkish Online Journal of Qualitative Inquiry	1309-6591
7.	A Voxel Based Morphometry Approach for Identifying Alzheimer From MRI Images Using an Optimized PSO Algorithm	Dr. B. Rajalingam	Turkish Online Journal of Qualitative Inquiry	1309-6591
8.	Visual Based Human Action Recognition Using Machine Learning Algorithms	Dr. B. Rajalingam	George Washington International Law Review	0748-4305
9.	Survey On Automatic Water Controlling System For Garden Using Internet Of Things (Iot)	Dr. B. Rajalingam	George Washington International Law Review	0748-4305
10.	A New improved NSST based Multimodal Medical Imaging System based on GWO and Image Enhancement with NLM Algorithm,	Dr. B. Rajalingam	IEEE Xplore	978-1-6654-3789-9
11.	Detection of Abnormal Driving Behavior Detection Using ADBD Convolutional Neural Networks	Dr. B. Rajalingam	IEEE Xplore	978-1-6654-3789-9
12.	Robust emotion recognition on hand crafted features in static action sequences	Dr. B. Rajalingam	AIP Conf. Proc.	10.1063/5.0079770
13.	A Smart System for Sign Language Recognition using Machine Learning Models	Dr. B. Rajalingam	IEEE Xplore	978-1-6654-7436-8/22/$31.00 ©2022 IEEE

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14.	An Intelligent Robust One Dimensional HARCNN Model for Human Activity Recognition using Wearable Sensor Data	Dr. B. Rajalingam	**IEEE Xplore**	978-1-6654-7436-8/22/$31.00 ©2022 IEEE
15.	Smart Plant Leaf Disease Detection System using Internet of Thing (IOT) and PLDP Net-RF Model	Dr. B. Rajalingam	**IEEE Xplore**	978-1-6654-7436-8/22/$31.00 ©2022 IEEE
16.	Plant Leaf Disease Prediction: A PLDD Net-SVM Model Proposed using Internet of Thing (IOT) and Integrated Learning Model	Dr. B. Rajalingam	**Journal of Optoelectronics Laser**	1005-0086
17.	Canny Edge Detection Algorithm using A Modern Traffic Control System	Dr. B. Rajalingam	**Journal of Optoelectronics Laser**	1005-0086
18.	Management of business using machine learning for decision making	Mr. V.Sudheer Goud	**IEEE Xplore**	979-8-3503-9926-4/23/$31.00 ©2023 IEEE

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PUBLICATIONS

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Turkish Online Journal of Qualitative Inquiry (TOJQI)
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A Voxel Based Morphometry Approach for Identifying Alzheimer From MRI Images Using an Optimized PSO Algorithm

N.Balaraman[1], Dr. B.Rajalingam[2], Dr. R.Santhoshkumar[3], Dr. P. Santosh Kumar Patra[4]

ABSTRACT

Alzheimer's Disease (AD) is a commonly occurring brain disorder that affects elderly people. It is a progressive, neurodegenerative brain disorder that attacks neurotransmitters, and causes dementia. For the evaluation of normal ageing and AD, Voxel Based Morphometry (VBM) using structural brain Magnetic Resonance Imaging (MRI) has been widely used. This VBM of MRI has data that has been segmented as Gray Matter (GM), White Matter (WM), and Cerebro-Spinal Fluid (CSF) partitions. Anatomical standardization of all the images to the same stereotactic space is done. It makes use of linear affine transformation as well as non-linear warping, smoothing and at last performs statistical analysis. The work suggests the following- Particle Swarm Optimization (PSO) based AdaBoost, using Principal Component Analysis (PCA) for feature reduction and feature extraction using curvelet transform classifier optimization. It is not completely possible by the curvelet transform to characterize the high dimensional signals that contain hyper plane singularities, lines or curves. For decreasing the data set dimensions that contain several interrelated variables, PCA is an effective tool and it can also retain most of the differences. The work also presents an improvised AdaBoost algorithm that is based on optimizing the sample space search. In order to find a threshold in AdaBoost algorithm, more time is needed for comparing samples while working with data on a large scale while making use of the decision stump as a weak classifier. This work makes use of the PSO algorithm in order to change and also choose the most optimal feature in sample space for weak classifiers to reduce computation time. It has been shown via empirical outcomes that the suggested technique performs better compared to the other techniques.

Keywords: Alzheimer's Disease (AD), Voxel Based Morphometry (VBM), Magnetic Resonance Imaging (MRI), Curvelet Transform, Principal Component Analysis (PCA), Particle Swarm Optimization (PSO) and Adaboost Classifier.

1. INTRODUCTION

Usually, AD affects people who are over 65 years of age; yet, early symptoms of this fatal neurodegenerative disorder can be detected before 65 years of age. Neuron cells in the brain die when two abnormal protein fragments known as plagues and tangles in the brain are deposited. The first region to be affected by AD is the hippocampus. This is where the memories are initially formed. The initial symptoms of the disease include issues with memory like problems in finding words and also in the process of thinking. Patients who suffer from AD have an issue

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A New improved NSST based Multimodal Medical Imaging System based on GWO and Image Enhancement with NLM Algorithm

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Abstract— Multimodal Medical fusion imaging is a salient feature not only in image-guided medical diagnosis but also treatment and various computer guided medical procedures. This paper proposes an efficient medical fusion imaging system that is evolved from the concept of Non-Subsampled Shearlet Transform (NSST) and the Gray Wolf Optimization (GWO) technique. Optimum decomposition level is determined by GWO technique and the optimum gain parameters. Finally, one more procedure is added to the entire procedure known as denoising and enhancement process is carried out to improve its visual quality and improve detailing. Work performance of these traditional fusion techniques are hampered greatly in cases when the images are corrupted with noise. Hence there is a need to develop a fusion technique that is capable of preserving precise information even when images are corrupted. It is also challenging to achieve suppressed noise and enhanced textural simultaneously. This proposed work is a study to compare traditional spatial, transform, filter and neural network domain fusion techniques with optimized NSST fusion imaging.

Keywords— Non-Subsampled Shearlet Transform (NSST), Gray Wolf Optimization (GWO), Histogram Matching, Non-Local Means Filter (NLM) and Multimodal medical image.

I. INTRODUCTION

Medical imaging has been the most critical and vital part of modern health care practices. Now a days, medical image processing is highly essential for patient management system starting from diagnosis to post-treatment analysis. The diagnosis of the disease involves non-invasive acquisition of information about the human body organs through imaging. There are many modalities available for capturing the data from affected part of the body. These are based on the physics used in the acquisition process. CT provides the information related to calcifications, bone structures, tumour outline prominently. MRI is predominant and most effective diagnostic procedure in assessing soft tissue anatomy. PET and SPECT images give abnormal metabolism at cancer infected tissues. Thus, every modality may not exhibit all the necessary information related to a particular dis   case.
The acquisition of combined details regarding different modalities with a single machine is unavailable in almost all the health centres. The new PET- MRI scanner is under development stage [1]. Therefore, there is social and urgent need to have a software solution which will provide combined information from different imaging modalities in a single frame with the minimum cost. Such software solution is called Multimodality medical fusion imaging (MMIF) [2].

It is a process of creating new enriched single frame from two or more modality images with all the relevant and complementary information. It should also aid radiologist to get all the anatomical structures from both the modalities and provide better visualization of the abnormalities. As a result, global optimization has proven to be an effective strategy for identifying unconstrained maxima and minima for both continuous and differentiable functions, which makes it possible to provide the best solutions for a variety of problems [3]. These are also mostly used for upgrading the performance of fusion imaging methods by producing optimal transform fusion parameters and decomposition level. NSST fusion technique that have appropriate parameter values leads to producing and achieving upgraded fusion performance and finest quality of images. CFO and PSO are combined in Gray Wolf Optimization (GWO), which results in a memory with increased capacity, simpler usage, reduced process completion time (duration), increased convergence speed (speed of convergence) [5].

Rest of the paper comprises of the following sections. Section 2 states fundamentals of the NSST fusion method and GWO. Section 3 provides a detailed description regarding multimodal medical fusion imaging system. Section 4 states the evaluation metrics for utilized fusion quality. Section 5 states simulation results and comparisons done. Concluding remarks are described in Section 6.

II. EASE OF USE

A. Non-sub Sampled Shearlet Transform (NSST)

Geometric analysis now has a new multiple-scale tool in the form of NSST. There's a lot of potential here for recording 3-D geometry [6][7]. Moreover, it's a well-designed or well-representation of medical imagery. In compared to geometric analysis tools, this leads in NSST having the property of shift invariance as well as higher flexibility for directional selectivity. It is feasible to decompose the original multimodal medical image into a low-frequency sub-image and numerous high-frequency sub-images [8].

B. Gray Wolfs Optimization

The conventional Gray Wolfs Optimization algorithm for multimodal medical fusion imaging is described in this section. Newly developed swarm intelligence, GWO is derived from the idea of hunting mechanism used by the pack of gray wolves. The pseudocode of GWO technique has

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An Effective Multi-class Object Detection Model for Remotely Sensed Image using Mask R- DCNN

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Research Article

An Effective Multi-class Object Detection Model for Remotely Sensed Image using Mask R- DCNN

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Abstract

Object detection in remote sensing image has received increasing attention from the research community in recent days. Over the past few decades, variety of deep learning based detection model such as Region based Convolutional Neural Network (R-CNN), Fast R-CNN and Faster R-CNN has been applied for object detection. However, most of the existing detection methods localize each object using the bounding box, but cannot segment the object from the background. So in order to tackle the issue, we introduce the Mask R- Dilated CNN model, which incorporates both object detection and segmentation. In Mask R-DCNN, ResNet-50 and ResNet-101 act as backbone for feature extraction, Region Proposal Network (RPN) is utilized to generate RoIs and RoIAlign is to carefully hold the exact spatial location to generate mask through Fully Convolution Network (FCN). The aim of Mask R- DCNN model is to incorporate more relevant information by increasing the receptive field of convolutional layer for improving the robustness. Experimental results on the NWPU VHR 10-class benchmark dataset demonstrated the effectiveness of the proposed model by providing 95.7% accuracy for Dilated ResNet-50 & 96.2% accuracy for Dilated ResNet-101, which is better than traditional Mask R-CNN model.

Keywords: Object detection, Region Proposal Network, Deep learning, Mask R-DCNN, Remote sensing image. ResNet-50 and ResNet-101.

1. Introduction

With the rapid development of remote sensing technologies in the field of remote sensing many satellite sensor provides high resolution satellite images. These images are mainly used to detect the various objects such as airplane, building, ship and vehicles in the field of military civilians, intelligent monitoring, agricultural monitoring, disaster management, geographical information system (GIS) updating, urban planning, etc.,[1]. The general term 'object' consists of man-made (eg. building, ships and vehicles) and landscape objects (land use, land cover). Man-made objects have sharp boundary and independent on background environment, but landscape object have blur

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A Smart System for Sign Language Recognition using Machine Learning Models

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Abstract - When people exchange information, thoughts, or [sentim]ents via the medium of communication, it is called [comm]unication. Both parties must be conversant in the same [lang]uage in order for communication to occur. On the other [hand], those who are deaf or dumb must use various [comm]unication methods. If you can't hear, you have deafness; if [you] can't speak, you have dumbness. As a group, they use sign [lang]uage to communicate, but most people don't see it as a [valua]ble skill. To communicate with someone who is deaf or [dumb]er is difficult since not everyone is familiar with or [unde]rstands sign language. You may develop a smart [mac]hine learning to get around this roadblock. It is possible to [teac]h a model to recognize different gestures used in sign [lang]uage and to translate those gestures into English. Many [peop]le will get the ability to converse with the deaf and dumb as [a re]sult of this. By using a camera to capture Sign Language [imag]es, we may then use machine learning techniques like [Conv]olutional Neural Networks to the datasets. Some other well-[know]n models have been compared to a new strategy that has [been] presented for the same problem. Principal Component [Ana]lysis (PCA), Histogram of Gradients (HOG), and Local [Bina]ry Patterns (LBP) are some of the pre-processing [appr]oaches employed. ORB, Canny edge detection, and the state [of t]he art approach are all used to create the new model. This pre-[proce]ssed data is then sent through a variety of classifiers in [orde]r to provide useful findings (including Random Forests and [Supp]ort Vector Machines, as well as Nave Bayes and Logistic [Regr]ession). The new models are substantially more accurate [than] the previous ones. The method achieves good accuracy even [with] a little dataset.

[Keywo]rds: *Classification, Support vector Machine, Principal [Com]ponent Analysis, ORB, CNN*

1 INTRODUCTION

[The a]bility to express oneself via human conversation is crucial. [To c]ommunicate in a variety of ways, including speaking, body [lang]uage, gestures, reading, visual aids and writing.

The minority of persons who are deaf or hard of hearing nevertheless face a relationship gap. An interpreter can be used to communicate with them. In an emergency, however, these methods would be impractical due to their time and expense. Sign Language depends mostly on physical communication to convey meaning. In order to convey the speaker's thoughts, it is necessary to use a variety of hand shapes, orientations, and movements at the same time.

There are two distinct styles of sign language: character-by-character spelling with finger gestures. Because it enables you to convey names, addresses, and other things that don't have a word-level meaning in sign language, finger spelling is an essential ability in the language. Despite this, many people do not utilize finger spelling since it is difficult to learn and put into practise effectively. As a result, there is no universal sign language, and only a small number of people can communicate effectively using it.

Finger spelling classification in sign language may be used to solve this puzzle. Several machine learning techniques are used in this work to record and compare accuracies, and the results are presented here.

1.1 Classification Algorithms

Support Vector Machine (SVM)

In the support vector machine (SVM), each data item in an n-dimensional space is represented by the coordinate value of one of its features (n is the number of features). Determining a hyper plane that most effectively separates the classes is how the classification is carried out.

Management of business using machine learning for decision making

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Abstract— While machine learning and artificial intelligence might lessen expenses and increment the viability of business processes, these methods can likewise obliterate the worth of an organization, some of the time with serious repercussions. The failure to perceive and control that chance might make a few directors put off carrying out innovation, keeping them from arriving at their maximum capacity. Machine learning has colossal potential for decreasing the expense of labor and products, speeding up organization activities, and further developing client care. In the ongoing time of uncommon specialized headway, it is recognized as one of the huge application regions, and reception is advancing across essentially all businesses. In light of this, Researchers first provide a brief review of the different types of machine learning before presenting three different ways that machine learning is used in businesses. The trade-off between machine-learning algorithms' accuracy and interpretability is then covered. This is an important factor to take into account while choosing the best approach for the task at hand.

Keywords—Machine learning (ML), management, decision, business, networks

I. INTRODUCTION

Regulatory information, or data accumulated by or in the interest of public associations for the reasons for enrolment, exchange, and record-keeping, might be mined to all the more likely grasp cultural examples, patterns, and strategy outcomes, or tidied up and made accessible to control new labor and products. The creation of centers, networks, and structures to better comprehend societal issues utilizing these data has resulted from numerous government evaluations and initiatives, particularly in the previous ten years. Yet more generally, there has been a drive to use administrative data to create models that will help with the administration and delivery of public services on a day-to-day operational basis rather than providing broad-based evidence to improve policy or government-citizen interaction [1]. These new organizational models are intended to behave as automatic actions or even as decision support. These systems were created primarily utilizing machine learning methods, which employ algorithms to find patterns in the information and transform them into useful forms. Late years have seen an expansion in disagreeable articulations concerning artificial intelligence.

For example, Ginni Rometty, Chief of IBM, contends that man-made intelligence innovation is. On the opposite side, Bill Entrywars and Stephen Peddling have both expressed that individuals ought to be worried about the danger that artificial intelligence presents. Though it has been criticized for decades that information technology is a "central factor" in public management changes, these technologies typically fuse onto current practices rather than transform them fundamentally [2]. As indicated by scholastics, innovation has as of late become the dominant focal point and moved a portion of the New Open Management's directions into 'computerized time administration.'

They address the flood of interest in, zero-contact innovation and feature patterns including the nature of the information of solosed businesses, information sharing techniques pointed toward making an 'all in one resource', and 'start to finish 'administration conveyance with minimal repeating data gathering [3]. As a result of the public sector's adoption of digital technological advancements, some have asserted that technological change affects bureaucracy in public organizations, as public organizations' practices and capabilities co-evolve with innovation while being affected by the wider organizational framework.

II. LITERATURE REVIEW

The numerous approaches to semantic linguistic analysis are almost as common. One of the methods found in a review by Wormell was the use of maps to assist with understanding speech recognition in articles for information retrieval.

Canny Edge Detection Algorithm: A Modern Traffic Control System using

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ABSTRACT
The ever-increasing traffic jams in urban areas makes it necessary to make use of cutting-edge technology and equipment in order to advance the state of the art in terms of traffic control. The currently available solutions, like time visitors or human control, are not adequate to alleviate the severity of this crisis. The findings of this investigation have led to the proposal of a system for the control of traffic that makes use of canny edge detection and digital image processing to determine, in real time, the number of vehicles present. The aboveimposing traffic control advanced technologies offers significant advantages over the existing systems in real - time, transportation management, robotization, reliability, and efficiency. In addition, the complete process of digital image acquisition, edge recognition, as well as green signal assignment is demonstrated with accurate blueprints, and the final outcome are stated by hardware. All of this is done with four separate photographs of various traffic scenarios.

Keywords - Intelligent Traffic Control, Density-based Signalization, Edge Enhancement

1. OVERVIEW
The ever-increasing number of cars and trucks that are driving around today, combined with the limited resources supplied by the existing infrastructure, is contributing to the worsening of traffic problems. Those making use of a public route for the purpose of travel may include pedestrians, riding or herding animals, automobiles, trolleybuses, or other conveyances. Traffic on roads may take place in either direction. The laws that govern traffic and regulate cars are referred to as traffic laws, but the rules of the road include not only the laws but also any unofficial regulations that may have emerged over the course of time in order to make the flow of traffic more orderly and efficient. Road signs, often known as traffic signs, are signs that are put along the sides of roadways in order to offer information to drivers.

1.1 Traditional Traffic Management Systems

1.1.1 Human based Control Systems
It requires a significant amount of manpower to manually control the instance name, and it also requires manual control of the traffic. The number of traffic police officers that are assigned to a certain city or region is determined by the countries and states in which the location is located. In order to maintain order and control the flow of traffic, the police officers will be equipped with tools such as sign boards, sign lights, and whistles. In order for them to effectively regulate the traffic, they will be given the instruction to dress in particular uniforms.

1.1.2 Mandatory Control Systems
Timers and electrical sensors work together to regulate the automatic traffic signal. At the start of each new step of the traffic signal, the time limit is programmed with a consistent numerical number. The lamps will switch on and off through automatically once the valuation of the clock is adjusted so that it could be set to the desired duration. It will collect the allocation of the vehicle and also signals on each phase while using electrical sensors; guess it depends on the sensor, the lights will quickly change between the ON and OFF positions.

1.2 Disadvantages
More man power is required for the system that relies on human controls. Due to a lack of available personnel in our traffic police force, we are unable to manually regulate the traffic flow in any part of a town or city at this time. Therefore, we require a more effective strategy to manage the traffic. On the other hand, an automatic traffic control system utilises a timer for each phase of the traffic signal. Another approach is to make use of electronic sensors thatcan identify vehicles and then emit a signal to warn drivers that they are wasting their time byproceeding through a green light while the road is empty. Congestion in the traffic also occurred while the electronic sensors were being

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An Intelligent Robust One Dimensional HAR-CNN Model for Human Activity Recognition using Wearable Sensor Data

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Abstract— One of the biggest new trends in artificial intelligence is the ability to recognise people's movements and take their actions into account. It can be used in a variety of ways, including for surveillance, security, human-computer interaction, and content-based video retrieval. There has been a number of researchers that have presented vision-based techniques to human activity recognition. Several challenges need to be addressed in the creation of a vision-based human activity recognition system, including illumination variations in human activity recognition, interclass similarity between scenes, the environment and recording setting, and temporal variation. To overcome the above mentioned problem, by capturing or sensing human actions with help of wearable sensors, wearable devices, or IoT devices. Sensor data, particularly one-dimensional time series data, are used in the work of human activity recognition. Using 1D-Convolutional Neural Network (CNN) models, this works aims to propose a new approach for identifying human activities. The Wireless Sensor Data Mining (WISDM) dataset is utilised to train and test the 1D-CNN model in this dissertation. The proposed HAR-CNN model has a 95.2% of accuracy, which is far higher than that of conventional methods.

Keywords— Human activity, IoT, wireless data, 1D-Convolution, vision and sensor.

I. INTRODUCTION

In many parts of the globe, human activity recognition (HAR) is a prominent area of investigation. Industry automation, sports, medical technology, security, smart cities, and smart homes are just a few of the applications for which it may be applied. HAR is vital in human-centered applications including health detection, driving behaviour tracking, gait detection, fall detection, and other personalised services. Human activity recognition may be separated into two categories, as seen in Figure 1, namely, visual based and sensor-based human activity recognition [1]. A camera system is utilised in the vision-based HAR to track human activity as well as changes in the surrounding landscape. Techniques such as marker extraction and structural modelling, as well as motion segmentation and extraction of actions and tracking are employed in this method to achieve its results [2]. Researchers use a wide variety of cameras, ranging from simple RGB cameras to more complex systems, such as the fusion of many cameras to provide stereo vision or depth cameras, which make use of infrared LEDs to determine the depth of an image [3].
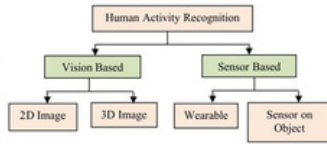

Fig. 1. Types of human activity recognition

The vision based HAR can be classified as 2Dimages and 3D images. Several researchers [4,5] have been published on vision-based activity recognition system. However, the vision based HAR system met the following issues while attempting to classify human action recognition.

- Recognition of variations in human behaviour due to lighting conditions
- There is a lot of inter class similarity between scenes.
- The setting of Environment and record
- Temporal variation
- Obtaining and labelling training data

The tracking of a person's activities using a network of sensors and linked devices is similar to sensor-based human activity recognition. They create data in the form of a succession of state changes or parameter values that occur over a time period of several seconds to minutes. The use of contact detectors, radio frequency identification (RFID), accelerometers, motion detectors, noise detectors, radar, and

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Detection of Abnormal Driving Behavior Detection Using ADBDConvolutional Neural Networks

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Abstract— Monitoring anomalous driving behaviours in real time is a critical component of increasing vehicle safety. To improve driver behaviour and driving practisein order to avoid car accidents. The use of vision-based anomalous driving behaviour detection is growing in popularity because it is fundamental to the safety of drivers and passengers in cars and is a crucial step toward attaining automated driving at this level at this time. This difficult detection task can be greatly aided by recent advancements in deep learning approaches, such as advanced deep learning models' remarkable generalisation power and the large volumes of video clips required for completely training these data-driven deep learning models. To wrap off the research work, novel deep learning-based models, inspired by the newly developed and widely used fully connected convolutional network named the Abnormal Driving Behavior Detection (ADBD Net), are presented.

Keywords— Abnormal Driving, Convolution Neural Networks, Monitoring Driving and Deep learning.

I. INTRODUCTION

In accordance with World Health Organization (WHO) statistics, traffic accidents have risen to become one of the world's top ten leading causes of death[1]. In particular, traffic accidents claimed the lives of nearly 3500 people per day in 2014. According to studies, human factors, such as drivers' abnormal driving behaviours, are to blame for the majority of traffic accidents [2]. As a result, it is necessary to detect drivers' abnormal driving behaviours in order to alert them or report them to the Transportation Bureau so that they can be recorded.

In the evolution of society, transportation is critical. Demand for automobiles has risen considerably in recent decades as people's living conditions have improved and their disposable income has expanded. Generally driving is a difficult task on the road among the world. Several motor and cognitive talents will be acquired in order to drive. Inadequate human action is a primary contributor to traffic accidents. Imperfect perception, a lack of concentration, diverting attention to other tasks, and a low level of arousal have all been proposed as potential explanations of poor performance in various studies. A driver's ability to react effectively to critical events can be significantly impaired by driver tiredness induced by lengthy hours behind the wheel, as well as cognitive overload [3].

Understanding the causes of traffic accidents and the best ways to prevent them is crucial to improving traffic safety and driver well-being. At this time, high-resolution cameras are increasingly typically encountered in a wide range of visual applications. According to general consensus, anomalous driving conduct can be categorised into three categories. The first pertains to requirements such as smoking, drinking, eating, and adjusting the air conditioning, among others. The second category includes habits like as applying makeup, shaving, conversing, using cell phones or other distracting gadgets while driving, and so on. The third category includes distractions produced by the surroundings, such as caring for children, long-term unexpected events outside the vehicle, and so on. The usage of a cellphone has been suggested as a significant contributor to dangerous driving [5].

The rest of the research paper is organized as follows: The ease of use is reviewed in Section II. In Section III, we have detailed design and implementation of deep convolutional neural network techniques and classify the types of abnormal driving behaviors. We evaluate the performance and describe the experimental analysis of ADBD Net in Section IV. Finally, we give the conclusion and future enhancement remarks in Section V.

II. EASE OF USE

Through Traffic Oscillation, Asymmetric Theory is Used to Identify Heterogeneous Driver Behavior Characteristics. To capture the driving characteristics of car-following behaviour during traffic oscillation [1], the asymmetric driving theory is applied in this study [2–4]. The drawback is that it looks to be sophisticated due to the difficulty of machine learning algorithms and the demand for additional samples, which is a disadvantage. On the basis of Naturalistic Driving Study data, the researchers investigated the effects of various factors on right-turn distracted driving at intersections. The proposed technique detects the driver's behaviour while drowsy and issues an alarm. The drawback is that the deployment of ADAS indicators requires more precision. [3] A Review of Current Drowsiness Detection Techniques- This study provides a thorough examination of existing approaches for detecting driver drowsiness, as well as a detailed examination of commonly used classification algorithms. Thus, top supervised learning is used in this method, however the method appears to be inaccurate. [4] Deep learning fusions

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Canny Edge Detection Algorithm: A Modern Traffic Control System using

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ABSTRACT
The ever-increasing traffic jams in urban areas makes it necessary to make use of cutting- edge technology and equipment in order to advance the state of the art in terms of traffic control. The currently available solutions, like time visitors or human control, are not adequate to alleviate the severity of this crisis. The findings of this investigation have led to the proposal of a system for the control of traffic that makes use of canny edge detection and digital image processing to determine, in real time, the number of vehicles present. The above imposing traffic control advanced technologies offers significant advantages over the existing systems in real - time, transportation management, robotization, reliability, and efficiency. In addition, the complete process of digital image acquisition, edge recognition, as well as green signal assignment is demonstrated with accurate blueprints, and the final outcome are stated by hardware. All of this is done with four separate photographs of various traffic scenarios.

Keywords - Intelligent Traffic Control, Density-based Signalization, Edge Enhancement

1. OVERVIEW
The ever-increasing number of cars and trucks that are driving around today, combined with the limited resources supplied by the existing infrastructure, is contributing to the worsening of traffic problems. Those making use of a public route for the purpose of travel may include pedestrians, riding or herding animals, automobiles, trolleybuses, or other conveyances. Traffic on roads may take place in either direction. The laws that govern traffic and regulate cars are referred to as traffic laws, but the rules of the road include not only the laws but also any unofficial regulations that may have emerged over the course of time in order to make the flow of traffic more orderly and efficient. Road signs, often known as traffic signs, are signs that are put along the sides of roadways in order to offer information to drivers.

1.1   Traditional Traffic Management Systems

1.1.1   Human based Control Systems
It requires a significant amount of manpower to manually control the instance name, and it also requires manual control of the traffic. The number of traffic police officers that are assigned to a certain city or region is determined by the countries and states in which the location is located. In order to maintain order and control the flow of traffic, the police officers will be equipped with tools such as sign boards, sign lights, and whistles. In order for them to effectively regulate the traffic, they will be given the instruction to dress in particular uniforms.

1.1.2   Mandatory Control Systems
Timers and electrical sensors work together to regulate the automatic traffic signal. At the start of each new step of the traffic signal, the time limit is programmed with a consistent sequential number. The lamps will switch on and off through automatically once the valuation of the clock is adjusted so that it could be set to the desired duration. It will collect the allocation of the vehicle and also signals on each phase while using electrical sensors; guess it depends on the sensor, the lights will quickly change between the ON and OFF positions.

1.2   Disadvantages
More man power is required for the system that relies on human controls. Due to a lack of available personnel in our traffic police force, we are unable to manually regulate the traffic flow in any part of a town or city at this time. Therefore, we require a more effective strategy to manage the traffic. On the other hand, an automatic traffic control system utilises a timer for each phase of the traffic signal. Another approach is to make use of electronic sensors that can identify vehicles and then emit a signal to warn drivers that they are wasting their time by proceeding through a green light while the road is empty. Congestion in the traffic also occurred while the electronic sensors were being

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Highway Adaptation-Based Car Safety Application Based onGPS and GMS Technologies

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Abstract

The majority of collisions occur owing to a lack of prior knowledge about the driver. Drivers are sometimes intrinsically distracted, which leads to serious highway speed limit zone accidents, particularly in universities, schools, hospitals, and workplaces. To avert crashes, preparatory information regarding the speed restriction zone is communicated with the motorist in this study paper. This study provides a highway adaptation-based car safety application based on GPS and GMS technologies. While crossing the speed limit zone, this system is designed with a low cost to figure out collision avoidance in advance by properly informing the driver with a beep sound and showing the word "Go Slow" on the dashboard. On the roadway suited for real-time application, the suggested real-time system is tested and appraised. Furthermore, the suggested system considers that rapid braking causes mechanical stress, chassis damage, and low fuel usage, making passengers in the car unpleasant, and so provides a substantial benefit over vehicle safety systems.

Keywords: Accidents, Speed Limit Zone, GPS, GMS Automotive, Safety Application.

1   Introduction

Based on the current Association for Safe International Road Travel (ASIRT),—nearly 518 billion $ are spent yearly. As per ASIRT, the majority of accidents are affected by distracted driving and motive on the highway. Many research articles disclose automotive security systems using Global Positioning System (GPS) and Global System for Mobile communications (GSM) technology. As an initiation, the research paper [1] reveals the location of the automotive vehicle for anti-theft application using GPS and GSM Technology. Similarly, [2] fine-tune the accuracy of GPS for vehicle localization via INS-Assisted single RSU. The research paper [3] approaches the design model for Traffic alert and collision avoidance systems using GPS Technology. The Vehicle tracking systems [4] enhances the utilization of GPS Technology in real-world

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Fuse the Multimodality Medical Images using Transforms with Neuro Fuzzy based Hybrid Fusion Techniques

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Abstract
A great challenge in medical image processing is combining the complement pathological features into a single image. Various issues are faced by the images that undergo fusion. Some examples are the way the fusion artifacts, appear, edge strength, contrast of input medical image finally the cost of computation. Here the input image is decomposed by applying Non-Subsampled Contourlet Transform (NSCT) The averaging fusion rule with type two fuzzy logic is employed in components of lower frequency. The maximum fusion rule with PCNN is applied in components of high frequencies. The inverse transforms and coefficients of frequency bands are used to derive fused image. The best diagnosis of the health issues from the given sources' are obtained from the fused image.

Keywords:

Multimodal Medical Image Fusion, CT, MRI, PET, SPECT, Neurocysticercosis, Neoplastic, Astrocytoma, Anaplastic Astrocytoma.

1. Introduction

This paper focuses on the NSST as a decomposition tool. In this algorithm, the flexible multiresolution, shift-invariant and lossless feature of the NSST are related to the two features of PCCN i.e., global coupling and pulse synchronization. The PCNN is similar to the visual neural system of man. The PCNN produces a binary pulse image sequences when stimulated with a grayscale or color image. PCNN is different from ANN in the sense that it does not train like ANN. The additive nature of the neighboring neurons helps in activation with no input in ANN. On the contrary in PCCN, the neuron doesn't get activated by the coupling input. This serves to be a vital and beneficial part in the image processing. The PCNN is used as a nonlinear filter to select the coefficients in the NSST decomposed images. The combining method is applied separately for the

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Management of business using machine learning for decision making

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Abstract— While machine learning and artificial intelligence might lessen expenses and increment the viability of business processes, these methods can likewise obliterate the worth of an organization, some of the time with serious repercussions. The failure to perceive and control that chance might make a few directors put off carrying out innovations, keeping them from arriving at their maximum capacity. Machine learning has colossal potential for decreasing the expense of labor and concern, speeding up organization activities, and further developing client care. In the ongoing time of uncommon specialized headway, it is recognized as one of the huge application regions, and reception is advancing across essentially all businesses. In light of this, Researchers first provide a brief review of the different types of machine learning before presenting three different ways that machine learning is used in businesses. The trade-off between machine-learning algorithms' accuracy and interpretability is covered. This is an important factor to take into account while choosing the best approach for the task at hand.

Keywords—Machine learning (ML), management, decision, business, networks

I.   INTRODUCTION

Regulatory information, or data accumulated by or in the interest of public associations for the reasons for enrolment, exchange, and record-keeping, might be mined to all the more likely grasp cultural examples, patterns, and strategy outcomes, or tidied up and made accessible to control new labor and products. The creation of centers, networks, and structures to better comprehend societal issues utilizing these data has resulted from numerous government evaluations and initiatives, particularly in the previous ten years. Yet more generally, there has been a drive to use administrative data to create models that will help with the understanding and delivery of public services on a day-to-day operational basis rather than providing broad-based evidence to improve policy or government-citizen interaction [1]. These new

organizational models are intended to behave as automatic actions or even as decision support. These systems were created primarily utilizing machine learning methods, which employ algorithms to find patterns in the information and transform them into useful forms. Late years have seen an expansion in disagreeable articulations concerning artificial intelligence.

For example, Ginni Rometty, Chief of IBM, contends that man-made intelligence innovation is. On the opposite side, Bill Entryways and Stephen Peddling have both expressed that individuals ought to be worried about the danger that artificial intelligence presents. Though it has been claimed for decades that information technology is a "central factor" in public management changes, these technologies typically fuse onto current practices rather than transform them fundamentally [2]. As indicated by scholastics, innovation has as of late become the dominant focal point and moved a portion of the New Open Management's directions into 'computerized time administration.'

They address the flood of interest in, zero-contact innovation and feature patterns including the nature of the information of soloed businesses, information sharing techniques pointed toward making an 'all in one resource', and 'start to finish 'administration conveyance with minimal repeating data gathering [3]. As a result of the public sector's adoption of digital technological advancements, some have asserted that technological change affects bureaucracy in public organizations, as public organizations' practices and capabilities co-evolve with innovation while being affected by the wider organizational framework.

II.   LITERATURE REVIEW

The numerous approaches to semantic linguistic analysis are almost as common. One of the methods found in a review by Wormell was the use of maps to assist with understanding speech recognition in articles for information retrieval.

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Plant Leaf Disease Prediction: A PLDD Net-SVM Model Proposed using Internet of Thing (IOT) and Integrated Learning Model

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Abstract:
Diseases that affect the leaves of tomato plants are the primary reason for the drastic reduction in production. As a consequence of this, it is essential to develop an intelligent detection method for illnesses that affect citrus plants. Nowadays, deep learning approaches have received encouraging results in a variety of artificial intelligence difficulties. As a result, we decided to apply these methods to the task of diagnosing diseases that can affect citrus fruit and leaf. A convolutional neural networks (CNNs) model is suggested using an integrated method in this piece of research. The Plant Leaf Diseases Diagonis (PLDD Net) – Support Vector Machine (SVM) Model that has been created has the goal of distinguishing healthy veggies and plants from fruits and leaves that have typical tomato diseases like early blight and late blight. By combining multiple different layers of data, the PLDD NET model that was introduced can extract complimentary discriminative characteristics. On the PlantVilage datasets, the SVM model was evaluated in comparison to a large number of cutting-edge deep learning models. According to the findings of the experiments, the PLDD Net-SVM model surpasses its rivals in a number of different evaluation metrics. As a result of its test accuracy of 96.55 percent, the PLDD Net-SVM model is an invaluable guide that helps for farmers who are interested in classifying tomato leaf diseases.
Keyword: Tomato leaf diseases, Support Vector Machine (SVM), convolutional neural network (CNN), deep learning.

1 Overview

The goal of agricultural research is to improve food productivity and quality while decreasing economic costs and increasing profitability [1]. Plants have a significant part in the economic growth of any state. citrus plants, which are high in vitamin C, are popular throughout the Indian subcontinent, and also in the Mideast. As a new resources in the agricultural industry, tomato plants are used to produce a variety of various agro - food, notably jams, candies, ice creams, and confectionary [2], [3]. The process of recognising and diagnosing diseases is subjective, error-prone, time-consuming, and costly. There will also be new diseases that appear in previously undiscovered regions where no local expertise and knowledge is available to address them [4].] Automated method for detecting leaf infections and their symptoms are need to be identified. Crop anomalies can now be spotted in real time thanks to the development of modern computer-aided techniques and sophisticated tools. For plant disease detection and diagnosis, traditional machine learning algorithms have been successful, but they are confined to the sequential image analysis tasks of segmentation, extraction of features, and pattern matching, such as employing support vector machines (SVMs), the k-nearest neighbour method, and Neural Networks (ANNs) [5–10]. In order to pick and retrieve the best apparent pathological traits, highly skilled engineers and skilled specialists must be used, that is not only random and also expensive in terms of personnel and economic center.

Specialist feature extraction and selection are considered as an important component of traditional machine learning. To train a traditional machine learning classification, a specialist must create a feature extraction algorithm that can produce a most relevant characteristics and input those features into the machine. Classification decisions are taken by learning the classifier models from data and applying what it has learned. Deep-learning algorithms, on the other hand, have recently developed excellent results [7], [9], transforming the field of images and object categorization. Deep-learning algorithms learn hierarchical structures and are learned on big datasets to get strong classification results. ImageNet [15] is one. These techniques have a long training period compared to conventional classification methods. This is because of the many data-learned factors.
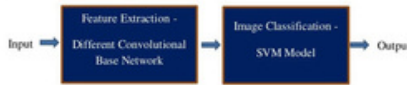
Figure 1: General CNN Architecture for Image Classification

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VISUAL BASED HUMAN ACTION RECOGNITION USING MACHINE LEARNING ALGORITHMS

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Abstract -- This paper proposes a system which will detect action of a human by extracting the movement cues from the body. This system is helpful to detect suspicious activity in public places. Detection of action will be based on body parts not on facial expression. In this paper, we utilized a technique for object description in view of k-means grouping calculations and speeded up Robust Feature (SURF) strategy for key points identifications. This calculation requires one input parameter like K-means (k, number of items). The experiments are completed utilizing openly accessible activity recognition dataset, and the separated movement feature is demonstrated by Random Forest and Naive Bayes which are utilized to classsify the human activity. Exploratory outcomes demonstrate that Random Forest is proficient in perceiving the human activity with a general recognition exactness of 91.69 %, when contrasted with Naive Bayes.

Keywords: Activity recognition, K-means clustering, Dynamic time wrapping, Random Forest, Naive Bayes object detection

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SURVEY ON AUTOMATIC WATER CONTROLLING SYSTEM FOR GARDEN USING INTERNET OF THINGS (IOT)

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Abstract: In this article, we will discuss the automatic plant water control system, which is one of the most widely used and helpful automated systems available today, and which assists people in their everyday duties by decreasing or totally replacing their effort. This system employs sensor technologies, as well as a microcontroller and other electronics, to act as a smart switching system that detects soil moisture levels and, if necessary, irrigates the plant. The goal of this project is to demonstrate how, in only a few hours, anyone can create their own low-cost automatic plant watering system by connecting a few electronic components and other materials. In our experiment, we linked all of the essential materials exactly as specified in this paper to see if our system would function properly. Although the system created in this manner is most suited for home use as a solution to some everyday and common concerns, there is a wide range of options for applying similar systems as a long-term solution to many agricultural concerns.

Key words: Water controlling system, plant, sensor, automatic, technology

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Robust Emotion Recognition on Hand Crafted Features in Static Action Sequences

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ABSTRACT: The acknowledgement of human emotions plays a key role in daily life and is necessary for successful social interaction. In many applications of human computer interaction nonverbal communication methods such as human body movements, face expressions, eye movement and gestures are used, among them the recognition of emotions from human body movements, because they convey the emotions and feelings of the person. In this paper Advanced Block Based Intensity Value (ABBIV) feature is proposed for emotion recognition from human body movements and compared with Histogram of Gradient (HoG) feature. The GEMEP corpus videos for five basic emotions are converted into gray frames. Then the HOG feature and Block Based Intensity Value (BBIV) features were extracted from the body movements of the human present in the consecutive frames. Among the two features Advanced Block Based Intensity Value (ABBIV) perform better accuracy than HoG feature. The extracted features are fed to the SVM and KNN and Random Forest classifiers to identify the emotions of the human. The performance measure can be calculated using F-Score value. The five archetypical emotions (angry, fear, joy, sad, pride) from GEMEP corpus dataset are used for this experiment. **Keywords:** Body Movements, Non-verbal communication, Emotion recognition, Histogram of Gradients (HoG), Advanced Block based intensity value (ABBIV), SVM, KNN and Random Forest.

INTRODUCTION

Recent research on experimental psychology demonstrated that emotions are important in decision making and rational thinking. Over the years research in emotion recognition mainly concentrated on facial expression, voice analysis, full-body movements and gestures. The possibility of many scientists in the psyche, psychiatry, neurosciences and behavioural sciences to measure and recognise emotions is also in the interests of many people. Computer systems with exact measurements can significantly improve the quality and acceleration of current research, where many data are manually processed. Emotional conditions are a foundational phase of human interaction and should thus also be used in interaction between humans and computers. Affective computing paradigm suggests that user interfaces should answer not only user orders, but also emotions. Besides thousands of articles and books, emotions were always at the centre of human knowledge and the raw material, but they have now been for technology and science too. Evolving research shows that people can efficiently decode emotional signals in non-verbal communication from others and deduce other people's emotional states. Somebody actions are referred to as gestures. Mostly the head, hands and arm can perform the action. These interactions contain details and the content of the interactions of emotional states. In the past decade, plenty of effort has been taken to recognize emotions automatically through their combinations. The research was conducted with audio, facial expression and followed by bodily expressions. Recognizing emotions from human body movements has numerous applications with the support of psychological studies. Some areas in which automated emotional recognition by body signals are applied are suspicious action recognition to alarm safety personnel, computer interaction, and care and to help autism patients.Many people are also interested to be able to measure and to recognize emotions for many scientists in psycho-psychiatry, neuroscience and behavioral sciences. The quality and acceleration of current research, with many data handled, can be improved significantly by computer systems with exact measures. Emotional conditions are a basic phase of human interaction and should therefore be used in human-computer interactions as well. Affective countries motivate our social interactions and enrich them. If computing does not take into account these aspects, the interaction will also lose a great many information the user receives. Some actions of the body are called gestures. The action can mainly be carried out with the head, hands and arm. These conversations collect details and

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Music Genre Classification Using Deep Learning Techniques

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Abstract

Music Genre classification (MGC) is very important in today's world due to rapid growth in music tracks, both online and offline. In order to have better access to these we need to index them accordingly. Automatic music genre classification is important to obtain music from a large collection. Most of the current music genre classification techniques uses machine learning techniques. In this paper, we present a music dataset which includes four different genres. A Deep Learning approach is used in order to train and classify the system. Here H2O.Deep Neural Network (DNN) is used for training and classification. Feature Extraction is the most crucial task for audio analysis. Mel Frequency Cepstral Coefficient (MFCC) is used as a feature vector for sound sample. The proposed system classifies music into various genres by extracting the feature vector. Our results show that the accuracy level of our system is around 97.8% and it will greatly improve and facilitate automatic classification of music genres.

Keywords: Music Genre classification, Mel Frequency Cepstral Coefficient, Deep Neural Network.

I. INTRODUCTION

The music dataset downloading from online music collections has become a part of the daily life of probably a large number of people in the world. The users often formulate their preferences in terms of genre, such as hip hop or pop or disco. However, most of the tracks now available are not automatically classified to a genre. Given a huge size of existing collections, automatic genre classification is important for organization, search, retrieval, and recommendation of music.

Throughout computer science, the implementation of the Digital Signal Processing (DSP) and Artificial Intelligence (AI) principles has now become very significant. Musical classification uses the artificial intelligence algorithm to categorize a musical file according to its type. It informs

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Hybrid Integration of Transforms with Neural Network based Fusion Techniques for clinical and Healthcare Applications

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ABSTRACT

The prime objective of Hybrid Multimodal Medical Image Fusion (HMMIF) method is preservation of important features of images and details about various images from source for creating a visually robust enough single fused image provides a very promising diagnostic tool with numerous clinical and healthcare applications. The Non subsampled shearlet Transform (NSST) with Pulse Coupled Neural Network (PCNN) based hybrid algorithms are proposed for MMIF in this paper. In the proposed method, initially input images are decomposed to less and high frequencies with the application of NSST. The components with lesser frequency are applied with averaging fusion rule. The maximum fusion rule with PCNN is applied on high frequency components. The coefficients produced by every frequency bands are inverse transformed to provide fused images. The proposed algorithms provide the best fused images without distortion and false artefacts. Comparison of proposed technique is done with the pre-existing conventional techniques. The images obtained by fusing both sources' content with the help of the above algorithm gives the best with respect to visualization and diagnosis of the condition.

Key words: Multimodal Medical Image Fusion (MMIF), Computed Tomography, Magnetic Resonance Imaging, Positron emission Tomography, Single Photon Emission Tomography and Healthcare applications.

1 INTRODUCTION

Various medical images for clinical diagnosis are provided by the development if of medical imaging and information processing technologies. These are widely applied in diagnosing diseases, surgery, and radiotherapy. Every sensor got from various imaging modalities have different benefits and gives different information about the human body. Hence a complete diagnosis cannot be obtained from a single image and doctors need combination of various imaging modalities to get a more detailed data about the tissue or organ. A single medical picture modality is incapable of providing comprehensive and precise information. As a result, not every modality may display all of the relevant information about a specific condition. As a result, physicians always advise patients to undergo a variety of imaging modalities before making a definitive diagnosis. Almost majority health centres lack the ability to obtain combined details about multiple modalities using a single system. Because of the exorbitant

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Smart Plant Leaf Disease Detection System using Internet of Thing (IOT) and PLDP Net-RF Model

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Abstract - The decline in apple yield is largely due to diseases that harm the apple's leaves. As a result, it is critical that diseases of citrus plants be detected using an intelligent detection technology. Many artificial intelligence problems can now be solved using deep learning methodologies. Consequently, we decided to use this technology to identify diseases that can impact citrus fruit and leaves. A model based on convolutional neural networks (CNNs) is proposed in this study utilising an integrated strategy. There was a need to construct a model to discriminate healthy vegetables and plants from those with typical apple leaf diseases like black rot and apple scab, therefore the Random Forest (RF) model was devised. The PLDP Net-RF model, which was introduced, may extract complementary discriminative qualities by merging many different layers of data. A number of cutting-edge deep learning models were tested against the RF model on the PlantVillage datasets. The PLDP Net-RF model outperforms its competitors in a variety of evaluation metrics, according to the results of the tests. For farmers who are concerned with detecting apple leaf diseases, the PLDP Net-RF model is a beneficial tool.

Keyword: Apple leaf diseases, Random Forest (RF), convolutional neural network (CNN), deep learning, transfer learning.

1 INTRODUCTION

Research in agricultural production is aimed at boosting yields and quality of food while lowering prices [1]. State economies rely heavily on the production of plants. Citrus trees, which contain a lot of vitamin C, are common in India and the Middle East. Raw materials from apple plants are utilised in the agricultural business to manufacture a wide range of agro-food products such as confectionery [2, 3], jams, candies, and frozen desserts. It is difficult, time-consuming, and expensive to make a correct diagnosis based on subjective, error-prone, and time-consuming information. No local experience or knowledge will be available to deal with emerging diseases that develop in previously unknown places [4]. According to the author [20], [21], "transferable learning" reflects the approaches people use in everyday life because we don't study everything from beginning to end, but rather use knowledge gained in one activity to help us in other actions. As a result, we are able to anticipate potential

problems. For a transfer learning model, isolated learning mod can use the learned information in another related activi resulting in improved performance on a small data source an shorter training time. Pretrained CNN features were employed [22]–[26] and other researchers to analyse large ima collections using CNN-based algorithms.

1.1 Background

Visuals play an important role in today's technolo communication. At work, they're all over the place. When a s is taken from a natural perspective, it can be understood humans. It's clear to us that today's technology can outperfo the human brain. Visuals can be deciphered by computers. It possible to identify objects in photos using machine learni Automated classification and decision-making are possible ba on these data. When it comes to image segmentation and obj recognition, there is no better model than CNN.

1.2 Image Segmentation using Machine Learning Algorithms

Machine learning is used to perform image segmentation. Ima segmentation is an essential step in the disciplines of mach learning and computer vision. Segmenting an image i meaningful sections and assigning each portion to a particu category using a labelling system is the goal of segmentation. can perform an infinite number of tasks using ima segmentation. There are many examples, including self-driv car systems and robots controlling roads, systems for verifyi the quality of fruits and vegetables, systems for maintaining quality of production lines, and so on. For each pixel in segmented image, the image is assigned an appropriate lab These pixel-by-pixel labels are known as dense predictions.

1.3 Region Based Segmentation

Images can be segmented using a region-based approach separates the objects into distinct zones based on some criteri

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AUGMENTED AND VIRTUAL REALITY IN INDUSTRY 5.0

Edited by Richa Goel, Sukanta Kumar Baral, Tapas Mishra and Vishal Jain

AUGMENTED AND VIRTUAL REALITY

DE G
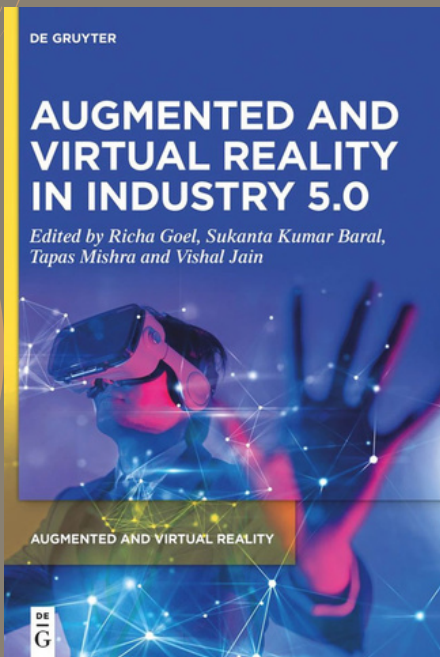
B. Rajalingam, R. Santhoshkumar, P. Deepan, P. Santosh Kumar Patra

2 An intelligent traffic control system using machine learning techniques

Abstract: The ever-increasing traffic jams in urban areas makes it necessary to make use of cutting-edge technology and equipment in order to advance the state of the art in terms of traffic control. The currently available solutions, such as time visitors or human control, are not adequate to alleviate the severity of this crisis. The findings of this investigation have led to the proposal of a system for the control of traffic that makes use of Canny edge detection and digital image processing to determine, in real time, the number of vehicles present. The above imposing traffic control advanced technologies offer significant advantages over the existing systems in real-time transportation management, robotization, reliability, and efficiency. In addition, the complete process of digital image acquisition, edge recognition, as well as green signal assignment is demonstrated with accurate blueprints, and the final outcomes are stated by hardware. All of this is done with four separate photographs of various traffic scenarios.

Keywords: Intelligent Traffic Control, Density-based Signalization, Edge Enhancement

1 Overview

The ever-increasing number of cars and trucks that are driving around today, combined with the limited resources supplied by the existing infrastructure, is contributing to the worsening of traffic problems. Those making use of a public route for the purpose of travel may include pedestrians, riding or herding animals, automobiles, trolleybuses, or other conveyances. Traffic on roads may move in either direction. The laws that govern traffic and regulate cars are referred to as traffic laws, but the rules of the road include not only the laws but also any unofficial regulations that may have emerged over the course of time, in order to make the flow of traffic more orderly and efficient. Road signs, often known as traffic signs, are signs that are put along the sides of roadways in order to offer information to drivers.

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BOOK CHAPTER

Concepts of Artificial Intelligence
and Its Application in
Modern Healthcare Systems

Edited by
Deepshikha Agarwal
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CRC Press
Taylor & Francis Group

Medical Image Fusion

Transforms Techniques-Based Comparative Analysis for Brain Disease

By B. Rajalingam (/search?contributorName=B. Rajalingam&contributorRole=author&redirectFromPDP=true&context=ubx), R. Santhoshkumar (/search?contributorName=R. Santhoshkumar&contributorRole=author&redirectFromPDP=true&context=ubx), P. Deepan (/search?contributorName=P. Deepan&contributorRole=author&redirectFromPDP=true&context=ubx), P. Santosh Kumar Patra (/search?contributorName=P. Santosh Kumar Patra&contributorRole=author&redirectFromPDP=true&context=ubx)

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ABSTRACT

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE (AI&DS)

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BOOK CHAPTER

Multimodality Medical Images for Healthcare Disease Analysis

B. Rajalingam ✉ R. Santhoshkumar ✉ P. Santosh Kumar Patra, M. Narayanan, G. Govinda Rajulu,
T. Poongothai

Summary

Image fusion has grown as a powerful technique to enhance the aspects of the image, boosting its quality and making it more clear and descriptive, thanks to recent advancements in imaging technology and instrumentation. In medical assessment, using the specific quality of each image and combining them ensures precise diagnosis. The goal of this study is to see if a single domain radiological image can provide information about blood flow and metabolism. MRI and CT imaging offer information on the location and hard tissues. Organ functioning features can be seen in SPECT and PET imaging. As a result, the combined frame can more precisely localize disease. The fundamental aim for medical picture fusion is to improve disease diagnosis, reduce storage space, make clinical instruments more effective, enable accurate and effective distant assessment, and enhance the information content in a single image. To create hybrid algorithms for multimodal medical image fusion employing a mix of CT/MRI, MRI/PET, and MRI/SPECT medical imaging for better visual interpretation of diseases by radiologists for the goal of accurate diagnosis, therapy planning, and patient follow-up. The following are the goals of this study: 1. to contribute to multimodal medical picture fusion by creating novel hybrid algorithms; 2. to combine MRI pictures with CT, PET, and SPECT images in order to extract the relevant information from each multimodal medical imaging; 3. to employ hybrid fusion algorithms to fuse multimodal medical pictures for accurate diagnosis and precise localization of cancers and lesions; and 4. to create a generalized method that can be used to combine anatomical and functional pictures regardless of imaging modalities.

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ARTIFICIAL
INTELLIGENCE
AND ITS
APPLICATIONS

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DR. M. AMUTHA

Chapter 2 Importance and Applications of Artificial Intelligence and Deep Learning Techniques in the Field of Medical Health Care

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Chapter 3 An Artificial Intelligence Approach To Predict Lifestyle Diseases

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Chapter 4 Artificial Intelligence: The Future of E-commerce

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LIST OF PATENTS

S. No.	Name of the Inventor	Patent Number	Title of the Patent
1	Dr. B. Rajalingam	20214103285	Automatic Water Controlling System for Home Gardening
2	Dr. B. Rajalingam	02141021184	Smart Garbage Monitoring System Using Sensors with RFID Over Internet Of Things
3	Dr. B. Rajalingam	20214103285	Automatic Water Controlling System for Home Garden
4	Dr. B. Rajalingam	202241005383	Advanced self assessment of global pandemics like SARS – COV 2 for healthy race using machine learning
5	Dr. B. Rajalingam	202241025101	Real-Time Intelligent Surveillance System for Aged People Fall Detection
6	Dr. B. Rajalingam	202241023677	Intelligent Monitoring System: Emotion Recognition of Autism Children from Smart Class Video
7	Dr. B. Rajalingam	202241027045	An IoT and Deep Learning-based Real-Time Smart Framing of Maize Crop Drought Management System
8	Dr. B. Rajalingam	202341050259	Effective Garbage Data Filtering Algorithm For Sns Big Data Processing
9	Dr. B. Rajalingam	202341050260	Machine Learning Techniques For Detection of Offensive and Hate Speech In Tweets of Regional Languages
10	Dr. B. Rajalingam	202341050261	Deep Convolution Forest fror Spam Detection In Text
11	Dr. B. Rajalingam	202341041216	An Artificial Intelligence - IoT based Smart Poultry Farm Prototype for Indian Farming
12	Dr. B. Rajalingam	202341050257	Fake Media Detection Based On Natural Language Processing and Block Chain Methods
13	Dr. B. Rajalingam	202341050268	Detection Of Chronic Heart Failure From Heart Sounds using Machine Learning and Deep Learning
14	Dr. B. Rajalingam	202341050271	Inverse Cooking - Recipe Generation from Food Images
15	Dr. B. Rajalingam	202341050282	Intelligent Agent Based Job Search System
16	Dr. B. Rajalingam	202341050285	Detection of Cyber Bullying on Social Media using Machine Learning
17	Dr. B. Rajalingam	202341050288	IOT Enabled Laboratory Automation System
18	Dr. B. Rajalingam	202341050294	Smart Phone Based Malaria Parasite Detection In Thick Blood Smears using Deep Learning
19	Mr. N. Mahboob Subani	202341050260	Machine Learning Techniques For Detection of Offensive and Hate Speech In Tweets of Regional Languages
20	Ms. V. Jaysri	202341050257	Fake Media Detection Based On Natural Language Processing And Block Chain Methods
21	Ms. Afreen Begum	202341050268	Detection Of Chronic Heart Failure From Heart Sounds using Machine Learning and Deep Learning

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(12) PATENT APPLICATION PUBLICATION — (21) Application No.202341050268 A
(19) INDIA
(22) Date of filing of Application :26/07/2023 — (43) Publication Date : 01/09/2023

(54) Title of the invention : DETECTION OF CHRONIC HEART FAILURE FROM HEART SOUNDS USING MACHINE LEARNING AND DEEP LEARNING

(57) Abstract :
Chronic heart failure (CHF) affects over 26 million of people worldwide, and its incidence is increasing by 2% annually. Despite the significant burden that CHF poses and despite the ubiquity of sensors in our lives, methods for automatically detecting CHF are surprisingly scarce, even in the research community. We present a method for CHF detection based on heart sounds. The method combines classic Machine-Learning (ML) and end-to-end Deep Learning (DL). The classic ML learns from expert features, and the DL learns from a spectro-temporal representation of the signal. The method was evaluated on recordings from 947 subjects from six publicly available datasets and one CHF dataset that was collected for this study. Using the same evaluation method as a recent PhysioNet challenge, the proposed method achieved a score of 89.3, which is 9.1 higher than the challenge's baseline method. The method's aggregated accuracy is 92.9% (error of 7.1%); while the experimental results are not directly comparable, this error rate is relatively close to the percentage of recordings labeled as "unknown" by experts (9.7%). Finally, we identified 15 expert features that are useful for building ML models to differentiate between CHF phases (i.e., in the decompensated phase during hospitalization and in the recompensated phase) with an accuracy of 93.2%. The proposed method shows promising results both for the distinction of recordings between healthy subjects and patients and for the detection of different CHF phases. This may lead to the easier identification of new CHF patients and the development of home-based CHF monitors for avoiding hospitalizations.

No. of Pages : 15 No. of Claims : 5

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(12) PATENT APPLICATION PUBLICATION — (21) Application No.202341050285 A
(19) INDIA
(22) Date of filing of Application :26/07/2023 — (43) Publication Date : 01/09/2023

(54) Title of the invention : DETECTION OF CYBER BULLYING ON SOCIAL MEDIA USING MACHINE LEARNING

(57) Abstract :
Social media is a platform where Cyber-Bullying is wide -spread. The proposed problem is an implementation of detection of cyber-bullying on social networking sources such as Twitter, YouTube etc. Because of the burning consequences of internet bullying, the computer science field is involved in detection of cyber-bullying through text and Social Analysis. However, the public suffering has only increased and the ramifications are less. In order to prove and perceive the accuracy, hence using Sentimental Analysis and to recognize the analysis, Big Data Analytics will be utilized. Process: from twitter/ you tube we collect the tweets and retweets, comments with timestamp. We prepare all the data collection with attributes such as user ID user name, time space or login time, comments etc. Real time data need to be collected minimum 8k. Later apply the algorithms (Ada boost, SGD, Multi nominal NB). Output should be a graph telling precision values and fl score best algorithm among all. Develop it into a webpage with HTML and CSS. The page should be with welcome to cyberbullying detection. About the process login page and result with feedback form for user Contact info. Solutions should be alert message and block system for admin.

No. of Pages : 14 No. of Claims : 5

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(12) PATENT APPLICATION PUBLICATION — (21) Application No.202341050259 A
(19) INDIA
(22) Date of filing of Application :26/07/2023 — (43) Publication Date : 01/09/2023

(54) Title of the invention : EFFECTIVE GARBAGE DATA FILTERING ALGORITHM FOR SNS BIG DATA PROCESSING

(57) Abstract :
Recently, as the use of social network services (SNS) increases in daily modern life, the amount of SNS data generated has become very large. In addition, many efforts are being directed to extracting various pieces of information by collecting, processing and analyzing large amounts of SNS data. While various pieces of information can be extracted from SNS data through big data processing, this is a highly resource intensive task. Therefore, in order to obtain information from SNS data, a lot of time and material resources are required. In this work, we propose a data filtering algorithm that filters out garbage data that has no meaning as a data among SNS data. This algorithm improves the filtering accuracy by recursive learning based on the initial learning data.

No. of Pages : 12 No. of Claims : 5

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(12) PATENT APPLICATION PUBLICATION — (21) Application No.202341050257 A
(19) INDIA
(22) Date of filing of Application :26/07/2023 — (43) Publication Date : 01/09/2023

(54) Title of the invention : FAKE MEDIA DETECTION BASED ON NATURAL LANGUAGE PROCESSING AND BLOCK CHAIN METHODS

(57) Abstract :
Social media network is one of the important parts of human life based on the recent technologies and developments in terms of computer science area. This environment has become a famous platform for sharing information and news on any topics and daily reports, which is the main era for collecting data and data transmission. There are various advantages of this environment, but in another point of view there are lots of fake news and information that mislead the reader and user for the information needed. Lack of trust-able information and real news of social media information is one of the huge problems of this system. To overcome this problem, we have proposed an integrated system for various aspects of blockchain and natural language processing (NLP) to apply machine learning techniques to detect fake news and better predict fake user accounts and posts. The Reinforcement Learning technique is applied for this process. To improve this platform in terms of security, the decentralized blockchain framework applied, which provides the outline of digital contents authority proof. More specifically, the concept of this system is developing a secure platform to predict and identify fake news in social media networks.

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

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE (AI&DS)

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Patent 1

(12) PATENT APPLICATION PUBLICATION   (21) Application No.202341050282 A
(19) INDIA
(22) Date of filing of Application :26/07/2023   (43) Publication Date : 01/09/2023

(54) Title of the invention : INTELLIGENT AGENT BASED JOB SEARCH SYSTEM

(57) Abstract :
In today's global economy, the challenge associated with finding a job is amplified by the technicalities associated with the Job search process. Normally when we want to apply for a job, we search the newspapers, listen to radio and television broadcasts that may advertise vacancies, register ourselves with many job search sites such as Academickeys.com, Monster.com, Careerbuilder.com and so on. Many employers do not directly register themselves with these mediums to provide full details of their job specifications but instead post important details on their company's website only. Therefore we do not always get to know all the vacancies, the nature and status of the employer to decide if this is the sort of job that is being sought for. Also at times we get flattered by the company's profile but don't get information about the rating of the company by the existing or past employee in terms of salary and so. Taking all these into consideration we propose to develop an intelligent agent (instead of a human agent)[1-3] to perform the same search operations by interacting with the employer and job search coordinator agents. We propose to use an agent based utility concept to provide suitability profiling based on configurable factors such as distance from work, days and shift requirements, work environment, safety and hazard considerations, remuneration, skill-set, etc. The proposed system would be based on the ANDROID, JADE, LEAP technologies to provide mobile and web based accessibility. These agents would function based on fuzzy preference rules, to make a proper decision in getting a list of jobs corresponding to the user desired specification. The patent is organized in sections as follows. Section 2 provides details on Agent Based Systems, Ontology Agent Based Utility and Job search theory with motivation towards developing an Agent based Job Search system. Section 3 gives details on the Intelligent Job Search System with fuzzy preferences. Section 4 gives the implementation details on JADE-LEAP[4-5] and Android 2.2 with Google Maps API.

No. of Pages : 14 No. of Claims : 5

The Patent Office Journal No. 35/2023 Dated 01/09/2023   57493

Patent 2

(12) PATENT APPLICATION PUBLICATION   (21) Application No.202241023677 A
(19) INDIA
(22) Date of filing of Application :21/04/2022   (43) Publication Date : 06/05/2022

(54) Title of the invention : Intelligent Monitoring System: Emotion Recognition of Autism Children from Smart Class Video

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(51) International classification :A61B0005160000, A61B0005000000, G16H0050200000, A61B0021000000, G10L0025630000
(86) International Application No Filing Date :PCT// / :01/01/1900
(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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Patent 3

(12) PATENT APPLICATION PUBLICATION   (21) Application No.202341050271 A
(19) INDIA
(22) Date of filing of Application :26/07/2023   (43) Publication Date : 01/09/2023

(54) Title of the invention : INVERSE COOKING - RECIPE GENERATION FROM FOOD IMAGES

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(51) International classification :G06F0016350000, G06N0020000000, G06N0003080000, G06Q0050000000, A47J0043000000
(86) International Application No Filing Date :PCT// / :01/01/1900
(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

(57) Abstract :
People enjoy food photography because they appreciate food. Behind each meal there is a story described in a complex recipe and, unfortunately, by simply looking at a food image we do not have access to its preparation process. Therefore, in this work we introduce an inverse cooking system that recreates cooking recipes given food images. Our system predicts ingredients as sets by means of a novel architecture, modeling their dependencies without imposing any order, and then generates cooking instructions by attending to both image and its inferred ingredients simultaneously. We extensively evaluate the whole system on the large-scale Recipe1M dataset and show that (1) we improve performance w.r.t. previous baselines for ingredient prediction; (2) we are able to obtain high quality recipes by leveraging both image and ingredients; (3) our system is able to produce more compelling recipes than retrieval-based approaches according to human judgment. We make code and models publicly available.

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

Patent 4

(12) PATENT APPLICATION PUBLICATION   (21) Application No.202341050288 A
(19) INDIA
(22) Date of filing of Application :26/07/2023   (43) Publication Date : 01/09/2023

(54) Title of the invention : IOT ENABLED LABORATORY AUTOMATION SYSTEM

(57) Abstract :
Lab automation is building automation for the lab. It involves the control and automation of lighting, heating (such as smart thermostats), ventilation, air conditioning and electricity supply to the computers. Wi-Fi is often used for remote monitoring and control. Lab devices, when remotely monitored and controlled via the Internet, are and important constituent of the Internet of Things. Modern systems generally consist of switches and sensors connected to a central hub sometimes called a "gateway" from which the system is controlled with a user interface that is interacted either with a wall mounted terminal, mobile phone software, tablet computer or a web interface, often but not always via Internet cloud services. The main purpose is to make the lab automate with the help of IoT concepts. This system will help to reduce the cost and electricity consumption which are much high. To get rid of unnecessary usage of the electricity we came to the solution which will help us to overcome this problem.

No. of Pages : 12 No. of Claims : 6

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(12) PATENT APPLICATION PUBLICATION   (21) Application No.202341050288 A

(19) INDIA

(22) Date of filing of Application :26/07/2023   (43) Publication Date : 01/09/2023

(54) Title of the invention : IOT ENABLED LABORATORY AUTOMATION SYSTEM

(57) Abstract :
Lab automation is building automation for the lab. It involves the control and automation of lighting, heating (such as smart thermostats), ventilation, air conditioning and electricity supply to the computers. Wi-Fi is often used for remote monitoring and control. Lab devices, when remotely monitored and controlled via the Internet, are and important constituent of the Internet of Things. Modern systems generally consist of switches and sensors connected to a central hub sometimes called a "gateway" from which the system is controlled with a user interface that is interacted either with a wall mounted terminal, mobile phone software, tablet computer or a web interface, often but not always via Internet cloud services. The main purpose is to make the lab automate with the help of IoT concepts. This system will help to reduce the cost and electricity consumption which are much high. To get rid of unnecessary usage of the electricity we came to the solution which will help us to overcome this problem.
No. of Pages : 12 No. of Claims : 6

The Patent Office Journal No. 35/2023 Dated 01/09/2023   57498

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(12) PATENT APPLICATION PUBLICATION   (21) Application No.202241025101 A

(19) INDIA

(22) Date of filing of Application :29/04/2022   (43) Publication Date : 13/05/2022

(54) Title of the invention : Real-Time Intelligent Surveillance System for Aged People Fall Detection from Indoor Video

(57) Abstract :
Over the last few years, real-time fall detection systems based on vision have advanced at a rapid pace. Falling is one of the leading causes of death among the elderly. When it comes to saving lives, the ability to detect a fall is critical. There are three types of fall detection methods that are commonly used, including wearable devices, ambient sensors, and vision-based methods. Through analysing the rate of change of motion with respect to the ground point, this invention proposes a real-time vision-based fall detection system to assist elderly people with their daily activities. The goal of our research is to develop a reliable method of detecting falls that does not require the use of any physical devices. The deep convolutional neural network (Fall_DCN_Net) and the notify.run module in Python are used to implement the proposed method. We used two publicly available datasets for our experimental analysis: the UR Fall Dataset (URFD) and the Fall Detection Dataset (FDD).
No. of Pages : 8 No. of Claims : 5

The Patent Office Journal No. 19/2022 Dated 13/05/2022   29839

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(12) PATENT APPLICATION PUBLICATION   (21) Application No.202141021184 A

(19) INDIA

(22) Date of filing of Application :11/05/2021   (43) Publication Date : 11/06/2021

(54) Title of the invention : SMART GARBAGE MONITORING SYSTEM USING SENSORS WITH RFID OVER INTERNET OF THINGS

(57) Abstract :
7. ABSTRACT A smart garbage monitoring system (100) using Sensors with RFID over internet of things is disclosed. The proposed technology is related to a new garbage collecting way to dispose the waste by using the latest technology. In this technology few sensors are incorporated to the smart bin (11) like photoelectric sensor (16) that detect the clear representation objects, weight sensor (20) that calculate the percentage of the garbage dumped inside the bin (11) and the IR sensor (14). When a person drops the garbage into the bin (11) the Radio frequency identication (RFID) CARD reader (18) reads all the information about that particular person (12) and send a message to him that the materials dropped inside the bin (11) and an appreciation message for using the bin (11). The IR sensor (14) sends the updated information to the concerned authorities (10) who are responsible for that particular area. So, the concerned authorities (12) continuously receive the messages until the bin (11) is squashed and each bin (11) is assigned with a unique ID. With the help of these sensors™ authorities (10) identifies the information about the bin (11) up to date by the unique ID of the bin (11). If the bin (11) is overflowing, the concerned authorities (10) can easily identify the bin (100) location and squash it as early as possible. So, people can again use it. Figure related to abstract is Fig.1.
No. of Pages : 18 No. of Claims : 9

The Patent Office Journal No. 24/2021 Dated 11/06/2021   26239

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(12) PATENT APPLICATION PUBLICATION   (21) Application No.202341050294 A

(19) INDIA

(22) Date of filing of Application :26/07/2023   (43) Publication Date : 01/09/2023

(54) Title of the invention : SMART PHONE BASED MALARIA PARASITE DETECTION IN THICK BLOOD SMEARS USING DEEP LEARNING

(57) Abstract :
This work investigates the possibility of automated malaria parasite detection in thick blood smears with smartphones. We are developing the first deep learning method that can detect malaria parasites in thick blood smear images and can run on smartphones. Our method consists of two processing steps. First, we apply an intensity-based iterative Global Minimum Screening (IGMS), which performs a fast screening of a thick smear image to find parasite candidates. Then, a customized Convolutional Neural Network (CNN) classifies each candidate as either parasite or background. Together with this invention, we make a dataset of 1819 thick smear images from 150 patients publicly available to the research community. We used this dataset to train and test our deep learning method, as described in this work. A patient-level five-fold cross-evaluation demonstrates the effectiveness of the customized CNN model in discriminating between positive (parasitic) and negative image patches in terms of the following performance indicators: accuracy (93.46%±0.32%), AUC (98.39%±0.18%), sensitivity (92.59%±1.27%), specificity (94.33%±1.25%), precision (94.25%±1.13%), and negative predictive value (92.74%±1.09%). High correlation coefficients (>0.98) between automatically detected parasites and ground truth, on both image level and patient level, demonstrate the practicality of our method. Conclusion: Promising results are obtained for parasite detection in thick blood smears for a smartphone application using deep learning methods. Significance: Automated parasite detection running on smartphones is a promising alternative to manual parasite counting for malaria diagnosis, especially in areas lacking experienced parasitologists.
No. of Pages : 12 No. of Claims : 5

The Patent Office Journal No. 35/2023 Dated 01/09/2023   5750

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<u>NEWSLETTER</u>

<u>LIST OF BOOKS</u>

Sl. No.	Name of the teacher	Title of the book/chapters published	ISBN/ISSN number of the proceeding	Name of the publisher
1.	Dr. B. Rajalingam	Python Programming	978-81-953917-3-8	Students Helpline Publishing House
2.	Dr. B. Rajalingam	Big Data Technologies	978-93-93199-25-6	M/s Amaravathi Publishers
3.	Dr. B. Rajalingam	Data Analytics	978-93-93196-48-4	Spectrum Publishing House
4.	Dr. B. Rajalingam	Computer Organizations and Architectures	978-93-92311-00-0	SunRaise International Publishers
5.	Ms. Afreen Begum	Big Data Technologies	978-93-93199-25-6	M/s Amaravathi Publishers
6.	Ms. V. Jayasri	Data Base Management Systems	978-93-83470-49-5	M/s Spectrum Techno Press
7.	Mr. N. Mahboob Subani	Data Analytics	978-93-93196-48-4	Spectrum Publishing House
8.	Ms. Afreen Begum	Object Oriented Programming through Java	978-81-953920-6-3	M/s Surneni International Book Publishers
9.	Mr. V. Sudheer Goud	Data Mining	978-93-94122-23-9	Seven Hills Publishers

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BOOK PUBLICATIONS

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BOOK PUBLICATIONS

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BOOK PUBLICATIONS

Database Management Systems

Dr. P. Santosh Kumar Patra
Dr. K. Srinivas
Ms. V. Jayasri
Mr. B. Ramesh

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About the Authors

Dr. P. Santosh Kumar Patra is holding B.E, M-Tech & Ph.D in Computer Science and Engineering Degrees. He has received continuously FOUR times" GOVERNOR AWARD from Governor of Telangana, "Rastriya Gaurav Award", "Rastriya Vikas Ratan Award", "Dronacharya Award", Young leader of the year & IBAE International Award, Dubai. In his crowning glory he has achievements like publishing 135 patents his 12 patents are selected by different companies for commercialization. He has published 75 books and more than 108 international & national research papers, 28 magazine article & 188 newspaper coverage. Adding feather to his believe recently, he is the only one from Telangana to receive the most prestigious Award named National Happiness Unicorn Award from Chairman of AICTE.

Dr. K. Srinivas working as an Associate Professor and Head of the Department, Department of Computer Science and Engineering (AI &ML). He obtained Ph.D. in Computer Science & Engineering from Shri Venkateswara University at Uttara Pradesh.in 2021, M.Tech. in Computer Science & Engineering from Vignan Institution of Tech & Science Affiliated to Jawaharlal Nehru Technical University Hyderabad, Telangana, India, in 2013 and B.Tech, in Computer Science and Engineering Avanthi institute Engineering and Technology affiliated to Jawaharlal Nehru Technical University Hyderabad Telangana, India, in 2011, His area of specialization is Cloud Computing, Computer Networks, Wireless Sensor Networks, and Internet of Things Artificial Intelligence, Machine learning, Security issues in Mobile ad-hoc networks. He has overall 10+ years of experience, in that he has 9years of teaching experience and 1+ years of IT experience as a Project Coordinatorin IT&EC Department at Secretariat Government of Andhra Pradesh. He has published 20: International Journal Publications in SCI/ SCOPUS/ UGC CARE, He has published 10: International Conference Publications, He organized events like Seminar, Online Certification Course, and International Conference as a Coordinator.

Ms. V. Jayasri working as Assistant Professor in the Department of Artificial Intelligence and Data Science, St. Martin's Engineering College, Dhulapally, Kompally, Secunderabad, Telangana, India from February 2023.. She has completed Master of Technology in the Department of Information and Technology from Pondicherry Technological University in 2020. She has 2 years of Teaching Experience. She has published 2 papers International Journal and presented 3 papers in international conferences. She got certified by Microsoft for Data Science in the Cloud. She has attended various Conferences, workshops, seminars and faculty development programmes.

Mr. B. Ramesh, working as Assistance Professor in the department of Artificial Intelligence and Machine Learning at St. Martin's Engineering College, Dhulapally, Kompally, Secunderabad, Telanagana, India. He as completed M.Tech, in Computer Science and Engineering from Anurag College of Engineering and B,Tech in CSE, from GATE . He is pursuing his Ph.D in Amrita University, Vijayawada. He has published 2 research paper and one patent published. His total experience in teaching is 7 years.

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Computer Organization and Architecture

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ASSERTION
NEWSLETTER

INDUSTRIAL VISIT

The Department of artificial intelligence and data science (AI & DS) has organized an industrial visit on 7th June 2023 to (NRSC) NATIONAL REMOTE SENSING CENTRE Hyderabad for the 2nd-year B.Tech students.

The visit was organized with prior permission and guidance of our beloved Group Director, Dr. P. Santosh Kumar Patra and the HOD, Dr. B. Rajalingam and the coordinator are Mr. N Mahboob Subani, Mrs. M.Sindhuja, Were Co-organizers of this industrial visit. Students have attended the training sessions. Students have gained the knowledge about NLP, embedded systems, cloud computing, IOT related topics are discussed in the training sessions.

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NEWSLETTER
INDUSTRIAL VISIT

ASSERTION
NEWSLETTER

I N D U S T R I A L

V I S I T

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE (AI&DS)

Internship Achievements
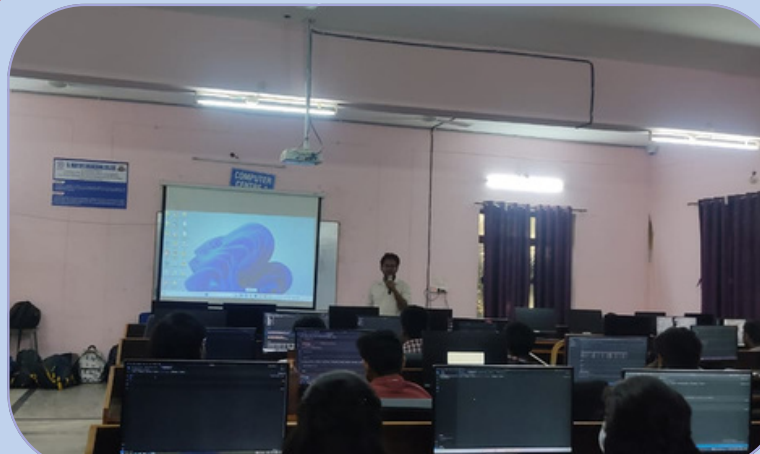
II-year 1 semester students had the privilege of undertaking a internship program inside the campus. During this enriching experience, students learn the installation of python software along with the required packages, life cycle of the python program. Creating data base and using in the application, execution of program and the projects learned by students are

1. Face Detection Project
2. Missing Child Project
3. Cartoon Image Project

The Department of Artificial Intelligence and Data Science organized a Three-Day National Level Workshop on Recent Trends on Block Chain Technology, Data Analytics & IoT" on 21.09.2023, 22.09.2023 & 23.09.2023. This program was organized to exchange the ideas and share their innovative thoughts in Block Chain Technology, Data Analytics and IoT. The workshop started with the inaugural session and welcome address delivered by Dr. B. Rajalingam, Associate Professor & Head, Dept. of AI&DS, presented a brief introduction about the Block Chain Technology , Data Analytics and IoT, best career choices in computer field, plenty of job opportunities with a high-paying salary and also discussed regarding the future scope of Data Analytics, IoT and Block Chain Technology, with the great support of Dr. P. Santosh Kumar Patra, Group Director, SMEC. An informative sessions was conveyed by the Chief Guest Dr. T. Ramakrishnudu, Associate Professor, Department of CSE, National Institute of Technology, Hyderabad, India, Dr. Sangeeta Gupta , Associate Professor of CSE, Chaitanya Bharathi Institute of Technology, Hyderabad India and Mr. Kalyan Koppisetty, CEO & Founder, Edutech Innovations, Hyderabad, Telangana, India

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NEWSLETTER
WORKSHOP

ASSERTION
NEWSLETTER
Guest Lecture

Dr. B. Rajlingam. HOD/AI&DS inviting the speaker Mr. Namani Vamshi Krishna Technical Lead, Automateem, Hyderabad.

Faculty & Students of AI & DS participated on the Component Growth in Predictive Analytics

ASSERTION
NEWSLETTER

NCC BOYS WING

- SMEC has NATIONAL CADET CORPS (NCC) boys wing to foster the spirit of teamwork and management, which leads to the development of student personality.
- The gathering was addressed by Deputy Director General, Air Commander P Maheshwar, VM(G). Mrs. Madhavi Jalasuthram, a motivational speaker and an Alumni, addressed the gathering and shared her experiences as an NCC cadet.
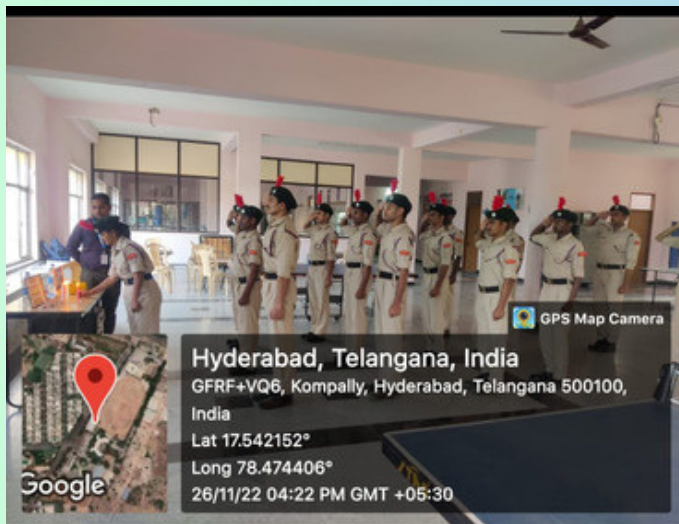
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Here the NCC cadets where both (SD's and SW's) of 1(T) ARTY BTY NCC HYD GP unit was made a rally throughout the college of St. Martins Engineering College under the guidance of beloved Dr. P.Santosh Kumar Patra sir. Sandeep and Trainer Musavir sir.

HERE THE CADETS FROM OUR

[A I & DS]
BRANCH

- S.RAHUL KIRAN
- B.CHANDRAKANTH
- P.LAKSHMI SINDHU
- PRAHARSHA
- SUSHMITHA
- NITYA

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NEWS LETTER

►►► NCC GIRLS WING ◄◄◄

SMEC has NATIONAL CADET CORPS (NCC) girls wing to foster the spirit of teamwork and management, which leads to the development of student personality. Our department students cadets are Ms. Likitha of the NCC girl wing from our (AI & DS) Branch. The students have participated in different parades and trained in foot drill command, weapon training, field craft, civil defense, map reading etc.
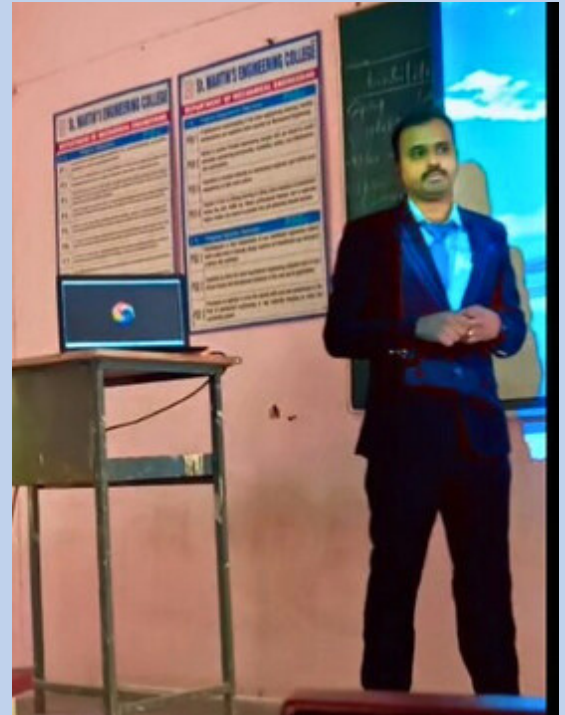
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CLUB ACTIVITY

- Club activities assist students in developing leadership &team-building abilities. Students are connected to a platform where they may exchange information, raise awareness, and get recognition through SMEC.
- The goal of Club activities is to quench the corporate thirst by upgrading students' knowledge on current trends and technology.
- The department of Artificial Intelligence and Data Science offers a variety of groups that go beyond academic pursuits are
  - Programming Club
  - IoT Club
  - Cyber Security Club
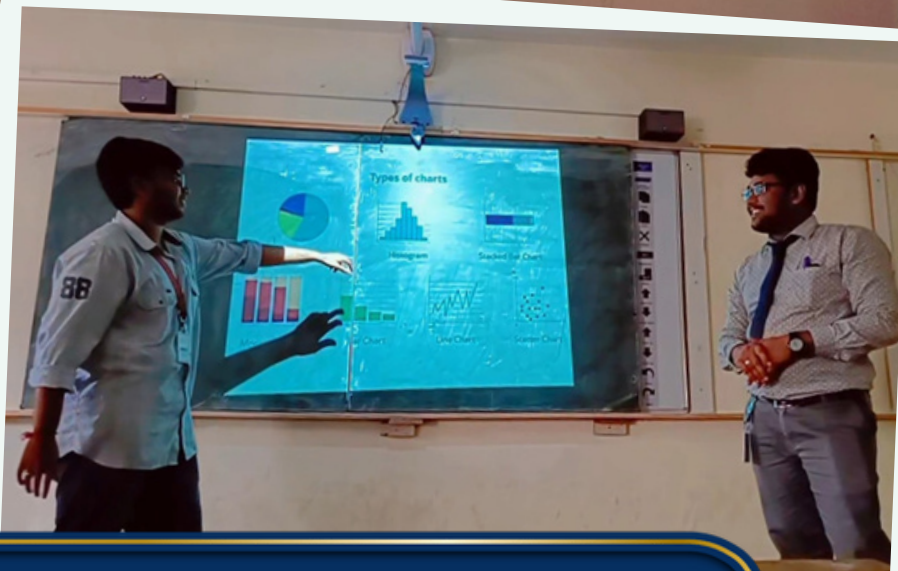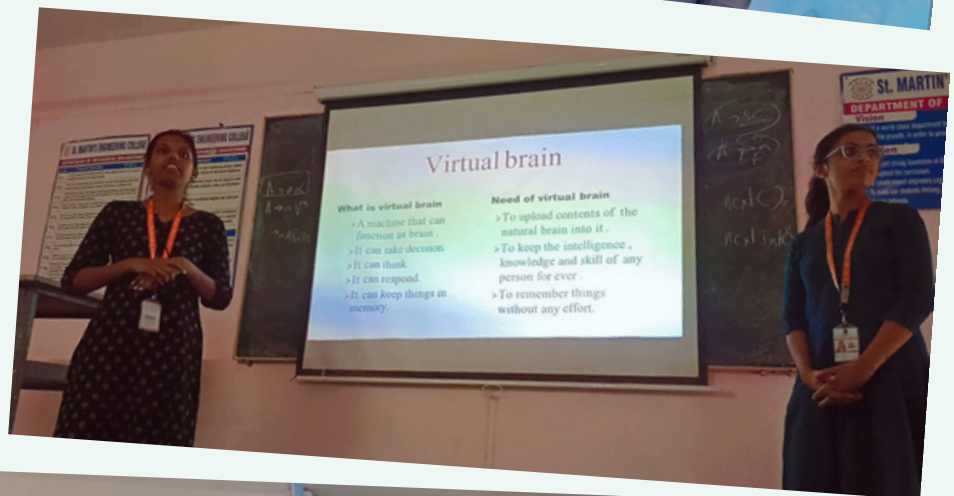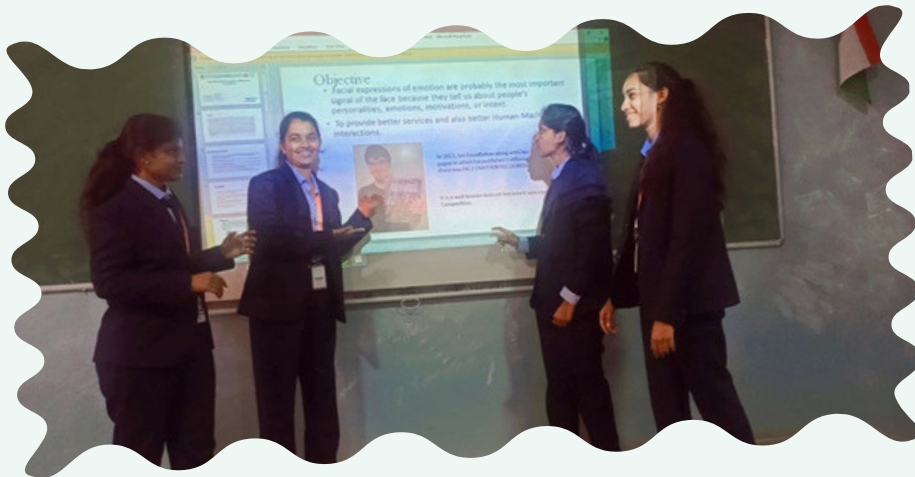 - Web Designing Club
  - Innovative Club

ASSERTION
NEWSLETTER
CLUB ACTIVITY

ASSERTION
NEWSLETTER
CLUB ACTIVITY

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NEWSLETTER

SPORTS

- Sports are the integral part of student life in SMEC.
- Our department students have participated in many sports events like Football, Cricket and Athletics all over the college.
- Our students Lokesh and Rahul kiran has participated in the Rellay Race competition in October 2022.
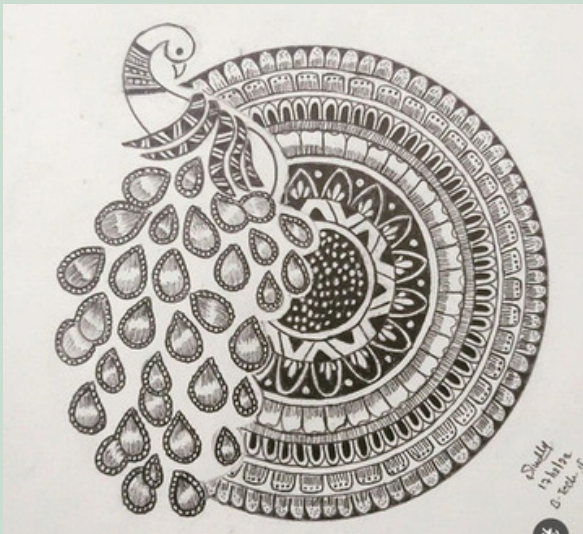

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE (AI&DS)

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STUDENT CREATIVE CORNER

P . LAKSHMI SINDHU
21K81A7248
[AI & DS]

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CLASS TOPPERS

III- YEAR TOPPERS

ALLURI SHARANYA
(A21K81A7203)
8.85

SINGARAPU GAYATHRI
(21K81A7259)
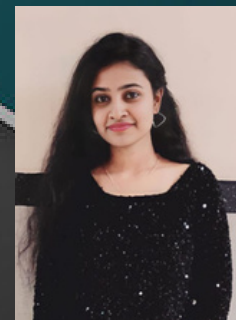8.77

JAVIDI TRIVENI
(21K81A7228)
8.74

II-YEAR TOPPERS
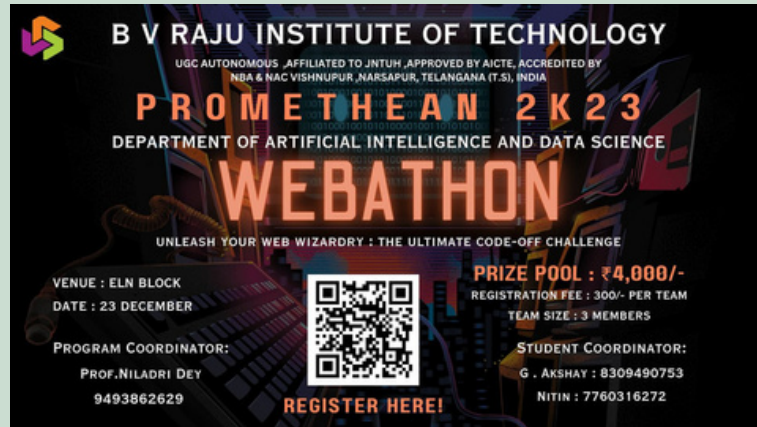
R.HARSHAVARDHAN
(22K81A7246)
9.4

RUCHIKA NARANG
22K81A72A9
9.35

SURINETI BHAVANA
22K81A7254
9.25

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE (AI&DS)

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STUDENT ACHIEVEMENTS

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Hackathons Attended

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FRESHERS DAY
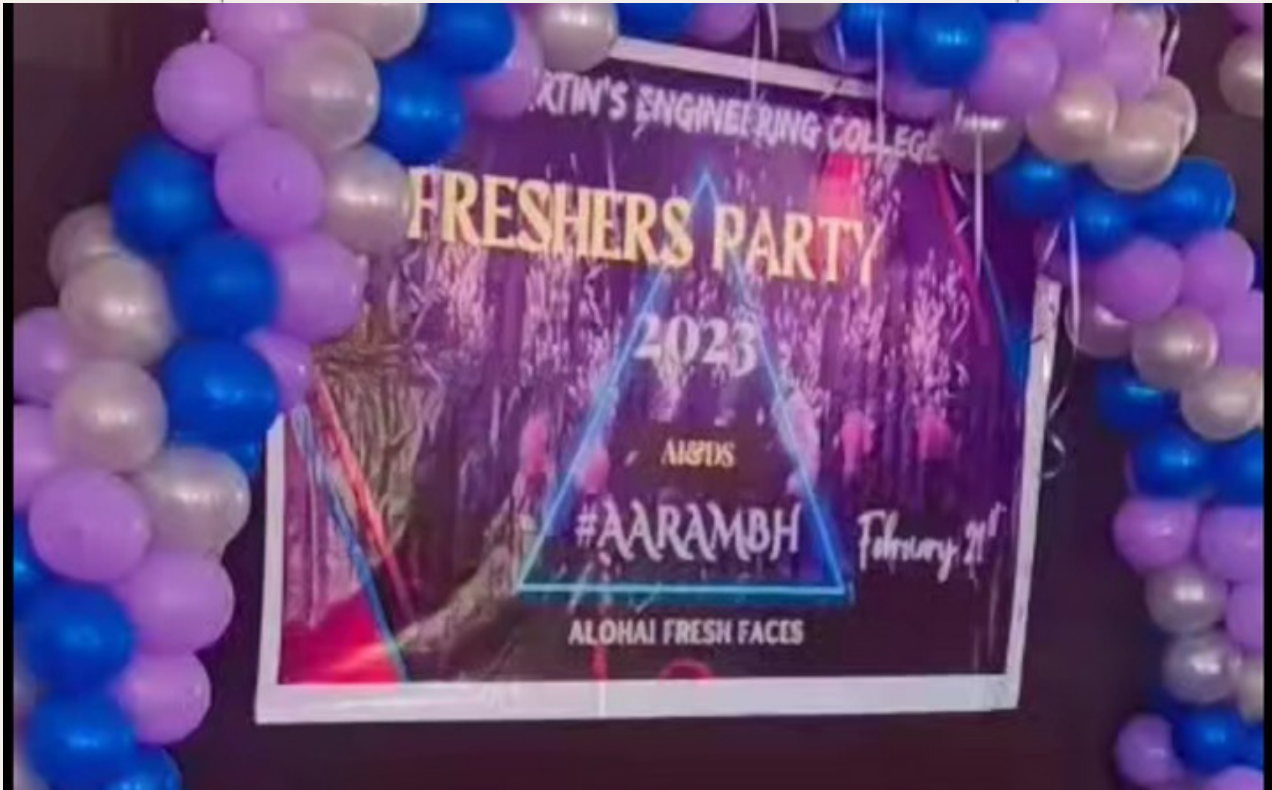
Chairman Mari Laxman Reddy, Executive Director Chandra shaker Yadav, Dr. P. Santosh Kumar Patra, Group Director, Dr. S. V. S. Rama Krishnam Raju, Professor & Dean Academics , Dr. Sanjay Kumar Suman, Professor & Dean R&D , are the chief guests who attended the freshers day celebrations.

FRESHERS DAY CELEBRATION

ASSERTION
NEWSLETTER
CELEBRATIONS

Happy Republic day

The 74th Republic Day was celebrated with lots of patriotism and happiness by the Management, Staff and Students of SMEC.The national flag was hoisted by the Chairman Sri M Laxman Reddy Garu, The Executive Director Sri G. Chandra Sekhar Yadav Garu and Group Director and Principal Dr. P. Santosh Kumar Patra were malso present during the flag hoisting. All the staff attended the flag hoisting with a deep sense of respect and national feelin

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TRADITIONAL DAY

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ORIENTATION DAY

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE (AI&DS)

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INDEPENDENCE DAY

The 77th Independence Day was celebrated with lots of patriotism and happiness by the Management, Staff and Students of SMEC. The national flag was hoisted by the Chairman Sri M Laxman Reddy Garu, The Executive Director Sri G.Chandra Sekhar Yadav Garu & Group Director Dr.P.Santosh Kumar Patra were also present during the flag hoisting. All the staff attended the flag hoisting with a deep sense of respect and national feeling. The chairman urged everyone to contribute to Nation building by maintain good health so that we can build a strong Nation. Our Chairman Sir set an example by following regular physical work outs to stay fit at the age of 75. Our Group Director Dr.P.Santosh Kumar Patra sir stressed the importance of maintaining positivity and also emphasized the need to be physically active though we are endorse we should work for the development of our country by educating more and more people and raising the standards of our education system to reach international students and he urged everyone to avoid plastic, Conserve water for our future generation and also pay importance to character building. We should encourage our children by imbibing good qualities like charity and showing respect to elders.

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TEACHERS DAY

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GRADUATION DAY

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Engineers day

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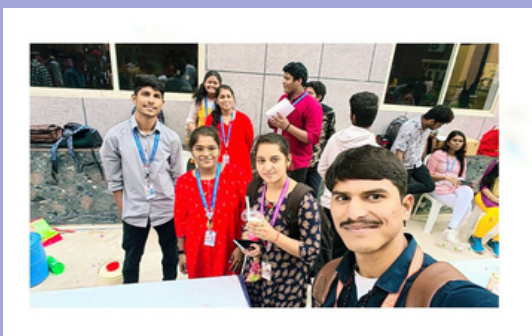## PLACEMENTS DAY

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YOGA DAY

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BLOOD
DONATION

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SWAYAMKRUSHI EVENT

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