

ICRAIC2IT-2025

**International Conference on
Recent Advancements in
Artificial Intelligence, Computational Intelligence,
and Inclusive Technologies**

02 – 03, May 2025

Vijayawada, India

www.nriit.edu.in/icraic2it/



**Anusandhan
National
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Foundation**



Department of
Science &
Technology,
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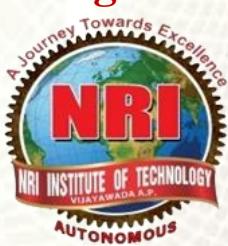
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CSE, ECE, EEE, Mech & IT Accredited by NBA, NAAC "A"
Agiripalli, Vijayawada, India - 521212

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**02 – 03, May 2025
Vijayawada, India
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Organized by



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**Anusandhan
National
Research
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**Department of
Science &
Technology,
Government of
India**

Souvenir

**Organized by
Departments of CSE, IT, CSM, CSD & AIML
NRI INSTITUTE OF TECHNOLOGY (Autonomous)**

ISO 9001: 2015 Certified, Approved by AICTE, New Delhi,

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Accredited CSE, ECE, EEE, IT & Mech by NBA, NAAC 'A' Grade

Agirinalli Vijayawada India - 521212

Preface

The Anusandhan National Research Foundation (ANRF), formerly known as the Science and Engineering Research Board (SERB), New Delhi, in collaboration with NRI Institute of Technology, Agiripalli, Vijayawada, proudly organized a two-day International Conference on Recent Advancements in Artificial Intelligence, Computational Intelligence and Inclusive Technologies during 02–03 May 2025 at Vijayawada, India.

This conference served as a vibrant platform for faculty members, researchers, and industry professionals from across the globe to share their latest research contributions and technical insights. It was designed to enrich the knowledge base of participants and foster international academic collaboration.

Recognizing the dynamic advancements in Computer Science and Communication Technology, the conference called for papers across several key emerging areas. Brochures were circulated to approximately 27,000 academicians worldwide, leading to paper submissions from around 122 institutions. After a rigorous peer-review process, 115 high-quality papers were selected for presentation, organized under the following thematic tracks:

Track Name	Received	Accepted	% of acceptance
Healthcare and Medical Diagnostics	49	29	59.18
Medical Imaging and Bioinformatics	24	11	45.83
Computer Vision and Deep Learning	21	9	42.86
NLP and Multimodal AI	32	16	50.00
Optimization and Prediction	26	10	38.46
Cybersecurity, Blockchain, and IoT	41	15	36.59
Agriculture, Social Good, and Emerging Technologies	53	25	47.17
Total	246	115	46.75

The abstracts of all accepted papers have been compiled and included in this souvenir, offering a valuable snapshot of the innovative research shared during the conference.

The organizing committee extensively leveraged digital platforms for communication and made detailed arrangements for the convenience of non-local participants, including boarding and lodging facilities. Every effort was made to ensure the conference's success. All presented papers will be published in the Taylor & Francis Conference Proceedings (Scopus Indexed).

We extend our heartfelt gratitude to Dr. R. Venkat Rao garu, Chairman, NRI Institute of Technology, Agiripalli, for his unwavering encouragement and support. We sincerely thank Dr. C. Naga Bhaskar garu, Principal, NRIIT, whose leadership and vision were pivotal in organizing this prestigious event. We also gratefully acknowledge the timely support and valuable guidance provided by Dr. G. Sambasivarao garu, Director of Academics, NRIIT.



Souvenir of A Two-day International Conference on "Recent Advancements in Artificial Intelligence, Computational Intelligence and Inclusive Technologies" (ICRAIC2IT), 02 – 03 May 2025, Vijayawada, India

Our sincere appreciation extends to the Heads of Departments:

- Dr. J. Rajendra Prasad, HoD, Information Technology
- Dr. B. Dasaradh Ram, HoD, CSE-AIML
- Dr. P. Rajendra Kumar, HoD, AIML
- Prof. Ch. V. Muralikrishna, HoD, CSE-Data Science
- All HODs and Deans of other departments for their continuous support and active involvement.

We are honoured by the presence of Dr. D. Rama Krishna garu, CEO, Efftronics, Mangalagiri, who graciously accepted our invitation to be the Chief Guest at the inaugural ceremony and delivered the keynote address.

We express our sincere thanks to all our colleagues, the organizing committee members, paper reviewers, and experts from various institutions whose dedication and expertise ensured the success of the event. Our heartfelt thanks also go to the department students, staff from other departments, and all the distinguished speakers who traveled from across the globe to share their knowledge.

Heartfelt thanks to Prof. Anasuya Sesha Roopa Devi Bhima of Conestoga College Institute of Technology and Advanced Learning, Canada, for her invaluable contribution as Co-editor of the Conference Proceedings, published by Taylor & Francis Publishers, UK.

We also extend our sincere gratitude to the Taylor & Francis Publishers, UK for bringing out the proceedings under the title "Artificial Intelligence, Computational Intelligence, and Inclusive Technologies."

Finally, we extend our gratitude to everyone who supported us, directly or indirectly, in making this conference a grand success. We wish all participants an enjoyable and intellectually rewarding experience.

Dr. K.V. Sambasivarao
Organizing Secretary

Dr D Sunitha
Convener



MESSAGE

"Learning gives creativity, Creativity leads to thinking, Thinking provides knowledge, and Knowledge makes us great," said Dr. A.P.J. Abdul Kalam, the former President of India. These inspiring words truly resonate with the spirit of the International Conference on Recent Advancements in Artificial Intelligence, Computational Intelligence and Inclusive Technologies (ICRAIC2IT), organized from 02–03 May 2025.

Sponsored by the All India Council for Technical Education (AICTE), New Delhi, the Ausandhan National Research Foundation (formerly SERB), New Delhi, and co-sponsored by NRI Institute of Technology, Agiripalli, Vijayawada, this conference serves as an ideal platform to bring Dr. Kalam's vision to life. It is heartening to see the departments of CSE, IT, CSE-AIML, AIML, and CSE-Data Science coming together to organize such a mega event. Their collective efforts not only broaden research horizons for faculty members and industry professionals but also inspire young engineers to pursue innovation and excellence.

It is also noteworthy that the Government is deeply committed to encouraging research in emerging technologies, aiming to cultivate the creative and inventive potential of the youth. The theme of this conference echoes these national aspirations, sowing seeds of hope, ambition, and a thirst for knowledge among the engineers of tomorrow.

At NRI Institute of Technology, we have always been enthusiastic and supportive of initiatives that foster knowledge sharing, creative thinking, and academic excellence. We take pride in ensuring that all participants experience not only stimulating technical sessions but also warm hospitality and comfortable accommodations.

I am confident that this conference will provide rich insights and valuable learning experiences, empowering every participant to further their intellectual pursuits.

I conclude with a thoughtful reminder: "**Curiosity is the wick in the candle of learning**" May this conference ignite that wick brightly in every learner's heart.

**Dr. R. Venkat Rao
Chairman, NRI Institute of Technology**



MESSAGE

I extend my heartfelt congratulations to the Departments of Computer Science and Engineering (CSE), Information Technology (IT), CSE–Artificial Intelligence and Machine Learning (CSE-AIML), Artificial Intelligence and Machine Learning (AIML), and CSE–Data Science (CSE-DS) for their collaborative efforts in organizing the International Conference on Recent Advancements in Artificial Intelligence, Computational Intelligence and Inclusive Technologies (ICRAIC2IT-2025). This prestigious event, scheduled for May 2–3, 2025, is sponsored by the Anusandhan National Research Foundation (ANRF), New Delhi, and co-sponsored by NRI Institute of Technology, Agiripalli, Vijayawada.

The conference serves as a significant platform for academicians, researchers, and industry professionals to share their insights and advancements in emerging technologies. It is commendable that the organizing departments have brought together a diverse group of participants, fostering an environment conducive to innovation and knowledge exchange.

The active participation and overwhelming response from scholars across the country and abroad underscore the conference's relevance and importance in today's rapidly evolving technological landscape. The sessions planned over the two days promise to be intellectually stimulating, offering valuable perspectives on contemporary research challenges and solutions.

NRI Institute of Technology has consistently demonstrated its commitment to academic excellence and research. The institution's support for such initiatives reflects its dedication to nurturing a culture of inquiry and continuous learning.

I am confident that ICRAIC2IT-2025 will be a resounding success, leaving a lasting impact on all participants. I wish the organizing committee and all attendees a fruitful and enriching experience.

**Dr C. NAGA BHASKAR
Principal**



MESSAGE

The International Conference on Recent Advancements in Artificial Intelligence, Computational Intelligence and Inclusive Technologies (ICRAIC2IT-2025), sponsored by the Anusandhan National Research Foundation (formerly SERB), New Delhi, and co-sponsored by NRI Institute of Technology, Agiripalli, Vijayawada, stands as a testament to the continuous pursuit of knowledge and wisdom among participants.

The commendable efforts of the Departments of Computer Science and Engineering (CSE), Information Technology (IT), CSE–Artificial Intelligence and Machine Learning (CSE-AIML), Artificial Intelligence and Machine Learning (AIML), and CSE–Data Science (CSE-DS) have successfully brought this grand event to fruition. The insightful research contributions from academic scholars and industry professionals, demonstrating profound exploration and innovation, are truly laudable. The government's focused initiatives on emerging technologies have provided researchers with the direction and encouragement to engage in consistent learning and exploration.

It is heartening to witness the overwhelming response to the call for papers, with most contributions rich in relevance, innovation, and practical applicability. I congratulate all the participants for their spirited enthusiasm and dedication to advancing their fields.

"Imagine! Improve! Implement!" — imagination fuels improvement, and together with thoughtful implementation, they forge dynamic engineers and innovators of the future. The spirit of competition and the desire to excel will continue to illuminate the path of learning and achievement for all.

I extend my sincere appreciation to the management of NRI Institute of Technology for fostering an environment that encourages inquisitiveness, creativity, and scholarly pursuits among students, not only from our institution but from various colleges and universities across the region and beyond.

I wish all the participants a wonderful, inspiring, and rewarding experience over these two days of the conference — an experience that helps them achieve new heights, excel in their endeavours, and earn well-deserved recognition.

**Dr G Sambasivarao
Director, Academics**

Keynote Speech



By Dr Dasari Rama Krishna

CEO and Managing Director, Efftronics Systems Pvt. Ltd., Mangalagiri - Vijayawada

Engineering the Digital Future

We live in a world where everything is digital. Digital technologies are no longer confined to just computers or smartphones — they are deeply interwoven into every domain, from transportation and healthcare to agriculture and education. Systems today are no longer isolated; they are evolving into systems of systems, enabled by powerful platforms that seamlessly integrate devices, services, and users across the globe.

One of the most profound changes has been the rise of mobile devices as the primary user interface. Our interactions with complex systems — be it controlling a factory, managing a farm, or navigating a city — now happen seamlessly and securely through the phone in our hand. Data communications technologies act as the invisible threads, ensuring real-time and reliable interaction between users and systems, anywhere and anytime.

However, the real challenge has shifted. Today, the question is not "Can we build a system?" — it is "Can we identify and create real value?"

The ecosystem for innovation is largely available: access to funding, mentoring, world-class knowledge, and infrastructure has been democratized. Yet, identifying what to build, and possessing the capabilities to do so, remains difficult.

To succeed, we must build contextual algorithms and digital systems, tailored to real-world needs, using a systems engineering approach. This means designing with the whole system in mind — understanding the interactions, failures, redundancies, and lifecycle of what we create.

Looking ahead, automation stands out as the true frontier of value creation. Automation is no longer about simple repetitive tasks. It is becoming an amalgamation of disciplines — combining electronics, electrical engineering, mechanical systems, instrumentation, and IT to build complex, flexible, and intelligent machines. From smart manufacturing robots to

autonomous agricultural machines, automation today can handle real-time, intricate operations that once seemed impossible.

This is not science fiction anymore; complex automation is achievable. Flexible, real-time movement, sophisticated decision-making, and precision operations — previously exclusive to human hands — are now being handled by integrated automated systems.

Our generation faces a unique challenge:

- We must Build world-class, cutting-edge solutions at affordable costs.
- Leverage data analytics to better understand system behaviour, user interactions, and improve designs iteratively.
- Develop deterministic systems, where every action is predictable, reliable, and accountable, unlike AI/ML, which are probabilistic by nature and introduce an element of uncertainty.

While AI is a powerful tool — aiding developers in analyzing data, making predictions, and automating some decisions — it is important to recognize that AI itself is not a system. AI will empower system builders, but real-world impact will come from deterministic, engineered automation systems that create tangible, reliable value at scale.

Automation creates much more lasting and scalable value than AI alone. Building automation solutions demands deeper knowledge, cross-disciplinary integration, and world-class engineering — but the reward is a future where technology doesn't just guess, but acts, performs, and delivers with precision and excellence.

The future belongs to those who can engineer, not just imagine. And in this future, automation will be the backbone of real value creation.

**Dr Dasari Rama Krishna
Keynote Speaker**



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About the organizing Institute

Sri Durga Malleswari Educational Society was established in 2007 with the vision of reaching new heights in the field of education. The foundation of NRI College of Pharmacy in 2007 and NRI Institute of Technology (NRIIT) in 2008 stands as a result of the unwavering commitment and determination of the society's founders. NRIIT is an AICTE-approved institution, affiliated with JNTUK, and operates as a private self-financing institution aimed at fulfilling the educational needs of aspiring students in and around Vijayawada. The founders envisioned a college that would equip students with cutting-edge technology and an innovative approach to address the global challenges of today.

The founders have always been socially conscious, responding to the needs of the region by establishing schools, promoting sports and games, organizing free medical camps to improve health standards, and more. Since its inception, NRIIT has grown steadily and consistently, gaining recognition in the educational landscape. Both NRIIT and NRI College of Pharmacy proudly secure top positions in JNTUK results each year.

NRI College of Pharmacy recently celebrated the success of its first graduating batch, with students placed in prominent organizations. The college has earned autonomy, maintains excellent discipline, and is both NAAC-A accredited and ISO certified.

The institution is set in a tranquil environment, surrounded by lush greenery, with easy access via college buses and public transport. Located on a sprawling 20-acre campus amidst mango groves along the Vijayawada-Nuziveedu State Highway, it is just 23 kilometers from Vijayawada and 22 kilometers from Gannavaram Airport.

NRIIT offers ten B.Tech programs, including courses in CSE, CSE (AI & ML), CSE (DS), AI & ML, IT, ECE, EEE, MECH, and Civil Engineering. The institute also offers six postgraduate programs, including M.Tech specializations in Computer Science and Engineering, Digital Electronics and Communication Systems, Power Electronics and Drives, Structural Engineering, Thermal Engineering, and a Master of Business Administration (MBA).

NRIIT has earned notable recognition, securing the 52nd rank among 8,000 engineering colleges in India and 32nd among the top 100 engineering colleges in Andhra Pradesh, according to CSR reviews. Recently, NRIIT was awarded NAAC "A" Grade and is in the process of obtaining NBA accreditation.

The faculty's teaching efficiency is continuously enhanced through evaluations and feedback, ensuring they excel in communicating technical, managerial, behavioral, and soft skills. The institution collaborates with organizations like WIPRO MISSION 10X to provide ongoing faculty training. Additionally, NRIIT offers campus-based certification programs; to date, 235 students have been certified by Microsoft as "Microsoft Technology Associates" (MTA), and 72 students are currently enrolled in Oracle certification.

The robust Training and Placement Cell ensures that students are well-prepared for the global industrial challenges they will face. Over 1,700 students have been successfully placed in renowned companies such as Tech Mahindra, TCS, Infosys, Wipro, Virtusa, IBM, Efftronics, Mindtree, Cognizant, Byju's, and many others.

NRIIT is also proud to be an Android Application Skill Development Center established by the Government of Andhra Pradesh, the only such center in Krishna District. The institute offers state-of-the-art infrastructure, high-end laboratories, and modern teaching methods to ensure students are equipped with the most current knowledge and skills.

With more than 45 college buses and excellent connectivity, the campus provides easy access to students from all parts of the city. The institution also boasts a robust online assessment platform with 24/7 CCTV surveillance, 850+ computers, uninterrupted power supply, and a minimum 100 Mbps internet bandwidth to ensure smooth conduct of exams.

In 2016, NRIIT was honoured with an A-grade rating by the Department of Technical Education, Government of Andhra Pradesh, based on key performance indicators.

With these accolades and continuous efforts, NRIIT continues to stand as a beacon of educational excellence, fostering growth, innovation, and success for all its students. The intake details of the institute for the academic year 2024 – 25 is :

B.Tech. Degree Programs	Sanctioned Intake
Electrical & Electronics Engineering (EEE)	60
Electronic & Communication Engineering (ECE)	180
Computer Science & Engineering (CSE)	360
Artificial Intelligence and Machine learning (CSE)	120
Data Science (CSE)	180
B.Tech (CSE) - RL	60
B.Tech CSE (AI & ML)	180
Information Technology (IT)	120
Mechanical Engineering (ME)	30
Civil Engineering (CE)	30
Master of Business Administration (MBA)	60
Master Of Technology (M.Tech – Computer Science & Engineering)	18
Master Of Technology (M.Tech — Digital Electronics & Communication Systems)	18
Master Of Technology (M.Tech – Power Electronics & Drives)	18
Master Of Technology (M.Tech – Structural Engineering)	24
Master Of Technology (M.Tech – Thermal Engineering)	24

All departments are equipped with state-of-the-art facilities, including sophisticated laboratories, advanced computer centres, and the latest technological equipment. These are supported by cutting-edge computer systems and modern software to ensure an optimal learning environment.

About the Organizing Departments

Departments of CSE, CSE-AIML, CSE-DS, AIML, and IT

The Departments of Computer Science and Engineering, CSE–Artificial Intelligence & Machine Learning (CSE-AIML), CSE–Data Science (CSE-DS), Artificial Intelligence & Machine Learning (AIML), and Information Technology (IT) have emerged as prominent centers of academic excellence since their establishment. With a commitment to nurturing innovation and technical expertise, these departments offer specialized undergraduate and postgraduate programs designed to meet the demands of the evolving global tech landscape.

The core objective of all these programs is to equip students with in-depth knowledge and practical skills in various domains of computer science, artificial intelligence, data science, and information technology. Simultaneously, they aim to foster personal growth, ethical values, collaborative mindset, and cognitive maturity in students—qualities essential to thrive in both academic and industry-driven careers.

Curriculum Innovation and Industry Integration

Capitalizing on the autonomous status, the departments have curated a cutting-edge curriculum aligned with current industry practices. It emphasizes:

- Practice-Based Learning
- Project-Based Learning
- Choice-Based Credit System
- Skill Development Courses
- Professional Development Activities
- CPT (Career Preparation Training) Modules
- Audit and Open Electives

This innovative academic framework is constantly updated through expert inputs and industrial collaborations, ensuring students receive education that is both relevant and future-ready.

Research, Collaboration, and Excellence

The departments are recognized for their active research culture, particularly the CSE department, which has been acknowledged as a Recognized Research Centre by JNTU Kakinada. These departments have also established Memorandums of Understanding (MoUs) with leading industry and academic organizations to support:

- Expert Lectures
- Seminars and Workshops
- Technical Training
- Faculty Development Programs

The APSSDC's AP CM's Skill Excellence Centre, hosted in the department with knowledge partners like Google, Amazon, Microsoft, Udacity, and Coursera, reflects the departments' focus on skilling students with next-generation technologies.

Faculty and Research Output

With a collective pool of highly qualified and experienced faculty members, the departments contribute significantly to academic research and innovation. Among the faculty:

- Several hold doctoral degrees.
- Many are pursuing research in frontier areas.

They have published 65+ research papers annually, authored textbooks, and obtained patents in recent years.

They have also successfully secured research grants from national funding agencies such as AICTE, DST, SERB, MSME, and APSSDC.

Placements and Career Opportunities

Our graduates have consistently demonstrated exceptional performance in reputed multinational companies and IT industries. The career preparedness initiatives, along with strong academic grounding, have attracted top-tier companies for campus recruitment. Alumni from these departments are now making impactful contributions across global technology sectors.

Vision for the Future

The departments strive for continuous enhancement of infrastructure, teaching resources, and research capabilities. They maintain a strong commitment to academic integrity, technological advancement, and inclusive innovation—preparing students to be tomorrow's leaders in computing, AI, data science, and IT.



Souvenir of A Two-day International Conference on “Recent Advancements in Artificial Intelligence, Computational Intelligence and Inclusive Technologies” (ICRAIC2IT), 02 – 03 May 2025, Vijayawada, India

Organizing Committee

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Dr. Vinay Kumar Kasula, Independent Researcher, University of the Cumberlands, USA

Mr. Sam Prakash Bheri, Principal Technical Manager, Microsoft, USA

Mr. Shubham Malhotra, Software Developer, Amazon Web Services, USA



About the Conference

The Department of Computer Science & Engineering, NRI Institute of Technology, Agiripalli, Vijayawada, India, takes immense pride in organizing the International Conference on Recent Advancements in AI, Computational Intelligence, and Inclusive Technologies (ICRAIC2IT-2025) on 02–03 May 2025.

The conference stands as a testament to our commitment to fostering innovation, collaboration, and academic excellence. ICRAIC2IT-2025 brings together a distinguished gathering of academicians, research scholars, industry experts, and students from premier institutions, universities, and research centres across the globe. It serves as a dynamic platform for the exchange of novel ideas, research findings, and technological advancements, encouraging both interdisciplinary dialogue and domain-specific discussions.

The event will be graced by eminent keynote speakers who will share their valuable insights, experiences, and visions for the future of Artificial Intelligence, Computational Intelligence, and Inclusive Technologies. ICRAIC2IT-2025 endeavours to strengthen the ties between research and real-world applications, inspiring innovations that will shape the technologies of tomorrow.

We extend a warm and heartfelt invitation to all participants and delegates. Your presence and contributions will undoubtedly enrich the conference and help us in making ICRAIC2IT-2025 a resounding success.

Objectives of the Conference

The International Conference on Recent Advancements in AI, Computational Intelligence, and Inclusive Technologies (ICRAIC2IT-2025) is designed with the following key objectives:

- To provide a global platform for researchers, academicians, industry professionals, and students to present their latest research findings, innovative ideas, and technological advancements.
- To promote interdisciplinary research by encouraging collaboration across various domains such as Artificial Intelligence, Computational Intelligence, Inclusive Technologies, and related fields.
- To bridge the gap between theory and practice by fostering dialogue between academia and industry, leading to the development of practical, impactful solutions.
- To facilitate knowledge sharing and networking, enabling participants to connect with experts and peers worldwide, fostering long-term research partnerships and collaborations.
- To showcase emerging trends and future directions in AI, computational intelligence, and inclusive technology development, inspiring new lines of research and innovation.
- To encourage young researchers and students by providing them with opportunities to engage with leading experts, present their work, and receive valuable feedback.
- To contribute to the growth of inclusive technologies, ensuring that technological advancements cater to diverse societal needs, promoting accessibility and equity.
- To ignite fresh perspectives, drive innovation, and pave the way for future advancements in technology and society.

Topics for Presentation

Most of the emerging areas in Computer Science and Communication Technology were identified as topics of importance for the conference.

Explainable AI and Ethical AI	Assistive Technologies for Differently-abled Individuals	Blockchain Applications in AI and IoT
AI for Social Good	AI for Accessibility and Inclusive Design	Augmented and Virtual Reality in Intelligent Systems
Fuzzy Systems and Applications	Smart Devices and Ubiquitous Computing	Internet of Things (IoT) and Smart Cities
Evolutionary Algorithms and Swarm Intelligence	Technology for Rural and Underserved Communities	Cybersecurity and Privacy in AI Systems
Neural Networks and Cognitive Computing	Inclusive Technologies for Education and Training	Human-Computer Interaction and User Experience
Intelligent Decision Support Systems	Quantum Computing in AI	Autonomous Vehicles and Robotics
Computational Intelligence in Data Mining	Computational Intelligence	Applications of AI
Computational Neuroscience		

Conference Tracks for Presentation

The abstracts of the received papers are organized in the following sections according to their respective tracks. Based on the nature and content of each submission, the papers were classified into appropriate track categories. The following table presents the statistics of the total papers received and those accepted under each track.

All the papers received were carefully reviewed and categorized based on their subject areas, and the selected papers were grouped under the following categories for presentation. The tracks and the number of papers presented in the conference are listed below.

S.No	Category	Physical	Virtual	Total No. of Papers
1	Agriculture, Social Good, and Emerging Technologies (ASE)	17	8	25
2	Computer Vision and Deep Learning (CVD)	4	5	09
3	Cybersecurity, Blockchain, and IoT (CBI)	8	7	15
4	Healthcare and Medical Diagnostics (HMD)	20	9	29
5	Medical Imaging and Bioinformatics (MIB)	4	7	11
6	NLP and Multimodal AI (NLP)	12	4	16
7	Optimization and Prediction (OAP)	6	4	10
	Total	71	44	115

Conference Schedule

The conference continued with three parallel technical sessions, facilitating dynamic discussions and the exchange of academic insights among participants. The sessions were conducted as per the following schedule

	Day 1: May 2, 2025			Day 2: May 3, 2025		
Time	Technical Session	Parallel Session	Parallel Session	Technical Session	Parallel Session	Parallel Session
10:00 – 11:00	Inaugural Session			PS7 Virtual Keynote speech	PS8 (ASE papers)	VS4 (NLP papers)
11:00 – 11:15	Tea Break					
11:15 – 12:15	Keynote Speech			PS9 (ASE papers)	PS10 (HMD papers)	VS5 (OAP papers)
12:15 – 1:00	PS1 (HMD papers)	PS2 (MIB papers)	VS1 (HMD papers)	PS11 (HMD papers)	PS12 (CVD papers)	VS6 (CVD 5 papers)
1:00 – 2:00	Lunch Break					(Others papers)
2:00 – 3:30	PS3 (NLP papers)	PS4 (HMD 6 papers)	VS2 (ASE 6 papers)	PS13 (NLP papers)	PS14 (OAP papers)	VS7 (HMD papers)
3:30 – 3:45	Tea Break					
3:45 – 5:00	PS5 (CBI papers)	PS6 (ASE 6 papers)	VS3 (CBI papers)	Poster Presentation		
5.00 – 5.30	Networking & Open Discussion			Valedictory Session		

Subject experts have acted as session chairmen for all 21 sessions respectively and evaluated the paper presentations.



Details of Awards

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

Best Paper Award

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

Best Poster Award

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

About Vijayawada

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

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

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

Few attractions in and around Vijayawada:

- | | |
|---|---|
| <ul style="list-style-type: none">• Amaravati, The capital City of A.P• Akkanna Madanna Caves• Amaravati Shrine• Bhavani Island• Gandhi Hill• Gunadala Matha Shrine• Hailand• Hazratbal Mosque• Hinkar Thirtha Jain Temple• Kanaka Durga Temple• Kolleru Lake• Kondapalli Fort | <ul style="list-style-type: none">• Kuchipudi Siddhendra Kala Kshetram• Mangalagiri Panakala Swami Shrine• Manginapudi Beach• Mogalarajapuram Caves• Pavitra Sangamam• Prakasam Barrage• Rajiv Gandhi Park• Scrap Sculpture Park• Subramanya Swami Temple• Undavalli Caves• Uppalapadu Bird Sanctuary• Victoria Jubilee Museum |
|---|---|

Sponsors of the conference

The conference is sponsored by Anusandha National Research Foundation (ANRF), New Delhi and Science Engineering Research Board of DST, New Delhi. The details of the grant-in-aid are given hereunder:

Funding Agency	Name of the Scheme	Amount Sanctioned in Rs.	File No.	Date of Sanction
ANRF, New Delhi	Assistance to Professional Bodies & Seminar/Symposia Scheme	1,50,000/-	File Number: SSY/2024/002319	20.01.2024

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List of Papers accepted for presentation and publication

Paper ID	Paper Title	Track	Sessi on#	Author Names	Institute	Primary Contact Author Email
2	An Evolutionary Deep Learning Framework for Automated ECG Arrhythmia Classification	Healthcare and Medical Diagnostics	PS11	Mayara Satya Prasanthi; Cheeti Naga Santha Kumari; Boppana Venugopal; Davuluri Suneetha	NRI Institute of Technology	cheetisantha@gmail.com
3	A Quantum-Enhanced Explainable AI Framework with Augmented Reality for Next-Generation Autonomous Vehicle Network Security	Agriculture, Social Good, and Emerging Technologies	PS8	Akkimsetti Somaraju; Boppana Venugopal; Davuluri Suneetha; Cheeti Naga Santha Kumari	NRI Institute of Technology	srees.boppana@gmail.com
4	Improved Lung Cancer Diagnosis Using Ensemble and Kernel-Based Machine Learning Models	Healthcare and Medical Diagnostics	VS1	G Swapna Rani; J Madhumathi; K Ambika; T Haritha	Geethanjali College of Engineering and Technology	swapna2018@gmail.com
10	EmoVerse: Dynamic Multimodal Support for Personalized Mental Wellness	NLP and Multimodal AI	PS3	davuluri Suneetha; Kandala Vamsi Krishna; Nandam Nutan Sai; Mallampati Renu Dedeepya; Kemisetty Syam Kumar	NRI Institute of Technology	sunithadavuluri8@gmail.com
14	Impact of Application of VR & AR on Communication Gaming and Growing Critical Thinking Among Youth	Agriculture, Social Good, and Emerging Technologies	VS2	Mukherjee Dr. Sumita; Thapliyal Dr. Kavita; Maurya Dr. Alka; Khattar Dr. Sharad ; Bansal Raman ; Tiwari Chhavi	Amity International Business School, Amity University, Noida	doctorkt15@gmail.com
17	Vitamin Deficiency Detection Using Image Processing and Neural Networks	Medical Imaging and Bioinformatics	PS2	Boppana Venugopal; Katabattuni Chandra Kiran; Mallidi Chaitanya Sandeep Reddy; Nallam Kavya Sri; Jajula Eswari	NRI Institute of Technology	srees.boppana@gmail.com

19	Crop Disease Detection Using Resnet	Agriculture, Social Good, and Emerging Technologies	PS6	davuluri Sunetha; Kodavatiganti N V Subramanyam; Kondareddy Ramcharan; Mekala Rishik; Neelagiri Sravani	NRI Institute of Technology	sunithadavuluri8@gmail.com
22	Deepfake: An Overview of Detection Methods and Challenges	Computer Vision and Deep Learning	VS6	BATTULA Thirumaleshwari Devi	Vellore Institute of Technology	thirumaleshwari.devi2021@vitstudent.ac.in
23	A Comprehensive Framework for Plant Disease Detection Using Convolutional and Recurrent Neural Networks	Agriculture, Social Good, and Emerging Technologies	PS6	davuluri Sunetha; Dasam Nithin; Guduru Mahitha; Bonam Bilva Datta; Allu Mahesh	NRI Institute of Technology	sunithadavuluri8@gmail.com
24	Analysis of Learning Behaviour Characteristics and Prediction of Learning Effect	Optimization and Prediction	PS7	Malla Venkata Pavan Uma Maheswara Rao; Karnati Vivek Chanikya2; Nunna Kamala; Peddinti Likitha Sai; Deekala Mojesh	NRI Institute of Technology	malla.uma9@gmail.com
25	Multi-Modal Approach for early detection of Pancreatic Cancer	Healthcare and Medical Diagnostics	PS1	Cheeti Naga Santha Kumari; Areppalli Suvarna; Janaga Saish; Budavati Pranathi ; Dindi Roshitha	NRI Institute of Technology	cheetisantha@gmail.com
29	Monkeypox Diagnosis with Interpretable Deep Learning Techniques	Healthcare and Medical Diagnostics	PS1	Iatha chitturi; Lakshmi Iswarya B; Hari Vaishnavi CH; YASWANTH G; BALU B	NRI Institute of Technology	suguna.c@nriit.edu.in
30	Enhancing Public Safety: The Future of Gun Detection Systems	Agriculture, Social Good, and Emerging Technologies	PS6	Gorintla Shobana; A Naga Sai Sandeep; B Uma; D Ruchitha; G Ruthvik	NRI Institute of Technology	drgshobana@gmail.com

32	Enhancing Sentiment Analysis through Integrated Prompt Engineering with Large Language Models: A Comparative Evaluation of Transformer-Based and Traditional Machine Learning Approaches	NLP and Multimodal AI	PS3	Boppana Venugopal; Thatavarthi Purnima; Pilli Snigdha; Shaik Aktarunnisa; Yeddu Mastan	NRI Institute of Technology	srees.boppana@gmail.com
33	Advanced Blood Cell Classification Using Convolutional Neural Networks for Automated Hematological Diagnosis	Medical Imaging and Bioinformatics	PS2	Malla Venkata Pavan Uma Maheswara Rao; Mohammad Ayesha Thabussum ; Kakkireni Haripriya; Koti Sai Sravani ; Orsu Gayathri	NRI Institute of Technology	malla.uma9@gmail.com
34	PCHF-Based Stacking Classifier for Accurate Heart Disease Prediction	Healthcare and Medical Diagnostics	PS1	Gummadi Jitendra; Munagala Monika Bhargavi Sandhya Sree; Kantubhuktha Surya Himaja; Murala Srinikhila; Pamarthi Naga Kavya Sri	NRI Institute of Technology	gummadijit.hendra@gmail.com
35	Exploring Demographics and Emotions	NLP and Multimodal AI	PS3	Vipparla Aruna; Avula Harshitha; Chadalawada Naga Venkata Sai ; Eedi Mounika Sravanthi ; Kotte Jaswitha	NRI Institute of Technology	aruna.vipparla5@gmail.com
36	AI-Driven Disease Prediction and Treatment Recommendation System	Healthcare and Medical Diagnostics	PS11	Syda Nahida; Kaile Tarun Kumar ; Kosuri Chennakeswari ; Miriyala Siva Narayana ; Nerusu Pavan Sai	NRI Institute of Technology	nahida.syd@gmail.com
37	Deep Learning for Facial Emotion Recognition: A CNN-Based Model	Computer Vision and Deep Learning	PS12	Durga Dr. Putta ; Kaki Veera Venkata Manoj; Harshitha Kotagiri; Hema Mogarampalli; Ravi Kanth Chowdary Nimmagadda	NRI Institute of Technology	durga.p@nriit.edu.in

38	Real time sign language translator with gesture recognition and Speech synthesis	Agriculture, Social Good, and Emerging Technologies	PS6	Chavala Santhi; Arumalla Nimita; Chintalapati Devi Priya ; Doddi Dileep Kumar; Jasti Tharun Kumar	NRI Institute of Technology	shantichava@gmail.com
40	SYBIL-RESISTED TRUSTWORTHY SERVICE EVALUATION IN SERVICE-ORIENTED MOBILE SOCIAL NETWORKS	Cybersecurity, Blockchain, and IoT	PS5	N NAGASUNDAR ; S PRATHIBA; P MEGAVATHI	SRI KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY	nagasundarnagappan@gmail.com
41	Remote Speech Emotion Recognition using Voice Data	NLP and Multimodal AI	VS4	Srivastava Saumya; Kapoor Priti; Jaiswal Yash Raj; Tyagi Raja; Singh Kamna	Ajay Kumar Garg Engineering College,Ghaziabad	saumyasri1914@gmail.com
42	Phishing website detection using machine learning	Cybersecurity, Blockchain, and IoT	PS5	Cheeti Naga Santha Kumari; Madoju Sridevi; Kadaru Dharani; Katuri Aravind; Nalla Jaswant Kumaar	NRI Institute of Technology	cheetisantha@gmail.com
43	CERVICAL CANCER EARLY DETECTION	Healthcare and Medical Diagnostics	PS4	Syda Nahida; Annavarapu Naga Venkata Pavan kumar; Borra Rajendra; Devi Naga Bala Venkata Prameela ; Guttula Koojitha	NRI Institute of Technology	nahida.syda@gmail.com
46	AUTOMATED JOB TITLE EXTRACTION SYSTEM	NLP and Multimodal AI	PS13	Talari Revathi; Kanduri Suma Sree ; Kusam Samiksha ; Paidi Naga Abhiram; Mohammed Sirajuddin	NRI Institute of Technology	revathi.chittu2@gmail.com
51	Sliding Window Based Emotion Detection System for Electroencephalography Signals	Healthcare and Medical Diagnostics	VS8	Chaudhari Nihar; Chaudhari Unmesh	Self	nihaarchaudhari@gmail.com

52	Multiobjective Optimization of Performance Parameters of Methanol Steam Reformer	Optimization and Prediction	VS5	Rout Sibun; Pandey Mahima	Gokhale education society R.H sapat college of engineering	sibunrout26@gmail.com
53	Cyber Security Challenges in Metaverse: A comprehensive review across Smart Cities Domain	Cybersecurity, Blockchain, and IoT	VS3	Joshi Preksha; Ahir Param; Gandhi Ankita ; Rathod Digvijaysinh; Soni Hardik	National Forensic Sciences University	preksha.btmtcs2113@nfsu.ac.in
54	Revisiting Optimization Techniques for Deep Learning: Evaluating the Convergence Stability of Adam and AMSGrad in Large-Scale Neural Networks	Computer Vision and Deep Learning	VS6	Kanka Vincent; Mallareddy Praveen Kumar Dora ; Thangavelu Kathiravan	Nectar Info Tek LLC	kankavince nt@ieee.org
55	EARLY-STAGE DETECTION OF AUTISM SPECTRUM DISORDER	Healthcare and Medical Diagnostics	PS1	Gorintla Shobana; Kondapudi saiprasanna; Merugu LakshmiKeerthi; Nenabath Hobulsai	NRI Institute of Technology	drgshobana@gmail.com
58	DEEP LEARNING-BASED CLASSIFICATION OF LUNG CANCER USING CT SCAN IMAGES	Medical Imaging and Bioinformatics	VS7	P Jyothi; Rani G Swapna ; D Mythili; P Nagarani	Teegala Krishna Reddy Engineering College	jyothi22reddy@gmail.com
59	Detection of Rice Crop Disease using hybrid DenseNet with Regularized Extreme Learning Machine	Agriculture, Social Good, and Emerging Technologies	VS2	karakanti srividya	konneru lakshmaiah educational foundation, vaddeswaram	karakantisri vidya0508@gmail.com
60	Multi-Scale Hierarchical Attention Network with Topological Encoding for Long-Range Protein Sequence Dependencies	Medical Imaging and Bioinformatics	PS2	DAVULURI SUNEETHA; Syda Nahida; Malla Venkata Pavan Uma Maheswara Rao; Boppana Venugopal	NRI Institute of Technology	srees.boppana@gmail.com

61	Intelligent Assessment and Evaluation System (IAES)	Agriculture, Social Good, and Emerging Technologies	PS6	Venkata Sambasivarao Kambhampati ; Kondapalli Naveen; Narapureddy Lakshmi Prasanna ; Jonnalagadda Jaswanya Balaram ; Matta Kanaka Supriya	NRI Institute of Technology	kvsrao@nriit.edu.in
64	Enhancing Geospatial Data Visualization with a Domain-Specific Language for Mapbox GL	Agriculture, Social Good, and Emerging Technologies	VS8	Abdul Shakir Wajiha	California State University, USA	wajiha.asha kir@gmail.com
66	Prediction of Brain Stroke using Feature Selection and Classification	Healthcare and Medical Diagnostics	PS14	Lingamaneni Indraja; JONNALAGADDA CHENDRAHASA; KANTAMneni HYMA; Paidi Sai Mani; Mulakala Lekhithasree Yadav	NRI Institute of Technology	indu.lingam aneni@gmail.com
67	A Study of Regularization Techniques on Overall and Predicted Ratings in Multi-Criteria Recommender Systems	NLP and Multimodal AI	PS3	HARSHITH KANUMURI	NRI Institute of Technology	kanumuri.h arshith@gmail.com
69	Heart Disease Risk Prediction Using Machine Learning	Healthcare and Medical Diagnostics	PS14	Miriyalu Lakshmi; Ayrimula Ashirwad Johnson; Cheedella V N D Sai Sunayana; Guntaka Lakshmi Naga Manvitha; Jillella Venkata Kedhar	NRI Institute of Technology	lakshmimiriyala2515@gmail.com
70	Plant Leaf Disease Detection and Classification Using Random Forest and SVM	Agriculture, Social Good, and Emerging Technologies	PS6	Venkata Sambasivarao Kambhampati ; Jyothi Sri Pappala; Manasa Sangepu; S S V Anil Rahul Tadepalli; Naga Lakshmi Yadala	NRI Institute of Technology	kvsrao@nriit.edu.in

71	Machine Learning for the Determination of Mental Health-SVM,Random Forest and DecisionTree	Healthcare and Medical Diagnostics	PS11	Ankem Tarak Ram; Ayancha Bharath; Singareddy Swetha; chavithini Santosh; Javvaji Mounika	NRI Institute of Technology	tarakram899@gmail.com
72	Decentralized Solutions for Healthcare: A Comprehensive Analysis of Blockchain's Impact on Data Privacy, Interoperability, and Supply Chain Integrity	Cybersecurity, Blockchain, and IoT	VS3	MANEKAR DR. AMITKUMAR; Tiwari Shreaya; Khandar Gauri; Mandawale Amaye; Paturkar Nagesh	SSGMCE SHEGAON	asmanekar24@gmail.com
75	Comparative Study of Machine Learning Algorithms for Fraud Detection in Online Transactions	Cybersecurity, Blockchain, and IoT	VS3	Yadav Priyanka; Tiwari Kuldeep Kumar; Kumar Sunil	Chandigarh University	kuldeep.smd@gmail.com
79	The Impact Of AI On Human Life	Agriculture, Social Good, and Emerging Technologies	VS2	Rani Dr	vikramasimhapuri university	ranimarri@gmail.com
80	AI-Powered Basketball Analytics: YOLOv11-Based Player, Ball, and Hoop Detection with Pose Estimation, AI Commentary, and Shot Prediction	Computer Vision and Deep Learning	VS6	Khomane Abhishek	Anantrao Pawar College of Engineering and Research	akhomane757@gmail.com
82	Voice-Enabled prescription using PrescribAI	Healthcare and Medical Diagnostics	PS4	Venkata Sambasivarao Kambhampati ; Akula Akhila; Bolu Manasa; Daggu Venkatesh; Tata Chetana Sree	NRI Institute of Technology	kvsrao@nrit.edu.in
83	Smart Article Assistant: Personalized Answers Using LLMs	NLP and Multimodal AI	VS4	Kamineni Vathsalya; K Siva Sairam Prasad; Mendem Bhargavi; Gnana Sri Kowshik Varma	Siddhartha Academy of Higher Education University	vathsalyakamineni@gmail.com

85	An Automatic Nuclei Segmentation on Histopathology Images Using Deep Residual U-Net	Medical Imaging and Bioinformatics	VS7	Srungarapati Raj Kumar; Dammu Bhargav	Siddhartha Academy of Higher Education University	rajkumars27113@gmail.com
87	Drug Recommendations through Sentiment Analysis using NLP	Healthcare and Medical Diagnostics	PS11	Vipparla Aruna; Srikanthulu Yogendranath ; Torlapati Mounika ; Pallapothula Bhanu Prasad ; Sailaja Veeramreddy ; Kumar Sathya Pavan Kothuri	NRI Institute of Technology	aruna.vippa.rla5@gmail.com
89	Efficient Bird Call Identification with ResNet-50 and EfficientViT-B1 Architectures	Computer Vision and Deep Learning	PS12	Mangalampalli Tarun; Kandala Doondly Avinash; Mallolu Swetha	NRI Institute of Technology	tarunmang.alampalli@gmail.com
90	Hybrid Machine Learning and Deep Learning-Based Brain Stroke Prediction Model: Performance Evaluation and Result Analysis	Healthcare and Medical Diagnostics	PS14	Sai vyshnavi Gopala; Venu Gopal Pallagani; Phanindra Kumar Bellagubba; Dedeepya Nakerakanti; Chiranjeevi Markapuram; Guna Sekhar Bhavana	NRI Institute of Technology	saivyshnavi.gopala@gmail.com
91	EARLY DETECTION OF LUMPY SKIN DISEASE IN CATTLE USING A DEEP LEARNING-BASED REGION BASED FULLY CONVOLUTIONAL NETWORK (R-FCN)	Healthcare and Medical Diagnostics	VS1	Bodapati Deepika Helen; Pallagani Venu Gopal; Bellagubba Phanindra Kumar; Chintalapati Satya Abhiram; Rajala Sirisha; Voleti Prudhvi Sai Chand	NRI Institute of Technology	deepikahelen03@gmail.com
93	PLANT DISEASE DETECTION USING QUANTUM RECURRENT NEURAL NETWORK	Agriculture, Social Good, and Emerging Technologies	PS8	Cheeti Prasanthi Kumari; davuluri Sunetha; Syda Nahida	NRI Institute of Technology	nahida.syd@gmail.com

94	A Deep Learning Approach for Real-Time Drug Dosage Optimization using Multi-Modal Patient Data and Safety-Constrained Reinforcement Learning	Healthcare and Medical Diagnostics	PS14	Boppana Venugopal; Nallamala Sri Hari; Nakka Venkata Satyanarayana; Davuluri Suneetha	NRI Institute of Technology	srees.boppana@gmail.com
95	A Quantum-Enhanced Deep Learning Architecture with Adaptive Resonance Circuits for High-Precision Tsunami Prediction	Agriculture, Social Good, and Emerging Technologies	PS8	Boppana Venugopal; Cheeti Naga Santha Kumari; Davuluri Suneetha; Reddi Rama Devi	NRI Institute of Technology	srees.boppana@gmail.com
96	Cataract and Glaucoma Detection with Deep Learning	Medical Imaging and Bioinformatics	VS7	Sikhakolli Sai Balakrishna; Rajulapati Vyshnavi; Sukhavasi Vyshnavi; Vaka Kavya; Shaik Rasheda	NRI Institute of Technology	saibalakrishna.sikhakoli@gmail.com
97	Wrong Posture Muscle Strain Detector Using Machine Learning	Healthcare and Medical Diagnostics	VS8	Kamineni Vathsalya; G Kranthi; Bhargavi Mendem; Bukka Kranthi	Siddhartha Academy of Higher Education University	vathsalyakamineni@gmail.com
98	Comprehensive Study on Hybrid Cryptosystems for Securing Data in Transit and Storage	Cybersecurity, Blockchain, and IoT	VS3	Reddaiah Buduri; Radhika Dodda	Yogi Vemana University	prof.reddaiyah@yvu.edu.in
99	Generic Framework for Synthetic Data Generation using Large Language Models	NLP and Multimodal AI	PS3	Vignesh Divij ; Murthy Garimella Rama	Mahindra University	divijvignesh12@gmail.com
100	Pure Source: “An Application for Food, Education, and Amenities Donation on Mobile or Web”	Agriculture, Social Good, and Emerging Technologies	PS6	Maddireddy Chaitanya Kishore Reddy; Boddupalli Naga Sai Vignesh; Abburi Venkata Kavya Sri; Chappidi Mahesh Babu; Hari Sai Yugesh	NRI Institute of Technology	chkishore.007@gmail.com

104	Restaurant Recommendation System based on reviews using XAI with Content-based Collaborative Filtering	NLP and Multimodal AI	PS13	davuluri Suneetha; Parimi Bhavana Sruthi; Sangireddy Bhupendra Sai; Talasila Hima Bindu; Yadavalli Gayathri Vanaja	NRI Institute of Technology	sunithadavuluri8@gmail.com
105	A Hybrid Intelligent Framework for Cardiovascular Disease Diagnosis Using Multi-layered Ant Colony Optimization and Enhanced Deep Learning	Healthcare and Medical Diagnostics	PS14	S Sindhura; Nakka Siva Seshu; Reddi Ramadevi	NRI Institute of Technology	ssindhurapraveen@gmail.com
106	Semantic-Based Dynamic Windowing for Efficient Long Document Processing in Large Language Models	NLP and Multimodal AI	PS13	Malla Venkata Pavan Uma Maheswara Rao; Pakalapati Srinivas; Nakka Venkata Satyanarayana	NRI Institute of Technology	malla.uma9@gmail.com
109	SMART WATER STRESS MANAGEMENT IN TOMATO CULTIVATION THROUGH BIORISTOR DATA	Agriculture, Social Good, and Emerging Technologies	PS8	S Sindhura; Cheedirala Bhargav Reddy; Battu Chanukya; Gajula Sunanth; Doppalapudi Vaishnav	NRI Institute of Technology	ssindhurapraveen@gmail.com
112	Development of agriculture in disease detection accurately by using SVM through CNN Algorithms by suggesting organic pesticides	Agriculture, Social Good, and Emerging Technologies	PS8	Maddireddy Chaitanya Kishore Reddy; Dammalapati Yasaswini; Sunkara Harsha	NRI Institute of Technology	chkishore.007@gmail.com
115	Blood Group Detection using Image Processing and Fingerprint	Medical Imaging and Bioinformatics	PS2	Chavala Santhi; Venkata Yaswanth Ram Pamarthi; Rithvik Chenna Reddy Mule ; Prathyusha Kanulla ; Likhita Sowmya Murapaka	NRI Institute of Technology	shantichavala@gmail.com
117	Detecting File-less Malware in Network Traffic Using CNNs and Image Processing	Cybersecurity, Blockchain, and IoT	PS5	Gorintla Shobana; chanati Bogesh; ch Srinivasareddy; B Immanuel; k Shivaji	NRI Institute of Technology	drgshobana@gmail.com

119	Leveraging Deep Learning for Real-Time Financial Fraud Prevention	Cybersecurity, Blockchain, and IoT	PS12	Sikhakolli Sai Balakrishna; Bavirisetti Venkata Mahesh; Cheeraboyina Karthik; Garimella Vijay Bhaskar; Akiri Devesh	NRI Institute of Technology	saibalakrishna.sikhakoli@gmail.com
121	XCEPTION-DRIVEN LUNG CANCER DETECTION WITH OPTIMIZED FEATURE FUSION	Medical Imaging and Bioinformatics	VS7	Sikhakolli Sai Balakrishna; S Raj Sagar; Kilaru Sai Krishna; Mamidi Rama Mohana Rao; Nandigam Jethya Naidu; Kondapalli Koti	NRI Institute of Technology	rajsagar1993@gmail.com
123	A Fine-Grained Weather Forecasting Model Based on Machine Learning That Works	Optimization and Prediction	VS5	Kumar Vijay ; Saranya Konanki; Bhargavi Vempati; Rajdeep Indupalli; Nissy Mandala	NRI Institute of Technology	saranya.konanki@gmail.com
124	Predictive Insights of Rainfall Patterns in Barpeta District Assam: A Time-Series Analysis	Optimization and Prediction	VS5	Kamath Rajani	CSIBER	rskamath@siberindia.edu.in
125	Flight Fare Forecasting: Leveraging Hybrid Machine Learning Approaches for Enhanced Prediction Accuracy	Optimization and Prediction	VS5	Kumar Vijay; Paleti Kusuma Harika ; Bhatlapenumarthy Sai Durga Vyshnavi ; Yarra Chandana; Sirvisetti Krishna Teja	NRI Institute of Technology	krishnatejasirvisetti@gmail.com
126	LLM-Enhanced Privacy-Preserving Multi-Modal Federated Recommendation System	NLP and Multimodal AI	PS13	Gorintla Shobana; R Mounika	NRI Institute of Technology	drgshobana@gmail.com
127	A Multimodal Transformer-Based Framework with Integrated GNN for Early Detection and Phenotyping of Polycystic Ovary Syndrome	Healthcare and Medical Diagnostics	PS14	Gorintla Shobana; Kruttiventi Bhargavi	NRI Institute of Technology	drgshobana@gmail.com

129	MULTI-LAYER DDOS ATTACK DETECTION IN STATEFUL SDN-BASED IOT NETWORKS USING LSTM	Cybersecurity, Blockchain, and IoT	PS5	NARESH BABU TADI SIVA VENKATA; INDRAJA PASUPULETI	Sree Vahini Institute of Science & Technology	tsvnaresh@gmail.com
133	Enhancing CNN Training Stability with Adaptive Weighted Loss and Learning Rate Restart: A Lightweight Approach	Computer Vision and Deep Learning	VS6	Fatima Amber; Ram Pintu Kumar; Jadon Jitendra Singh	Amity University	amberfatima1303@gmail.com
136	VOICE-ENABLED OBJECT DETECTION FOR THE VISUALLY IMPAIRED USING CNN	Agriculture, Social Good, and Emerging Technologies	PS9	Bolla Leela Krishna Mohan; J Deepa	Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	vtu19580@veltech.edu.in
138	Legal Document Summarizer	NLP and Multimodal AI	VS4	Lingineni Divya	Vasavi College of Engineering	Divya.Lingineni@staff.vce.ac.in
139	Medical Insurance Premium Prediction Using Deep Learning Algorithms	Healthcare and Medical Diagnostics	VS1	Muthusamy Kannan; Jangid Harsh	CHRIST University	kannan.m@christuniversity.in
140	Feature-Driven Explainable AI for Chronic Kidney Disease Predictions	Healthcare and Medical Diagnostics	VS8	Sivannarayana Garikipati ; Tagore Mani Kumar Bellapu; Ram Prasad Chennu; Jayaraju Gattu; Gudikandula Aslesha	NRI Institute of Technology	garikipati101@gmail.com
143	A Comprehensive Security Risk Assessment of Wireless Fidelity Protocol with respect to Smart Homes	Cybersecurity, Blockchain, and IoT	VS3	Taneja Aarushi; Singh Sneh; K Murthy Chethan	National Forensic Sciences University	aarushi.btm tcs2142@nfsu.ac.in
147	Integrating AI Into Sustainable Agriculture: Enhancing Crop Productivity And Resource Efficiency	Agriculture, Social Good, and Emerging Technologies	VS2	Patel Swati; Joshi Narayan	Dharmsinh Desai University	sbadhiya.bca@ddu.ac.in

153	Gender Recognition Through Face Using Deep Learning	Computer Vision and Deep Learning	PS12	JYOSTNA GEETHAM; Sangana Likhitha ; Tadisetti Sai Amruth ; Vinnakota Lakshmi Siva Vinay Sachin ; Tamarana Devika	NRI Institute of Technology	vangalapati jyostna@g mail.com
156	GUARDIAN WHEEL - AN ADVANCED WHEELCHAIR FOR DISABLED PEOPLE	Agriculture, Social Good, and Emerging Technologies	VS2	pradeep mredhula; ps akshara; amal aleesha; k nair midhun; evos suresh; G Keerthana	Nehru college of Engineering & Research Centre, Pambadi, thiruvilwamala	mredhu@yahoo.com
157	Enhancing Real-Time Performance in Mobile Edge Computing Through Age-Aware Deep Reinforcement Learning	Optimization and Prediction	PS7	patchala sarala	KKR & KSR Institute of technology and sciences	saralajntuk @gmail.co m
161	MACHINE LEARNING-BASED CLIENT-SIDE DEFENSE AGAINST WEB SPOOFING ATTACKS IN PHISHING PREVENTION	Cybersecurity, Blockchain, and IoT	PS5	VANGURI RAJA	Sree Vahini Institute of Science & Technology	rajaraovanguri@gmail.com
165	Heart Stroke Risk Prediction Using Machine Learning Algorithms	Healthcare and Medical Diagnostics	PS6	parasa somaraju; Charan2 Popuri ; Samivunnisa Shaik ; Sai Prakash Chari Tumula ; Viswa Sai Pasupuleti	NRI Institute of Technology	somaraju.a cg@gmail.com
166	Automated Check Tray Inspection using Image Processing towards a Sustainable and Optimized Shrimp Aquaculture Farming	Agriculture, Social Good, and Emerging Technologies	PS9	Penmatsa Ravi Kiran Varma; ADABALA PAVAN SATYA PRAKASH; CHINTA RAMANJI; ERRA SL PRANAY	Sagi Rama Krishnam Raju Engineering College	ravikiranvar map@gmail.com
167	Air-pollution prediction in Andhra Pradesh Using LSTM Model	Optimization and Prediction	VS5	Kambhampati Teja	Mizoram University	teja4136@gmail.com

168	Privacy-Enhanced Federated Restaurant Recommendation System with Adaptive Context-Aware Learning	NLP and Multimodal AI	PS3	Chavala Santhi; Surendra Kumar Marrapu	NRI Institute of Technology	shantichava@gmail.com
170	A Quantum-Enhanced Vision Transformer Framework with Hybrid Optimization for Efficient Tomato Leaf Disease Detection	Agriculture, Social Good, and Emerging Technologies	PS9	Malla Venkata Pavan Uma Maheswara Rao; Navya Dadi	NRI Institute of Technology	malla.uma9@gmail.com
172	Sentimental Analysis of Amazon Reviews for Brand Reputation and Crisis Management Using BERT and Distil-BERT	NLP and Multimodal AI	PS13	Jonnala Naga Surekha; Avidi Sneha Sanjana ; Katta Sri Sai Nanaji Chowdary ; Kokkirapati Ravi Teja; Puleru Harshini	NRI Institute of Technology	jonnalasurekha666@gmail.com
174	SMART ELECTRIC VEHICLE BATTERY HEALTH MONITORING AND FIRE PREVENTION WITH ARDUINO UNO	Cybersecurity, Blockchain, and IoT	VS3	matam sravanthi	CMR Technical Campus	msravanthi.ece@gmail.com
199	Analysis of Object Detection through Master-RCNN	Computer Vision and Deep Learning	VS6	Kumar Anjani	Cluster Innovation Centre University of Delhi	anjaniverma29@gmail.com
203	Voltage Stability Enhancement in Microgrids: An ANN-Based Droop Control Approach	Optimization and Prediction	PS7	DANDAMUDI JISHNU TEJA; KANDULA RUPA	Amrita Vishwa Vidhyapeetham Coimbatore	dijishnuteja2006@gmail.com
204	Visualising and Forecasting stocks Using Dash	Optimization and Prediction	PS7	Gummadi Jitendra; Shaik Majeeda ; Tullimilli Jahnavi Durga ; Polisetti Srujan Kumar ; Yesupogu Karthik Dev	NRI Institute of Technology	gummadijitendra@gmail.com

207	Age and Gender Prediction Using Deep CNN	Computer Vision and Deep Learning	PS12	RAMADEVI SANDIREDDY; Bezwada Deepika; Papineni Bhavani ; Chokkara Nithin Chakravarthy; Dara Anusha	NRI Institute of Technology	ramadevi.s @nriit.edu.in
210	Extracting sentiment through handwritten content using hybrid CNN-BiLSTM	NLP and Multimodal AI	VS4	Mariyam Saleha; BO Jooof Yahya ; Sadia Halima	Integral University	saleham@iul.ac.in
211	FantasticLamp: A Bioinformatics Pipeline for Quantifying Genomic Edits Using Genome Variation Graphs	Medical Imaging and Bioinformatics	VS7	Kalmotia Vijender	Wright State University	vijenderkal motia2001@gmail.com
214	A Comparative Multi-Model Approach to Detecting Fake News Using Machine Learning	NLP and Multimodal AI	PS13	Valli Pamidi Lakshmi	NRI Institute of Technology	amruthavalli.p@nriit.edu.in
216	Improving Genome Graphing Efficiency through Seqwish Parallelization	Medical Imaging and Bioinformatics	VS7	C.P Prathibhamol; Rajan Akshay ; Santhosh Gouri ; Nair Ananya ; Sreekumar Vishnu ; Nair Manjusha	Amrita Vishwa Vidhyapeetham Coimbatore	prathibhamolcp@amrita.edu
218	Facial Emotion and Sleep Detection With Audio Feedback: A Dual-Purpose AI System	Healthcare and Medical Diagnostics	VS8	Rakesh Meesa; Gupta Jatin Chandra; Virinchi C H; Jayesh Majji; Reghunath Lekshmi	Amrita Vishwa Vidhyapeetham Coimbatore	cr_lekshmi@cb.amrita.edu
219	AI-Powered Dynamic Traffic Signal System for Urban Traffic Optimization with Emergency Vehicle Prioritization	Cybersecurity, Blockchain, and IoT	VS3	Kumar Ajith; R S Kirubashini; S Dr Bhavani ; K Darshini; M Kalaiselvan	Sri Shakthi institute of engineering and technology	ajithcm2003@gmail.com
221	Predicting Depression using BERT and Wav2Vec from Fused Text and Audio Features	Healthcare and Medical Diagnostics	VS1	Jain Amita; Dixit Daksh; Dureja Naman ; Sharma Priyanshu	Netaji Subhas University of Technology	amita.jain@nsut.ac.in

222	Smart Traffic Signal Management for Emergency Medical Services and Patient Health Tracking	Cybersecurity, Blockchain, and IoT	PS5	ahmed Sufiyan; Rajendran Akshaya	Dayananda sagar college of engineering	ssufiyanahmad05@gmail.com
227	Retrieval of atmospheric motion winds using local area feature matching method	Optimization and Prediction	VS5	Ganesh Harsha Vardhan Behara; Anuradha Govada; Sai Krishna Aditya Kodi; Hemanth Kumar Vutukuri	Siddhartha Academy of Higher Education University	chinnubehara3456@gmail.com
231	Classification of Depression and Suicidal Tendencies Using Machine Learning with Voice and Text Inputs	Healthcare and Medical Diagnostics	PS4	Pokuri Srinivasa; Anantha Srujan Reddy; Telaprolu Krishna Koushi; Kongara Dhavalesh	VIT AP	pokuri.srinivasarao@vitap.ac.in
233	DISEASE PREDICTION FROM SYMPTOMS-USING CNN	Healthcare and Medical Diagnostics	PS4	Pokuri Srinivasa; voosu Bhavana; vejendla Aashritha; Kotha Kusuma Priya	VIT AP	pokuri.srinivasarao@vitap.ac.in
234	Comic Reader for the Visually Impaired	Agriculture, Social Good, and Emerging Technologies	PS9	Pokuri Srinivasa; Bommaraju Saketh Ram; Eduru Srihari Sesha Sai; Kommareddy Pranay Naga Venkata Subba Reddy; Adimalla Charan	VIT AP	pokuri.srinivasarao@vitap.ac.in
237	ENERGY-EFFICIENT MAJORITY VOTING IN DIGITAL LOGIC DESIGN	Agriculture, Social Good, and Emerging Technologies	VS2	T Brinda Prakhsha Dharsini; R Jamuna	Sri Shakthi Institute of Engineering and Technology	brinda.avn@gmail.com
238	Advanced Machine Learning Models for Predicting Diabetes Risk	Healthcare and Medical Diagnostics	VS8	fareeth Mohamed; Raja Jeslin	veltech University	vtu20257@veltech.edu.in
240	AI-Powered Interactive Q&A System for Enhanced Learning in Classrooms	Agriculture, Social Good, and Emerging Technologies	VS2	R Sharmila Devi; R Umesh; R Keerthana; Manikandan Sobana	Velammal College Of Engineering and Technology	sharmilaramanujam7781@gmail.com

243	Development of tool for Automatic Generation of Software Cycle Documents for Automation System at ISRO	Agriculture, Social Good, and Emerging Technologies	VS2	Turaga Geervani ; Dhar Murali	ISRO	geervani.turaga@gmail.com
244	ENHANCING LAB DIAGNOSIS WITH X-RAY IMAGE PREDICTION	Medical Imaging and Bioinformatics	VS7	MANKAWADE AMRUTA; KAWANE AYUSH; Kathar Valabh; Maheshwari sakshi; KARMANKAR NIKHIL; Gatave Kishor	Vishwakarma Institute of Technology , Pune	ayush.kawane221@vit.edu
246	Artificial Intelligence-Based Thyroid Disease Prediction Using Symptom and Wearable Data	Healthcare and Medical Diagnostics	PS4	Udaya Lakshmi	PSCMRCE T	udayalakshmi.nptel@gmail.com



Souvenir of A Two-day International Conference on "Recent Advancements in Artificial Intelligence, Computational Intelligence and Inclusive Technologies" (ICRAIC2IT), 02 – 03 May 2025, Vijayawada, India

Paper ID : 1	Review-Based Fake Video Detection on YouTube: A Dataset for Research and Analysis <i>Track: Computer Vision and Deep Learning</i>
	Kalbhor Shraddha; Goyal Dinesh; Sankhla Kriti, Poorinma University <i>Corresponding Author:</i> shraddha.kalbhor000@gmail.com

Not Selected for presentation and Publication

Abstract : The proliferation of fake content on YouTube in the last few years has raised vital concerns regarding content authenticity and viewer trust. Consequently, this paper introduces a new dataset titled "Review-Based Fake Video Detection on YouTube," which has been developed to enable research in identifying deceptive videos through user review analysis. In this approach, we will be designing a custom methodology for collecting metadata of YouTube videos along with user comments on those videos using the YouTube API. It retrieves comprehensive details about videos with viewer feedback. Reviews are passed through a pre-processing pipeline to extract relevant features. This is where NLP techniques refine and structure the unstructured text data. Each video in the dataset represents a manual annotation of either "fake" or "not fake," with extensive further annotation across the following four key aspects: relevance, grammar, quality, and viewer engagement. Every aspect is scored by sentiment, where 1 corresponds to positive indicators while 0 is given for negative ones. This therefore gives insight in minute detail into patterns in the quality of videos and viewer responses to them. Then, machine learning algorithms are used to further support the reliability of the data and again increase detection accuracy. The generated dataset is publicly available on Kaggle and shall be useful for research and practitioners working in the area of content verification, social media analysis, and fake video detection.

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Paper ID : 2	An Evolutionary Deep Learning Framework For Automated Ecg Arrhythmia Classification <i>Track: Healthcare and Medical Diagnostics</i>
	Mayara Satya Prasanthi; Cheeti Naga Santha Kumari; Boppana Venugopal; Davuluri Suneetha, NRI Institute of Technology <i>Corresponding Author:</i> cheetisantha@gmail.com

Session # PS11 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This paper presents a novel computational framework for cardiac arrhythmia classification that combines particle swarm optimization with convolutional neural networks. The proposed system automatically optimizes neural network architectures for analyzing ECG signals to detect and classify multiple types of cardiac arrhythmias. The framework introduces a particle swarm optimization approach that autonomously determines optimal hyper parameters for the CNN architecture, eliminating the need for manual configuration. By leveraging the MIT-BIH Arrhythmia Dataset, the system demonstrates robust performance in classifying five distinct types of cardiac arrhythmias.

The integration of evolutionary algorithms with deep learning enables automatic architecture optimization while maintaining high classification accuracy and minimizing categorical cross-entropy error. This innovative approach represents a significant advancement in automated ECG analysis by removing the dependency on manual hyperparameter selection, making it particularly valuable for clinical applications where expert knowledge of neural network design may be limited.

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Paper ID : 3	A Quantum-Enhanced Explainable AI Framework with Augmented Reality for Next-Generation Autonomous Vehicle Network Security <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
	Akkimsetti Somaraju; Boppana Venugopal; Davuluri Suneetha; Cheeti Naga Santha Kumari, NRI Institute of Technology <i>Corresponding Author:</i> srees.boppana@gmail.com

Session # PS8 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This study heralds a new quantum-enhanced explainable artificial intelligence framework in the security of an autonomous vehicle network. The proposed system integrates quantum-inspired optimization with multi-modal XAI techniques, which together build an interpretable detection mechanism for next-generation vehicular networks (VANETs). The key framework includes three innovations: QFSM is a Quantum Feature Selection Module that dynamically ranks security parameters; NEG is a Neural Explanation Generator used for contextual decision interpretation; CVE is a Cognitive Visualization Engine that enables augmented reality-based threat analysis. The proposed system integrates quantum computing and performs deep SHAP analysis to obtain better feature extraction while keeping the decision pathways transparent. In this way, it significantly improves the accuracy of threat detection to 99.97% and model interpretability, responding to the pressing need for explainable security solutions of autonomous vehicle networks in edge computing scenarios and dynamic environments. The proposed three-tier architecture merges quantum computing principles with state-of-the-art XAI methodologies, showing an improvement of 0.5% over conventional approaches in VANET threat detection.

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Paper ID : 4 Improved Lung Cancer Diagnosis Using Ensemble and Kernel-Based Machine Learning Models <i>Track: Healthcare and Medical Diagnostics</i>
G Swapna Rani; J Madhumathi; K Ambika; T Haritha, Geethanjali College of Engineering and Technology <i>Corresponding Author:</i> swapna20186@gmail.com

Session # VS1 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The rising incidence of lung cancer underscores the need for reliable predictive models to facilitate early diagnosis and improve patient outcomes. This paper explores advanced machine learning techniques to analyse a lung cancer dataset containing 16 features, encompassing demographic, lifestyle, and health-related attributes. The dataset consists of 3,000 samples, with a binary classification indicating the presence or absence of cancer. Pre-processing steps involved encoding categorical variables, normalizing numerical data, and partitioning the dataset into training and testing subsets. A combination of ensemble learning models (Random Forest and Gradient Boosting) and kernel-based methods (Support Vector Machines) were implemented and assessed. Hyperparameter tuning was performed using grid search and cross-validation to optimize model performance. Experimental findings showed that ensemble models, particularly Gradient Boosting and Random Forest achieved the highest accuracy rates of 96.5% and 97.8%, respectively, while the kernel-based SVM attained an accuracy of 95.2% on the test set. Performance evaluation was conducted using metrics such as precision, recall, F1-score, and confusion matrices. These results emphasize the effectiveness of ensemble and kernel-based approaches in lung cancer prediction, highlighting their potential for integration into clinical diagnostic workflows.

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Paper ID : 8 A SYSTEMATIC FRAMEWORK FOR ENHANCING ANOMALY DETECTION EFFICIENCY IN SPATIO TEMPORAL BASED TRAFFIC TRAJECTORY ANALYSIS <i>Track: Optimization and Prediction</i>
S KAPILAMITHRAN, Rajalakshmi Engineering College <i>Corresponding Author:</i> kapilamithrans@gmail.com

Not Selected for presentation and Publication

Abstract : The exponential growth of efficient methods for analyzing spatio-temporal traffic patterns has become a major need. This paper presents a systematic framework for spatio-temporal-based traffic trajectory analysis using the Microsoft Geolife GPS Trajectory dataset. The proposed methodology involves transforming raw trajectory data into structured formats through advanced data pre-processing pipelines. Initial steps include converting .plt files into labeled CSV datasets by integrating GPS coordinates with transport mode information. Filtering and sorting were performed

to extract meaningful trajectories while discarding unknown transport modes. For handling the computational challenges of large-scale datasets, we have employed star-based processing, R-star-based pre-processing, and quad-tree indexing to enable rapid analysis of millions of trajectory records. This framework offers a scalable and efficient solution for uncovering traffic trends and facilitating intelligent navigation. Experimental results demonstrate the system's capability to process large datasets effectively, providing valuable insights for urban planning and traffic management.

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Paper ID : 9	Next-Gen Diagnostics: The Role of AI in Brain Tumour Detection <i>Track: Healthcare and Medical Diagnostics</i>
Durga Dr. Putta ; Swathi Matta ; Triveni Regandla; Jyostna Geetham ; Davuluri Suneetha, NRI Institute of Technology <i>Corresponding Author:</i> durga.p@nriit.edu.in	

Not Selected for presentation and Publication

Abstract : This study introduces an enhanced approach for the automated detection and categorization of brain tumors from medical images, exemplified by brain tumor classification through a deep learning CNN model. The fundamental objective of this research was to devise a precise and time-efficient method for classifying brain tumors, leveraging the capabilities of DL and CNNs. The proposed CNN model was meticulously trained on an extensive collection of labelled brain MRI scans, enabling it to distill essential features and intricate patterns from the imagery autonomously. In pursuit of this research, the Brain Tumor Dataset was harnessed to facilitate the classification of scans into distinct tumor and non-tumor categories. The performance evaluation of our advanced CNN model was conducted against a benchmark dataset comprising brain MRI scans, with a thorough comparative analysis against state-of-the-art models. It's important to note that the Brain Tumor Dataset was central to executing this research endeavor. Noteworthy findings from our investigation underscore the superior performance of the presented CNN model, particularly in accuracy, sensitivity, specificity, and F1 score when contrasted with alternative models. The study reveals the considerable potential of CNN models trained with deep learning, poised to deliver both precise and expedited brain tumor classification. The proposed model holds promise in assisting medical professionals with the early and precise identification of brain tumors, thereby fostering advancements in patient care and overall outcomes.

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Paper ID : 10

EmoVerse: Dynamic Multimodal Support for Personalized Mental Wellness

Track: NLP and Multimodal AI

davuluri Suneetha; Kandala Vamsi Krishna; Nandam Nutan Sai; Mallampati Renu Dedeepya; Kemisetty Syam Kumar, NRI Institute of Technology

Corresponding Author: sunithadavuluri8@gmail.com

Session # PS3 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : . Mental health treatment is undergoing transformation with the help of AI and data science. More and more resources are becoming individualised, accessible and efficient. This paper presents an intelligent system combining emotional perception chatbots, predictive analysis and reinforcement learning to supply real-time, adaptive mental health support. With voice and text input, the system can perceive the user's emotional state and respond accordingly. A key innovation is to alter interventions according to mood changes and environmental influences in order to make it more relevant and supportive. To further enhance security and privacy, blockchain technology is used, enabling users to possess their own data records in a verifiable decentralized system. This ensures the trustworthiness and integrity of data, addressing top privacy concerns regarding digital health care. This paper also underscores that AI should be used ethically with stringent measures taken to protect sensitive information and allow responsible introduction of the latest technology. By integrating AI-driven real-time emotional analysis, personalization and top-notch security, the study aims at building a mental health platform that is effective and trustworthy. The long-term goal is to provide users with intelligent, responsive help that adapts and evolves with their needs, thereby paving the way for a more sensitive, secure digital mental health environment.

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Paper ID : 11

The Future of pet Health: Early Diagnostics and AI Powered Insights with PetCareGPT

Track: Healthcare and Medical Diagnostics

S Pruthvi; Kumar R Manoj ; P Shet Sandesh; Thanu Chithambara, Dayananda Sagar University

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Not Selected for presentation and Publication

Abstract : The increasing demand for efficient and accessible pet healthcare solutions has highlighted the need for innovative technologies to support both pet owners and veterinarians. PetCareGPT is an integrated platform designed to enhance pet care through AI-powered tools, including an intelligent chatbot, early disease detection, health tracking dashboards, emergency alert systems, and teleconsultation services. This survey paper examines existing gaps in the pet healthcare sector and presents PetCareGPT as a solution to these challenges. By combining advanced AI models such as Retrieval-Augmented Generation (RAG), image-based disease detection, and real-time health monitoring, PetCareGPT aims to provide actionable insights and improve the overall well-being of pets. Additionally, the paper includes survey results from pet

owners, highlighting their preferences and interest in adopting AI-driven pet healthcare solutions. The findings demonstrate the potential of PetCareGPT to transform pet health management, offering a comprehensive approach to ensure better care, early intervention, and enhanced engagement for pet owners.

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Paper ID : 12	"The Intersection of AI and Medicine: Exploring the Future of Drug Repurposing" <i>Track: Healthcare and Medical Diagnostics</i>
Joshi Namita, Graphic Era Hill University, Bhimtal <i>Corresponding Author:</i> namitajoshi@gehu.ac.in	

Not Selected for presentation and Publication

Abstract : This review is a compiled documentation of representation of various prominent viewpoints, describing the significance of drug repositioning methods in compliance with the drug designing process. Drug repurposing is a method also known as drug repositioning, and it signifies as newly repurposing/modifying any chemical compound that holds therapeutic affinity. Drug designing is a time-consuming task, and it requires laboring. The process of drug repurposing is a much advantageous strategy over traditional method. Drug repurposing is a call for urgent development in potential studies. Drug repositioning technique is a very promising field with reference to drug designing, as new therapeutic opportunities are studied and modified in an already present drug that has been accepted by the FDA and clinically used before. In this process already known/marketed drugs are used again for clinical settings. It is a promising approach used in that helps newer pharmaceuticals for rare and complex disease/disorders, The drug repurposing approach has significantly helped in various types of health-related issues, diseases, and disorders as well. It has low risks of failure due to safety parameters being checked through in previous studies and consumes less time in the development. This approach supports smaller research groups for data collection and mostly academic based. This method helps retrieve excluded drugs and also give multiple purposes to already existing drugs. In order to find the appropriate medication candidates for repurposing, artificial intelligence provides ability to analyze extensive datasets such as medical record, genomic data and clinical trial results. Emphasis is done on the relation between AI and medicine. Successful instances of AI being applied to repurpose drugs for new uses include the development of remdesivir as a therapy for COVID-19 and the repurposing of metformin for the treatment of cancer.

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Paper ID : 13	Optimising Aerodynamics of Car using Dynamic Flow Lines Adaptation
	<i>Track: Optimization and Prediction</i>

Rajendran Siddharth; Reddy Shreyas; Tahasildar Rashid T; Halder Surobhi, PES University
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Not Selected for presentation and Publication

Abstract : Aerodynamic optimization plays a vital role in achieving sustainability, enhanced vehicle performance, and fuel efficiency in modern automotive design. Conventional methods, such as wind tunnel testing and computational fluid dynamics (CFD), are often time-intensive and resource-demanding, which can slow the design process. This study proposes a machine learning based framework for dynamic flow line adaptation, enabling efficient real-time aerodynamic optimization for vehicles. By leveraging deep learning techniques, the approach mitigates the challenges associated with traditional methods, achieving notable improvements in computational efficiency and design flexibility. Our findings demonstrate substantial reductions in aerodynamic drag and computational overhead, facilitating more streamlined and cost-effective vehicle design workflows.

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Paper ID : 14	Impact of Application of VR & AR on Communication Gaming and Growing Critical Thinking Among Youth
	<i>Track: Agriculture, Social Good, and Emerging Technologies</i>

Mukherjee Dr. Sumita; Thapliyal Dr. Kavita; Maurya Dr. Alka; Khattar Dr. Sharad ; Bansal Raman ; Tiwari Chhavi, Amity International Business School, Amity University, Noida

Corresponding Author: doctorkt15@gmail.com

Session # VS2 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Video games have served as a substantial source of entertainment for the past century, and their influence has seen a dramatic rise in the current century. The gaming industry has undergone a revolution with handheld devices and mobile phones advancement and has opened new markets for customers. Recently, the advent of Virtual Reality (VR) has brought about significant enhancements to the gaming experience, which has impacted the industry and its consumers. In recent times, people, especially the younger generation, have been spending a considerable amount of time playing VR games. Thus, it becomes crucial to examine the influence of VR on both the industry and gamers. The impact of virtual reality from both the perspectives of the industry and gamers on gaming is explored in totality in this research. In addition to VR, multimodal tracking interfaces can be utilized to augment the fun in complex games applying AR(augmented reality). The central purpose and outcome of a recent project was to develop and execute inclusive, widespread, and generic pervasive experiences that a broad range of people, including those with disabilities, could access. A comprehensive AR racing game has been created, which requires players to start the car and drive it around the course without crashing into any walls or other obstacles to succeed. The integration of Virtual Reality and multimodal tracking interfaces into

gaming has brought about substantial transformations in the industry, providing players with more immersive gaming experience. The widespread availability of these technologies has enabled more people, including those with disabilities, to participate in gaming, making it more inclusive and accessible

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Paper ID : 15	AN APPROACH FOR DESIGN IOT BASED SMART CAR PARKING DEVICE <i>Track: Cybersecurity, Blockchain, and IoT</i>
Saxena Ankur, Bharat Institute of Engineering & Technology <i>Corresponding Author:</i> ankur_saxena6481@yahoo.com	

Not Selected for presentation and Publication

Abstract : In this research paper, development of smart car parking system designed to automate and optimize parking space allocation in real-time. The system utilizes sensors such as infrared sensors to detect the availability of parking spaces. This system integrates hardware components such as an ESP32 controller, IR sensor modules, LCD, relay modules, and a stable power supply with software tools like Embedded C and the web application. Additionally, the system includes a motorized barrier for secure entry and exit. The IR sensors detect vehicle presence, and the relay modules control gates or barriers based on availability. Parking status is displayed on the LCD and remotely monitored through the web application. By implementing this smart parking solution, the system aims to reduce congestion, minimize search time for parking, and increase the overall efficiency of parking space utilization in crowded environments. The proposed device provides the solution to user or customer with IOT enabled parking areas, also incorporates a cost-effective design, leveraging open-source hardware and software, making it adaptable for various parking facilities.

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Paper ID : 16	Materials Integration of Pressure Sensor Mechanism for Fluid Flow Control in MEMS Microfluidic Device Application: A Review <i>Track: Cybersecurity, Blockchain, and IoT</i>
Saxena Ankur, Bharat Institute of Engineering & Technology <i>Corresponding Author:</i> ankur_saxena6481@yahoo.com	

Not Selected for presentation and Publication

Abstract : MEMS pressure sensor is highly demand in micro technology system. Recent study has shown that integration of pressure sensor in microchannel to control the fluid flow. The mems pressure used different type of materials to design sensor and control the fluid pressure in microchannel. Review paper discuss about integrate pressure sensing methodology in microfluidic chip and its application. It describe the methodology for measurement of pressure, density of molecules, and control the fluid rate in microchannel. The fluid flow in microchannel is depends on friction of surface microchannel, Reynold number, and viscosity of fluid. Microfluidic pressure

sensing technology describe not only quantitative analysis but also gives qualitative information inside the microchannel

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Paper ID : 17	Vitamin Deficiency Detection Using Image Processing and Neural Networks <i>Track: Medical Imaging and Bioinformatics</i>
Boppana Venugopal; Katabattuni Chandra Kiran; Mallidi Chaitanya Sandeep Reddy; Nallam Kavya Sri; Jajula Eswari, NRI Institute of Technology	
<i>Corresponding Author:</i> srees.boppana@gmail.com	

Session # PS2 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This project aims to identify vitamin deficiencies through photos of some regions of the body, i.e., eyes, lips, tongue, and nails. This application uses advanced machine learning and computer vision to create a non-invasive, economical means of early nutritional deficiency screening. Users may upload pictures, and the app scans for potential deficiencies and supplies personalized information regarding natural food containing high vitamin intake, i.e., fruits, vegetables, and meats. This method provides consumers with the means to choose nutritious food, on the grounds of dietary solutions rather than supplements, and gain nutrition awareness. This project benefits doctors as an added tool to point patients in the direction of a better diet, suggesting an integrative framework for enhanced well-being and wellness.

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Paper ID : 18	Development of Novel Gamification Tool using Improved Heuristic-aided Residual Bi-LSTM for Higher Education Purpose <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Manocha Prabhjot Singh; Jain Dr. Nitin, Chitkara University Institute of Engineering & Technology	
<i>Corresponding Author:</i> manocha172@gmail.com	

Not Selected for presentation and Publication

Abstract : The rapid advancement of information and communication technologies has brought about substantial changes in various aspects of daily life, including education 9. Educational institutions are increasingly prioritizing the development of digital competencies among students, aiming to enhance their proficiency with digital tools 10. The growing integration of technology in students' lives has paved the way for innovative educational strategies like gamification. Gamification involves the use of game-based elements, aesthetics, and thinking to engage learners, boost motivation, support learning, and address problems 11. By employing gamification strategies, educational institutions can increase student motivation and engagement with course materials, leading to improved learning outcomes 12.

Gamification serves as a valuable link between educational organizations and students, offering an

engaging learning environment that enhances productivity and user engagement on educational platforms. With the shift from e-learning to mobile learning driven by mobile technology advancements 14, gamification has become an effective strategy for enhancing students' motivation and commitment to learning 15. While gamification has gained traction in online and distance education, its application in traditional, face-to-face settings remains less widespread. The primary goal of incorporating gamification into education is to create a more engaging, enjoyable, and ultimately productive learning experience 16. When integrated with deep learning methodologies, gamification emerges as a powerful tool for both online and in-person higher education settings 17.

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Paper ID : 19	Crop Disease Detection Using Resnet <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
davuluri Suneetha; Kodavatiganti N V Subramanyam; Kondareddy Ramcharan; Mekala Rishik; Neelagiri Sravani, NRI Institute of Technology <i>Corresponding Author:</i> sunithadavuluri8@gmail.com	

Session # PS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Deep learning has been successfully applied in digital image processing for crop disease detection. Conventional methods are inaccurate and lack scalability, while deep learning models like ResNet (Residual Neural Networks) have been shown to be very effective in classifying crop diseases. ResNet has a deep architecture based on residual learning which allows for accurate feature extraction and reduces vanishing gradient problems, making it suitable for agricultural applications. In this project, we examined the effectiveness of ResNet in detecting multiple crop diseases from images. We focus on real-time analysis and multi-class classification. The model uses transfer learning and fine-tuning techniques to improve detection accuracy while minimizing computational complexity. We also compare ResNet's performance against other deep learning architectures and show that it is robust in feature representation. By implementing this system, farmers and agricultural experts can be assisted in identifying early signs of diseases, allowing for timely intervention and improving crop yield. The results show that ResNet has the potential to revolutionize precision agriculture through scalable, automated, and highly accurate disease detection.

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Paper ID : 21	Detecting Medical Deepfakes in 3D CT Scans Using an Enhanced Deep Learning Framework. <i>Track: Medical Imaging and Bioinformatics</i>
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BATTULA Thirumaleshwari Devi, Vellore Institute of Technology

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Not Selected for presentation and Publication

Abstract : New, more complex deep learning methods are enabling the creation of almost photorealistically accurate medical deepfakes, further threatening the authenticity of diagnostic imaging. In this work, we address the specific problem of detecting altered 3D CT scans of human lungs, where genuine cancerous areas are removed or artificial cancer lesions are inserted. To improve detection accuracy, we introduce MedScan-Net, a model that integrates convolutional neural networks (CNNs) with self-attention transformers. Using a carefully curated database of both authentic and artificially altered scans, MedScan-Net demonstrates significant improvements in detection precision, recall, and F1-score rates, surpassing the results reported by prior methods. By effectively extracting local spatial relationships and capturing global contextual dependencies, the model achieves high accuracy and resilience against manipulations. MedScan-Net thus serves as a powerful tool to uphold the reliability of medical imaging, ensure the trustworthiness of diagnostic scans, and support accurate decision-making in patient therapy.

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Paper ID : 22	Deepfake: An Overview of Detection Methods and Challenges <i>Track: Computer Vision and Deep Learning</i>
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Corresponding Author: thirumaleshwari.devi2021@vitstudent.ac.in

Session # VS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Deepfake technology, which employs sophisticated machine learning techniques such as generative adversarial networks (GANs) and autoencoders, has emerged as an effective tool for producing realistic synthetic media. This review article gives a detailed overview of deepfake creation and detection, with an emphasis on several media formats such as images, videos, text, and audio. We investigate the key technology, applications, and ethical concerns around deepfakes using a comprehensive literature review. Deepfake technology has uses in entertainment, education, and healthcare, which bring both potential and problems. Deepfakes, on the other hand, can be used to spread disinformation, steal identities, and engage in cyberbullying. The study examines several detection strategies, assessment measures, and the challenges and possibilities in building effective deepfake detection tools. This research intends to contribute to a better understanding of deepfake technology and the development of appropriate solutions to avoid related risks while capitalizing on its advantages. * * * *

Paper ID : 23	A Comprehensive Framework for Plant Disease Detection Using Convolutional and Recurrent Neural Networks <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
	davuluri Suneetha; Dasam Nithin; Guduru Mahitha; Bonam Bilva Datta; Allu Mahesh, NRI Institute of Technology <i>Corresponding Author:</i> sunithadavuluri8@gmail.com
	Session # PS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Deep neural networks are transforming modern agriculture by providing innovative solutions to longstanding challenges like irrigation optimization and weed management. These advanced AI technologies enable rapid and precise resolution of agricultural problems through sophisticated deep learning algorithms. While traditional farming methods rely heavily on human expertise for disease detection, deep learning systems offer enhanced capabilities that complement human knowledge rather than replacing it entirely. The current generation of farmers is increasingly adopting these technologies as they become more accessible and user-friendly. Automated disease detection systems provide substantial benefits to agricultural producers by maximizing crop yields and preventing losses that typically result from delayed disease identification, which can devastate entire harvests. Research consistently demonstrates the effectiveness of neural network architectures in plant disease identification applications. The evolution of electrical networks in agriculture requires thoughtful integration with established farming practices. Convolutional Neural Networks (CNNs) represent a specialized artificial intelligence pattern recognition framework capable of categorizing specific plant diseases based on comprehensive datasets. This research introduces two complementary models—CNN and Long Short-Term Memory (LSTM) networks—and develops these systems to achieve optimal accuracy levels. Beyond disease detection, AI-enhanced agricultural solutions significantly boost productivity while improving adaptability to fluctuating environmental conditions, creating more resilient and sustainable farming systems.

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Paper ID : 24	Analysis of Learning Behaviour Characteristics and Prediction of Learning Effect <i>Track: Optimization and Prediction</i>
	Malla Venkata Pavan Uma Maheswara Rao; Karnati Vivek Chanikya2; Nunna Kamala; Peddinti Likitha Sai; Deekala Mojesh, NRI Institute of Technology <i>Corresponding Author:</i> malla.uma9@gmail.com
	Session # PS7 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Session # PS7 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Information literacy serves as a crucial competency for college students today, enabling them to meet societal demands and pursue lifelong learning independently. By investigating the connections between information literacy behaviors and learning outcomes, educators can gain

valuable insights for educational enhancement. This research analyzed learning behavior traits to forecast information literacy outcomes among 320 university students in China. Through Pearson correlation analysis, researchers discovered meaningful relationships between information thinking characteristics and learning effectiveness. The study utilized various supervised classification algorithms for predictive modeling, including Decision Tree, KNN, Naive Bayes, Neural Net, and Random Forest approaches, with the Random Forest model yielding the best results: 92.50% Accuracy, 84.56% Precision, 94.81% Recall, 89.39% F1 Score, and a Kappa coefficient of 0.859. Based on these findings, the researchers recommend customized interventions and management strategies to improve information literacy instruction, aiming to enhance teaching methods, instructional quality, and educational decision-making. The ultimate objective extends beyond immediate academic improvement to nurture the sustainable development of innovative, high-quality talent equipped for an information-driven society, with initial research into sustainable development pathways for information literacy training showing encouraging results that suggest potential for long-term educational impact.

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Paper ID : 25	Multi-Modal Approach for early detection of Pancreatic Cancer <i>Track: Healthcare and Medical Diagnostics</i>
Cheeti Naga Santha Kumari; Arepalli Suvarna; Janaga Saish; Budavati Pranathi ; Dindi Roshitha, NRI Institute of Technology <i>Corresponding Author:</i> cheetisantha@gmail.com	

Session # PS1 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Pancreatic cancer remains a devastating medical challenge, characterized by an extremely low five-year survival rate that underscores the critical importance of early detection and improved diagnostic methods. Unlike previous research approaches that primarily relied on medical imaging, this study innovatively focuses on genetic data analysis using blood and urine samples to classify pancreatic cancer risk. By employing a comprehensive suite of machine learning algorithms—including K-Nearest Neighbors (KNN), Artificial Neural Networks (ANN), Support Vector Machines (SVM), Decision Tree Algorithm (DTA), and Logistic Regression—researchers systematically evaluated diagnostic accuracy, with individual algorithm performances ranging from 81% to 85%. The breakthrough came through the integration of these algorithms into a Random Forest model, which achieved an impressive 90% accuracy, demonstrating the potential of advanced computational techniques to revolutionize cancer diagnostics. This approach not only offers a more precise method of early detection but also represents a significant advancement in leveraging machine learning and deep learning technologies to address one of the most challenging oncological conditions. By shifting the diagnostic focus from traditional imaging to genetic data analysis, the research provides a promising pathway for more effective pancreatic cancer screening, potentially enabling earlier interventions that could substantially improve patient outcomes and survival rates.

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Paper ID : 26	Deep Learning Based Approach to Streamline Text and Video Resume Categorization and Ranking <i>Track: NLP and Multimodal AI</i>
	R Ramya; Gundapaneni Nagarani, Amrita Vishwa Vidhyapeetham Coimbatore <i>Corresponding Author:</i> nagaranigundapaneni1663@gmail.com

Not Selected for presentation and Publication

Abstract : In today's fast-paced digital world, the recruitment process is increasingly shifting towards automation and intelligent systems to efficiently manage large volumes of candidate data. This paper presents an automated video resume categorization and interview scheduling system that integrates AI-driven video analysis with machine learning algorithms to enhance the recruitment workflow. The system processes video resumes by extracting and analyzing key components such as speech-to-text, tone analysis, fluency, and body language through motion analysis. It generates structured data that is categorized and ranked based on relevance to the given job description. The results of this analysis are then used to automatically select candidates and send interview invitations via email. By automating the interview scheduling process, the system reduces administrative overhead, improves the accuracy of candidate evaluations, and enhances the overall efficiency of the hiring process. This paper explores the design, implementation, and effectiveness of the system, offering an advanced solution for HR departments in the modern recruitment landscape.

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Paper ID : 27	SPATIO-TEMPORAL BASED TRAJECTORY ANALYSIS FOR OPTIMAL ROUTE PREDICTION WITH LOW TIME COMPLEXITY <i>Track: Optimization and Prediction</i>
	S KAPILAMITHRAN, Rajalakshmi Engineering College <i>Corresponding Author:</i> kapilamithrans@gmail.com

Not Selected for presentation and Publication

Abstract : The rapid advancement of urbanization and smart city applications has increased in demand for accurate and efficient traffic prediction systems. Predicting traffic patterns plays a crucial role in optimizing urban mobility, reducing congestion, and enhancing transportation systems. This paper presents a comprehensive study on spatio-temporal trajectory analysis to identify the most effective pre-processing techniques, spatial indexing structures, predictive models, and evaluation metrics suitable for traffic prediction. The primary objective is to develop an optimal route prediction framework that ensures high accuracy while minimizing computational complexity. Three spatial indexing structures—R* Tree, Quad Tree, and K-D Tree—are evaluated to organize and manage large-scale trajectory datasets efficiently. The Spatio-Temporal Graph Convolutional Network (ST-GCN) is employed to model the spatial and temporal dependencies inherent in traffic patterns, offering a robust approach to dynamic traffic prediction. Extensive experimental evaluations are conducted using real-world traffic datasets to validate the effectiveness of the proposed framework. The results demonstrate that the combination of R* Tree for anomaly detection, KD Tree for route

prediction and ST-GCN achieves the highest prediction accuracy with the lowest computational complexity. This research highlights the significance of integrating spatial indexing with deep learning models to enhance the efficiency and accuracy of traffic prediction systems by contributing to the development of intelligent transportation solutions in smart cities.

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Paper ID : 28	RICE LEAF DISEASE DETECTION USING CONVOLUTIONAL NEURAL NETWORKS <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Sikhakolli Sai Balakrishna; Kandukuri Vasudha Rani; Mohammad Azeezulla; Padala Kaparthi Karthikeya; Kureti Abhiram, NRI Institute of Technology <i>Corresponding Author:</i> saibalakrishna.sikhakolli@gmail.com	

Not Selected for presentation and Publication

Abstract : In recent years, rice farming has been faced with many diseases that affect crop yield and quality. Detection and diagnosis of such diseases should be done early to implement proper management practices. This project proposes a new approach to rice plant disease detection using convolutional neural networks (CNNs), a powerful deep learning tool. We have designed a CNN model that gets trained to classify rice plant images into infected and healthy images by using a dataset that contains diversified images of rice plants suffering from prevalent diseases such as leaf blast, brown spot, bacterial leaf blight, Tungro, and neck blast and also provides information regarding the disease, i.e., cause, identification, traditional methods, and recommends pesticides. The model was tested and trained to a large extent with excellent detection and classification of disease accuracy. The research indicates that CNNs can be used to scan and analyze complex visual patterns in rice plant images for early intervention of disease control and achieved an accuracy of 98% on test data. Not only does the system allow farmers to identify rice plant disease at a faster pace, but it also aids sustainable agriculture by minimizing loss of crops.

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Paper ID : 29	Monkeypox Diagnosis with Interpretable Deep Learning Techniques <i>Track: Healthcare and Medical Diagnostics</i>
Iatha chitturi; Lakshmi Iswarya B; Hari Vaishnavi CH; YASWANTH G; BALU B, NRI Institute of Technology <i>Corresponding Author:</i> suguna.c@nriit.edu.in	

Session # PS1 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : As the world gradually recovers from the impacts of COVID-19, the recent global spread of Monkeypox disease has raised concerns about another potential pandemic, underscoring the urgency of early detection and intervention to curb its transmission. Deep Learning (DL)-based

disease prediction offers a promising solution, providing affordable and accessible diagnostic services. In this study, we utilized Transfer Learning (TL) techniques to fine-tune and evaluate the performance of six different DL models: VGG16, InceptionResNetV2, ResNet50, ResNet101, MobileNetV2, VGG19, and Vision Transformer (ViT). Among these models, the modified versions of VGG19 and MobileNetV2 stood out, achieving accuracy rates between 93% and 99%. These results align with recent research, which similarly highlights the enhanced performance of disease diagnostic models leveraging TL. To increase transparency in the model's predictions, we used Local Interpretable Model Agnostic Explanations (LIME) to identify key features linked to the onset of Monkeypox. These findings have important implications for disease prevention and control, especially in remote and resource-limited regions. As an extension, we extracted optimized features from the best-performing model, MobileNetV2, and retrained them using a Random Forest algorithm to further enhance accuracy. This new model, termed Hybrid Modified Extension MobileNetV2, achieved a perfect 100% accuracy on the optimized features.

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Paper ID : 30	Enhancing Public Safety: The Future of Gun Detection Systems <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
	Gorintla Shobana; A Naga Sai Sandeep; B Uma; D Ruchitha; G Ruthvik, NRI Institute of Technology
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Session # PS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Ensuring public security through real-time monitoring has become increasingly important in today's world. Traditional security systems heavily rely on manual monitoring, which can be prone to human error and inefficiency. To address this challenge, this project presents an AI-operated gun detection system using YOLOv5, a state-of-the-art deep learning model renowned for its real-time object detection capabilities. The system captures live video streams, processes frames using YOLOv5, and detects firearms with high precision. Upon detection, it triggers automated alerts through email and SMS notifications to immediately inform security personnel. An online interface is integrated to provide real-time surveillance views. The model was trained using a curated dataset of firearms and achieved a mean average precision (mAP@0.5) and an accuracy of 84.27% during final training. The implementation leverages OpenCV, PyTorch, Flask, and SMTP services to establish an end-to-end pipeline, ensuring optimal performance and minimal processing delay. This report details the literature review, system architecture, model training, implementation, testing methods, and performance evaluation. The project demonstrates the effectiveness of deep learning in enhancing security systems and provides a scalable solution for real-time threat detection. Future work aims to further improve accuracy by integrating additional gun datasets, optimizing computational efficiency, and exploring cloud-based deployment for large-scale monitoring applications.

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Paper ID : 31	AI-Enhanced Video Assistant for Audio Transcription, Analysis, and Interactive Communication <i>Track: NLP and Multimodal AI</i>
	B Rithiga Sri ; Y Shavedha ; N Keerthika, Saveetha Engineering College <i>Corresponding Author:</i> rithigasri383@gmail.com

Not Selected for presentation and Publication

Abstract : Traditional video analysis applications are task-centric, for instance, transcription or summarization, with no holistic and interactive user experience. The systems in place usually prompt the user to collaborate with a multitude of applications, which causes inefficiencies and siloed processes. The proposed AI-driven video assistant aims to address these weaknesses by making easy interaction with video content through powerful AI features. The system incorporates Whisper, the speech-recognition model of OpenAI, to provide precise transcription while maintaining the original context. It also has a summarization module, run on BART, to summarize long content with efficient effectiveness. A question-answering capability, with the use of DistilBERT, enables users to retrieve specific information from transcribed text, while MarianMT facilitates multilingual functionality through real-time translation. Furthermore, key frame extraction using OpenCV enhances content navigation by highlighting significant moments in the video. To improve accessibility, a text-to-speech (TTS) module based on gTTS converts responses into natural-sounding audio, benefiting auditory learners and individuals with visual impairments. This interactive AI-driven approach not only optimizes video-based learning and information retrieval but also enhances user engagement by allowing dynamic content exploration. The integration of these technologies transforms traditional video consumption into an intelligent, user-centered experience, improving efficiency, accessibility, and content comprehension.

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Paper ID : 32	Enhancing Sentiment Analysis through Integrated Prompt Engineering with Large Language Models: A Comparative Evaluation of Transformer-Based and Traditional Machine Learning Approaches <i>Track: NLP and Multimodal AI</i>
	Boppana Venugopal; Thatavarthi Purnima; Pilli Snigdha; Shaik Aktarunnisa; Yeddu Mastan, NRI Institute of Technology <i>Corresponding Author:</i> srees.boppana@gmail.com

Session # PS3 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : To address the limitations in traditional sentiment classification systems, an advanced sentiment analysis framework has been proposed by combining the approaches of machine learning, natural language processing and transformer-based models. Analysis of 1,000 synthetic reviews across product, movie, and restaurant domains, along with sentiments categorized as positive, negative, and neutral, using distilbert-base-uncased model Thus a dedicated Prompt Engineering module generates domain-oriented prompts for improving analytical accuracy and contextual

understanding. Use TF-IDF vectorization on text features for preprocessing the dataset, including sentiment polarity and numerical rating as other metrics. This framework assesses various machine learning algorithms including Support Vector Machine (SVM), Random Forest, XGBoost, and LightGBM based on accuracy and F1-score as measure of evaluation. Visualizing Results — Comparison of models performances, producing domain wise distribution of sentiments and a confusion matrix to certify truthful classification. A visual estimation dashboard allows real-time access to sentiment metrics, distribution patterns, collaborative rating trends and prediction outputs. With DistilBERT, the system achieved 94.5% accuracy, representing a considerable improvement over traditional models. The modular model leverages, stacks complex data processing methods, advanced techniques for nlp, and optimized modeling strategies to provide a versatile sentiment analysis framework. We believe this can be very useful in practical applications like e-commerce websites, entertainment content rating, and user feedback analysis, enabling businesses to make more strategic decisions and improve the customer experience.

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Paper ID : 33	Advanced Blood Cell Classification Using Convolutional Neural Networks for Automated Hematological Diagnosis <i>Track: Medical Imaging and Bioinformatics</i>
Malla Venkata Pavan Uma Maheswara Rao; Mohammad Ayesha Thabusum ; Kakkireni Haripriya; Koti Sai Sravani ; Orsu Gayathri, NRI Institute of Technology	
<i>Corresponding Author:</i> malla.uma9@gmail.com	

Session # PS2 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This paper proposes an advanced convolutional neural network (CNN) architecture for blood cell classification in microscopic images. Traditional methods of analyzing blood cells are inefficient, labor-intensive, and prone to human error, creating bottlenecks in medical diagnostics. The CNN-based system introduced here accurately identifies and classifies RBCs, WBCs, platelets and recognizes conditions of cell absence. The methodology used to train our model is a supervised learning approach on imagery data using Scanning Electron Microscopy (SEM) images that is built upon convolutional and pooling layers for feature attraction followed by flattening and dense layers for classification. Extensive validation proves that the model is able to reach an accuracy of 98%, a clear improvement to the previous approaches, RNN-based give only 25.13% accuracy and simple CNNs 86.81% accuracy. It obtains precision, recall and F1-scores above 94% (for all cell types), significantly improving comparable methods by 8.66%. This automated method dramatically increases the speed and reliability of diagnosis and decreases the workload of medical professionals. AI in Clinical settings:Perhaps one of the most potent aspects of hematology with the use of deep learning lies in the amalgamation of computational neural networks that can learn from imaging to create very efficient primary and secondary diagnostics tools and algorithms which are wide in spectrum and range creating an efficient, viable and cost-effective solution to what could be inductive and expensive to perform manually particularly in health facilities with limited resources, making a case for evidence based medical intervention driven by AI technologies for diagnostics in the clinical space. * * * * *

Paper ID : 34	PCHF-Based Stacking Classifier for Accurate Heart Disease Prediction
	<i>Track: Healthcare and Medical Diagnostics</i>

Gummadi Jitendra; Munagala Monika Bhargavi Sandhya Sree; Kantubhuktha Surya Himaja; Murala Srinikhila; Pamarthi Naga Kavya Sri, NRI Institute of Technology

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Session # PS1 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The importance of early detection cannot be overstated, as heart disease is a chronic condition that affects millions of individuals around the globe. To address this, an innovative feature engineering strategy for determining and enhancing the most critical attributes based on Principal Component Analysis (PCA) is presented. The program's goal is to quickly assess the severity of cardiac illness using machine learning and facilitate timely intervention. Three separate models - Multilayer Perceptron, LightGBM, and Random Forest (RF) - their predictions are integrated into the project using an ensemble approach called Stacking Classifier. This method leverages the complementary strengths of many models to produce a final forecast with an astonishingly high accuracy rate of 100%. The system is both accurate and robust. For the front-end deployment, we trained the Stacking Classifier with features chosen based on Principal Component Heart Failure (PCHF). Our technology, which uses machine learning to predict cardiac issues, has become more practical and user-friendly with the addition of user identification. This kind of setting is ideal for user testing since it is both safe and efficient.

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Paper ID : 35	Exploring Demographics and Emotions
	<i>Track: NLP and Multimodal AI</i>

Vipparla Aruna; Avula Harshitha; Chadalawada Naga Venkata Sai ; Eedi Mounika Sravanthi ; Kotte Jaswitha, NRI Institute of Technology

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Session # PS3 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This paper aims to identify Convolutional Neural Network-based system for evaluating emotions, gender and age. It is a web application that uses Streamlit and lets users live cam or upload images. While many models including VGG, ResNet50V2, ResNet152V2, Xception, MobileNetV3small and MobilenetV3Large were examined for age and gender evaluation and ResNet and Efficient Net are used to detect human emotions. The dataset was treated using methods such as square distribution analysis, gender mapping and data visualization to increase accuracy. The technology analyses facial functions and produces real-time predictions using convolutional models. It can be used in interaction between people and computers, behavioural research, psychological testing and target marketing. The system demonstrated high performance, where gender classification 82.41% accuracy, age takes place at 6.23 losses and emotion

recognition when an excellent 93.87% accuracy. During training, age loss has fallen from 9.26 to 0.25, while emotion recognition loss reduced from 5.35 to 0.27, confirming the model's robustness.

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Paper ID : 36	AI-Driven Disease Prediction and Treatment Recommendation System <i>Track: Healthcare and Medical Diagnostics</i>
Syda Nahida; Kaile Tarun Kumar ; Kosuri Chennakeswari ; Miriyala Siva Narayana ; Nerusu Pavan Sai, NRI Institute of Technology	
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Session # PS11 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Maintenance of peak well-being through early identification of illness and subsequent timely treatment is of prime significance in preventing serious medical complications. The current study introduces an innovative system capable of predicting diseases and recommending treatment options based on symptoms input by users. The system employs BioBERT, a domain-specific adaptation of BERT, which has been fine-tuned on the basis of data regarding 133 different symptoms, to effectively recognize and analyze symptom inputs. The system also utilizes ensemble learning techniques, including Random Forest, Multinomial Naive Bayes, and Support Vector Classifier (SVC), achieving a combined accuracy of 97.61% for disease prediction. An interactive chatbot lets users state their symptoms and offer predictions and recommendations through the user-friendly interface. Through the integration of natural language treatment models and machine learning, the system offers a very accurate and individual health process, aimed at unnecessarily hospitalized and increasing access to health services.

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Paper ID : 37	Deep Learning for Facial Emotion Recognition: A CNN-Based Model <i>Track: Computer Vision and Deep Learning</i>
Durga Dr. Putta ; Kaki Veera Venkata Manoj; Harshitha Kotagiri; Hema Mogarampalli; Ravi Kanth Chowdary Nimmagadda, NRI Institute of Technology	
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Session # PS12 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Facial Emotion Recognition (FER) is a vital technology with applications in security systems, mental health monitoring, and human-computer interaction. This study introduces a deep learning-based FER system using a Convolutional Neural Network (CNN) to classify seven fundamental emotions: joy, sadness, neutral, disgust, anger, fear, and surprise. To enhance robustness, the system incorporates advanced facial recognition techniques and facial landmark detection, effectively compensating for variations in lighting conditions, facial orientations, and

occlusions. By leveraging deep learning, the proposed approach enables automatic feature extraction, reducing dependence on manual feature engineering and improving classification accuracy. The model is evaluated on the Expression Detection Dataset, achieving a classification accuracy of 96%, as reported in multiple studies. A comparative analysis with traditional machine learning methods underscores the advantages of deep learning in feature representation and generalization. The proposed system demonstrates strong potential for real-world applications, including real-time emotion tracking, AI-driven user interaction, and psychological assessments. Future work will focus on optimizing the model's computational efficiency, making it suitable for deployment in real-time applications such as interactive AI systems, surveillance networks, and mental health monitoring tools.

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Paper ID : 38	Real time sign language translator with gesture recognition and Speech synthesis
	<i>Track: Agriculture, Social Good, and Emerging Technologies</i>

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Session # PS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Communication barriers greatly affect those who depend on sign language, restricting their communication with those who are not familiar with it. This model presents a real-time sign language recognition and translation system that closes this gap by translating hand gestures into text and speech. The system uses sophisticated methods in visual processing, deep learning, and speech synthesis to decode gestures, allowing for smooth communication. It employs motion tracking and feature extraction, and then classification by a trained neural network. The detected gestures are mapped to equivalent text, which is synthesized into speech for effective communication. A graphical user interface that is easy to use increases accessibility through real-time visual feedback. The architecture has modules for data acquisition, feature extraction, gesture classification, and text-to-speech conversion to provide an intuitive and efficient user experience. The model adapts its performance consistently using adaptive learning methods, enabling it to learn to accommodate different environmental situations and user differences. Performance testing shows an average processing time of about 0.2 seconds per frame, allowing real-time operation. Built with deployment in schools, organizations, and public areas in mind, the system promotes inclusivity and accessibility by enabling direct, natural communication between sign language users and non-signers. Tapping into artificial intelligence and real-time processing, the solution does not require intermediaries, facilitating individual interaction. It has a success rate of 96.2% in terms of gesture detection.

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Paper ID : 39	CaviScanNet: AI-Powered Cavity Detection, Segmentation, and Diagnosis with BERT Recommendations <i>Track: Medical Imaging and Bioinformatics</i>
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Vipparla Aruna; Mysetla Siva Prasanth; Paidi Nithin; Mallempati Sree Lakshmi Sathvika ; Karnati Esther Rani, NRI Institute of Technology

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Not Selected for presentation and Publication

Abstract : This paper introduces a deep learning-based system for dental X-ray analysis aimed at automating cavity detection, severity classification, and providing personalized recommendations. Using Mask R-CNN, the system detects cavities and segments their affected areas, while ResNet-50 classifies the severity of caries into superficial, medium, or deep categories. A fine-tuned BERT-based recommendation system then offers tailored advice based on severity and potential causes such as poor hygiene or diet. The solution reduces manual diagnostic effort, enhances accuracy, and provides actionable insights, which can be deployed via a web interface for remote accessibility and clinical integration, thus advancing dental care and early intervention. The results show that the detection is highly accurate with 89.2% MAP (Mean Average Precision), the segmentation accuracy by DSC (Dice Similarity Coefficient) was 91.5%, the classification produced 92% validation accuracy among the superficial, medium, deep caries and recommendation had a 90% relevance score matched with dentists' advice which is a one-of-a-kind feature.

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Paper ID : 40	SYBIL-RESISTED TRUSTWORTHY SERVICE EVALUATION IN SERVICE-ORIENTED MOBILE SOCIAL NETWORKS <i>Track: Cybersecurity, Blockchain, and IoT</i>
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N NAGASUNDAR ; S PRATHIBA; P MEGAVATHI, SRI KRISHNA COLLEGE OF ENGINEERING AND TECHNOLOGY

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Session # PS5 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : In order to facilitate the sharing of service reviews across service-oriented mobile social networks (S-MSNs), this research proposes a Trustworthy Service Evaluation (TSE) system. Without the assistance of a third-party trusted authority, each service provider autonomously maintains a TSE for themselves that gathers and archives user reviews of its offerings. After that, interested users can access the service reviews to help them choose the best service. Linkability, rejection, and modification attacks are the three distinct service review threats that are identified, and the TSE is equipped with advanced security measures to counter them. In particular, the basic TSE (bTSE) uses hierarchical and aggregate signature techniques to allow users to jointly and distributedly submit their reviews in an integrated chain form. It limits the ability of service providers to reject, edit,

or remove reviews. As a result, evaluations have greater honesty and integrity. Additionally, it converts the bTSE into a Sybil-resisted TSE (SrTSE), which makes it possible to identify two common Sybil attacks. If a person creates several reviews of a vendor using several pseudonyms within a specified time frame in the SrTSE, the user's true identity will be exposed. The bTSE and SrTSE successfully fend off service review attacks, and the SrTSE also efficiently identifies Sybil assaults, according to security analysis and numerical data. According to performance evaluation, the bTSE outperforms a service review system that does not embrace user collaboration in terms of submission rate and time.

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Paper ID : 41	Remote Speech Emotion Recognition using Voice Data <i>Track: NLP and Multimodal AI</i>
Srivastava Saumya; Kapoor Priti; Jaiswal Yash Raj; Tyagi Raja; Singh Kamna, Ajay Kumar Garg Engineering College, Ghaziabad <i>Corresponding Author:</i> saumyasri1914@gmail.com	

Session # VS4 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Emotion recognition from speech is a crucial aspect of human-computer interaction, with applications in telemedicine, virtual assistants, and customer service. This study compares the performance of machine learning (ML) and deep learning (DL) models in detecting emotions from voice data using the RAVDESS and EMO-DB datasets. We evaluated four ML models—Gradient Boosting, LightGBM, K-Nearest Neighbors, and Logistic Regression—alongside four DL models—Multilayer Perceptron (MLP), Advanced CNN, DenseNet-style CNN, and VGG-style CNN. Our findings show that the Advanced CNN model consistently outperforms the others, achieving accuracies of 65.86% on RAVDESS and 72.73% on EMO-DB. LightGBM emerged as the best-performing ML model with accuracies of 64.48% and 69.70%, respectively. These findings significantly advance the field of emotion recognition, enlightening the audience about the potential of Advanced CNN and LightGBM models. While DL models generally demonstrated superior performance, LightGBM proved to be a competitive alternative with lower computational complexity. Future work involves deploying the model using the Flask web framework for real-time emotion detection in practical applications, such as virtual assistants. This integration will enable the development of real-time emotion recognition systems for real-world use cases.

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Paper ID : 42	Phishing website detection using machine learning <i>Track: Cybersecurity, Blockchain, and IoT</i>
Cheeti Naga Santha Kumari; Madoju Sridevi; Kadaru Dharani; Katuri Aravind; Nalla Jaswant Kumaar, NRI Institute of Technology <i>Corresponding Author:</i> cheetisantha@gmail.com	

Session # PS5 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Phishing is among the most vital threats to cybersecurity it is the fraudulent use of link or website sure to trick users into telling wrong or inputting. The current research propose a new stack of classifiers selection with a new stacking ensemble of classifiers for detecting phishing URLs accurately. The final ensemble used is a combination of the several accurate models: Use of a number of models such as Gradient Boosting, Random Forest, Support Vector Machines (SVM) and finally, the decision-making model should be the XGBoost under a Logistic Regression decision meta-model. When compiling the list of the URL addresses, general, lexical, and host and content-related attributes of the given URL addresses are to be gathered to ensure comprehensive URL analysis. For purposes of dealing with the class imbalance within the data set, Synthetic Minority Over-sampling Technique (SMOTE) is used, which creates a good and balanced training set and is quite useful in creating both the phishing and legitimate URL patterns. Most of investigations provide confidence for the given proposal of the system as it promises stunningly high result with evaluating 98.7%. The last established version is used as an implementation of the final version in Google Chrome browser as extension and as the standalone online point-and-click application. The browser plug-in provides the users with URL recommendations in an efficient and convenient way and integrated into the user's browsing activities and the potential to perform mass verification through the use of the web platform. It also provided flexibility, usability and instant security against phasing attacks that are the two deployment solutions. In this way, this research likely enhances the technologies of phishing detection a lot and demonstrates how AI can be applied to transform the technique of phishing detection into a more realistic task for cybersecurity.

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Paper ID : 43	CERVICAL CANCER EARLY DETECTION <i>Track: Healthcare and Medical Diagnostics</i>
Syda Nahida; Annavarapu Naga Venkata Pavan kumar; Borra Rajendra; Devi Naga Bala Venkata Prameela ; Guttula Koojitha, NRI Institute of Technology <i>Corresponding Author:</i> nahida.syd@gmail.com	

Session # PS4 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Abstract: The essence is an important cause of women mortality globally, and emphasizes the importance of deep learning (DL) technology in addressing cervical cancer (CC). With more than 700 daily fatal and estimated 400,000 annual deaths by 2030, preliminary detection is mandatory. The DL technique provides accurate diagnosis, which improves the results of the

treatment. Implementation of different DL models, including CNN, DenseNet and apart from, for functional extraction, SVM, KNN, Bayesian Networks, launches for the development of strong classification models such as decision Tree and MLP enables the development of models. In addition, DL-based detection techniques for CC analysis are detected using Yolov5 and Yolov8. The use of these models increases clinical accuracy, and gets maximum accuracy in base paper with CNN and SVMs. The extension of our model improved performance by integrating Yolov5 and Yolov8 to detect the tasks so that the system can increase the system to correct CC. The implications of our model move beyond better diagnosis, especially by taking advantage of women in low-income countries, by reducing illness and mortality. Healthcare professionals gain access to effective clinical equipment, which enables timely intervention and personal therapy for better patient results. Experiment results demonstrate that the xception, voting classifier achieved the highest accuracy of 97%, outperforming other models and object detection using Yolov5 and yolov8 enhanced average precision (MAP) of 85%. Overall, our model emphasizes the important role in DL. Technology in combining CC and improvement of the health care results.

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Paper ID : 44	A MobileNet CNN Framework For Deepfake Image Recognition And Classification <i>Track: Computer Vision and Deep Learning</i>
Sharma Ashish; Singh Chauhan (Gonder) Surjeet ; Garg Prachi, Chandigarh University <i>Corresponding Author:</i> ashish.sharma070403@gmail.com	

Not Selected for presentation and Publication

Abstract : As deepfake technology proliferates there are serious challenges to identifying artificial images as such, generated by deep learning models. This paper provides a novel method for identifying deep fakes utilizing a separately developed Convolutional Neural Network (CNN) to classify between genuine and images created using Generative Adversarial Network (GAN). The CNN model was trained on a balance dataset of generated images by GANs and authentic images to enable the network to distinguish patterns and their differences subtly. This approach reaches a remarkable accuracy of 98.69% in just 30 epochs surpassing other previous studies that reached an accuracy of 96.35% running over 100 epochs. The improvements shown here suggest that this architecture and training strategy work well. A first step towards deepfake detection is being taken by leveraging GAN technique to update the dataset used and strengthen vulnerability of CNN. The results highlight that advanced detection methods could help combat the growing problem of image manipulation and thereby facilitate more credible image authenticity check.

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Paper ID : 45	Brain Tumor Detection Using Machine Learning Algorithm Based on Segmentation and Feature Extraction <i>Track: Medical Imaging and Bioinformatics</i>
<p>Chudasama Neeta; Panchal Dr. Sandipkumar, Dr. Subhash University, Junagadh, Gujarat <i>Corresponding Author:</i> neeta.chudasama2011@gmail.com</p>	

Not Selected for presentation and Publication

Abstract : Developing models that work in similar to humans is the primary objective of artificial intelligence. This study addresses the critical challenge of detecting brain tumors using MRI images, a pivotal task in medical diagnostics that demands high accuracy and interpretability. Detecting brain tumors in their early stage is crucial. Computational intelligence oriented techniques can help physicians identify and classify brain tumors. In this paper, we proposed a model to derive brain tumor from two dimensional magnetic resonance brain images by Fuzzy C-means clustering method which was followed by machine learning classifiers. The primary objective of this research work is to differentiate between normal and uncharacteristic pixels, based on texture and statistical features based method.

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Paper ID : 46	AUTOMATED JOB TITLE EXTRACTION SYSTEM <i>Track: NLP and Multimodal AI</i>
<p>Talari Revathi; Kanduri Suma Sree ; Kusam Samiksha ; Paidi Naga Abhiram; Mohammed Sirajuddin, NRI Institute of Technology <i>Corresponding Author:</i> revathi.chitti2@gmail.com</p>	

Session # PS13 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Large databases of information can now be analyzed to extract valuable insights that were previously impossible to obtain, thanks to the application of data science techniques. A notable example is the recent analysis of the job market through the clustering of online job advertisements. Multi-label classification algorithms, such as clustering and self-supervised learning, have proven effective in accurately identifying an advertisement's designated occupation. These methods often involve using databases like O*NET and other U.S.-based sources, which require vast amounts of labeled data—sometimes hundreds of thousands of samples. Our approach incorporates denoising, text preprocessing, and vectorization techniques like TF-IDF and Word2Vec to improve data quality. We compare several classifiers—SVM, Naive Bayes, Logistic Regression, BERT, and a CNN2D model—to evaluate their accuracy in classifying job sectors. The results demonstrate that the proposed CNN2D model outperforms conventional machine learning models in terms of accuracy, precision, recall, and F1-score. This work aims to automate job classification for more accurate job recommendations and to enhance recruitment processes. Furthermore, by using unsupervised machine learning algorithms and similarity measures, the system automatically identifies the most similar job titles within the predicted sector. * * * *

Paper ID : 49

Plant Disease Detection and Treatment Suggestion System

Track: Agriculture, Social Good, and Emerging Technologies

Boppana Venugopal; Appikatla Vamsi Krishna ; B. D. V . Nookendra ; Devarapalli Sai Srinath ; Jalli Timothy, NRI Institute of Technology

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Not Selected for presentation and Publication

Abstract : Deep Learning Plant brings revolution in agriculture by detecting diseases, providing advanced weed management solutions and smart watering. Traditional agricultural methods depend on too much on human expertise, which often leads to delay in identifying plants, causing significant damage to the crop. Automatic deep learning -based systems can solve these challenges by offering accelerated and accurate disease detection, and eventually improving the crops. This study presents a deep learning contour for detection of automatic plant disease and treatment recommendations. It integrates Conventions Neural Network (CNN), Resnet and Yolo to effectively analyze the health of the plants. The system is distributed as a flask -based web application, so real -time disease can detect real -time disease through live camera feed and uploading images. In order to increase model accuracy, the dataset undergoes the proclamation of techniques such as picture increase, noise reduction and square balance. Yolo is used to detect real -time objects, while the reset is used to give accurate classification of plants. When a disease is identified, the system expert provides recommendations of treatment based on agricultural knowledge and domain -specific data sets. The Yolov8 model achieved a training accuracy of 97.2%, a verification accuracy of 96.4%, and a total accuracy of 96.7%. Additionally, the recall and F1 score were both 0.96, reflecting balanced performance. This method supports accurate agriculture by detecting early disease, reducing crop losses and adapting resource use. By taking advantage of AI-operated techniques, this solution improves health monitoring of the plant, improves disease management and contributes to global food security.

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Paper ID : 50

An Expert System for Detection of Leakages in Roofs and Walls

Track: Cybersecurity, Blockchain, and IoT

Chaudhari Nihar; Deore Anjali, Self

Corresponding Author: nihaarchaudhari@gmail.com

Not Selected for presentation and Publication

Abstract : This paper proposes a method based on computer vision for detection of water leakage in walls and roofs. This system includes the use of image preprocessing, Local Binary Pattern and Gray-Level Co-occurrence Matrix feature extraction, normalization, dimensionality reduction, classification algorithms over the dataset along with performance evaluation metrics like accuracy, precision, recall and F-1 score to evaluate the model. An array of four classifiers consisting of Support Vector Machine, Random Forest, XG boost and K-Nearest Neighbor were used for classification. Among all the classifiers, Random Forest provided the highest accuracy of 97.89%.

This system provides reports consisting of leakage instances as output.

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Paper ID : 51	Sliding Window Based Emotion Detection System for Electroencephalography Signals <i>Track: Healthcare and Medical Diagnostics</i>
	Chaudhari Nihar; Chaudhari Unmesh, Self <i>Corresponding Author:</i> nihaarchaudhari@gmail.com

Session # VS8 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Constant efforts have been made to integrate emotions into human-computer interaction (HCI) systems, as automatic emotion identification enhances HCI, making it more sophisticated and user-friendly. This paper presents an approach that uses electroencephalogram (EEG) data to classify emotions. The data acquisition process involved ten subjects aged between 19 and 23 years, with F3, F4, Fp1, and Fp2 electrodes used for data collection. The collected data was segmented into small sections using the sliding window technique. For preprocessing, two filters—band-pass (8-30 Hz) and notch filters—were applied to eliminate unwanted distortions while retaining crucial features from the signal. Three classifiers—Random Forest, Decision Tree, and Support Vector Machine—were employed to classify three emotions: happy, disgust, and neutral. The Random Forest classifier achieved an accuracy of 82.65% in classifying these emotions.

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Paper ID : 52	Multiobjective Optimization of Performance Parameters of Methanol Steam Reformer <i>Track: Optimization and Prediction</i>
	Rout Sibun; Pandey Mahima, Gokhale education society R.H sapat college of engineering <i>Corresponding Author:</i> sibunrout26@gmail.com

Session # VS5 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This paper aims at optimizing the performance parameters of Methanol Steam Reformer using Methanol Steam Reforming Process for hydrogen generation. The hydrogen generation and Methanol Conversion are maximized and carbon monoxide gas is minimized by optimizing the parameters like inlet feed rate of flow and reforming Temperature. Response surface methodology is used for optimizing the methanol steam reformer. A mathematical model is additionally developed by using linear regression curve fitting for the identical parametric optimization is finished through the Response Surface Methodology. The Response Optimiser optimizes the Inlet Feed rate of flow and Reforming Temperature through multi objective optimization.

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Paper ID : 53	Cyber Security Challenges in Metaverse: A comprehensive review across Smart Cities Domain <i>Track: Cybersecurity, Blockchain, and IoT</i>
Joshi Preksha; Ahir Param; Gandhi Ankita ; Rathod Digvijaysinh; Soni Hardik, National Forensic Sciences University <i>Corresponding Author:</i> preksha.btmtcs2113@nfsu.ac.in	
Session # VS3 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.	

Abstract : The metaverse is a growing area of research in the field of science and technology. It is characterised by the interconnection of virtual environments, devices on the Internet of Things (IoT), and the infrastructure of cities. The IoT Metaverse presents unique cybersecurity challenges, such as vulnerabilities in IoT devices, sensor data tampering, attacks on physical infrastructure, and supply chain risks. This study provides a comprehensive literature review of the metaverse and explores and also takes into account the argument that the metaverse has significant and disruptive effects on methods of reality reconstruction in today's increasingly platform-based city life. The Smart Cities domain has been the focus of research for the last few years, and cyber security threats across the IOT and SMART Cities domain have been highlighted. This research paper aims to provide a review of recent cyber security challenges in the Smart Cities domain. This includes user authentication and identity management, data privacy, secure communication, and incident response. This involves refining biometric authentication techniques, improving multifactor authentication methods, and applying innovative biometric fusion to strengthen the security of virtual identities. We have highlighted the need for strong and robust cybersecurity measures to protect our users, data, virtual environments, and critical systems from emerging threats.

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Paper ID : 54	Revisiting Optimization Techniques for Deep Learning: Evaluating the Convergence Stability of Adam and AMSGrad in Large-Scale Neural Networks <i>Track: Computer Vision and Deep Learning</i>
Kanka Vincent; Mallareddi Praveen Kumar Dora ; Thangavelu Kathiravan, Nectar Info Tek LLC <i>Corresponding Author:</i> kankavincet@ieee.org	
Session # VS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.	

Session # VS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : In deep learning, the efficiency of optimization algorithms plays a critical role in training neural networks, especially as models become larger and more complex. Adam, a widely used optimizer, is praised for its adaptive learning rate and momentum techniques. However, its performance can degrade in certain scenarios, particularly in convex optimization problems and networks with sparse gradient signals. This study investigates the convergence behavior of Adam

and its variant, AMSGrad, focusing on their effectiveness in training large-scale neural networks. We replicate key experiments from prior studies and highlight factors that affect reproducibility in their results. Our findings suggest that while AMSGrad offers improved stability in specific settings, the performance differences between Adam and AMSGrad may not always be significant in practical deep learning tasks. We also identify crucial missing details in the original experiments that hinder reproducibility and propose improvements to enhance experimental transparency. This work serves as a comparative analysis of optimization techniques, shedding light on the practical implications of choosing the right optimizer.

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Paper ID : 55	EARLY-STAGE DETECTION OF AUTISM SPECTRUM DISORDER <i>Track: Healthcare and Medical Diagnostics</i>
Gorintla Shobana; Kondapudi saiprasanna; Merugu lakshmi keerthi; Nenabath Hobulsai, NRI Institute of Technology <i>Corresponding Author:</i> drgshobana@gmail.com	

Session # PS1 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Identifying cases of autism spectrum disorder (ASD) is particularly important nowadays. Traditional approaches are mostly dependent on clinical examinations which take a long time and are very subjective. This problem is solved with the help of AI in Autism Spectrum Disorder detection using deep learning model VGG16 which is known for its precision in medical imaging classification. In this paper, deep learning employing VGG16-based Convolutional Neural Networks (CNNs) and transfer learning is used to construct an AI-oriented ASD detection system. The model takes facial images as input and predicts whether the subjects are Autistic or Non-Autistic with great accuracy. Our system integrates an easy-to-use web application that allows for real-time image-based screening. The VGG-16 model is trained with an augmented dataset of facial images concerning ASD using Image Data Generator. Performance is maximized with Adam Optimizer and Early Stopping and ReduceLROnPlateau methods. The system segments facial images, processes them using transfer learning through VGG-16 based CNN, and identifies subjects as Autistic or Non-Autistic with 85% accuracy. This proves effectiveness of deep learning in improving ASD detection and providing a timely solution for early screening.

Keywords: Autism Spectrum Disorder, Deep Learning, VGG16, CNN, Image Processing

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Paper ID : 56	Emotion Detection in Text: Leveraging Machine Learning for Sentiment and Emotional Intelligence Analysis <i>Track: NLP and Multimodal AI</i>
Saritha Dr. Banala; Purnachandrarao Dr. G; Sai Gouthami Dabbula, BVRIT Narsapur <i>Corresponding Author:</i> banalasarita@gmail.com	

Not Selected for presentation and Publication

Abstract: Emotional intelligence is the process of identifying the emotional tone of a string of words to comprehend the sentiments, viewpoints, and feelings conveyed in an online mention. This project presents a comprehensive study on the applications of machine learning (ML) techniques in emotion detection, focusing on the automatic detection and classification of emotions in various text sources. Research shows that high emotional intelligence is linked to improved mental health, stronger relationships, and greater workplace performance. As a critical component of human interaction, fostering emotional intelligence can lead to more adaptive and resilient behaviors in an increasingly complex and collaborative world.

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Paper ID : 58	DEEP LEARNING-BASED CLASSIFICATION OF LUNG CANCER USING CT SCAN IMAGES <i>Track: Medical Imaging and Bioinformatics</i>
P Jyothi; Rani G Swapna ; D Mythili; P Nagarani, Teegala Krishna Reddy Engineering College <i>Corresponding Author:</i> jyothi22reddy@gmail.com	

Session # VS7 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Lung cancer is the foremost originate of cancer coupled mortality worldwide, it requires vigorous diagnostic tools for expeditious discernment. This paper explores the applications of deep learning techniques for classifying the Iraq Oncology Teaching Hospital National Cancer Center Database (IQ-OTH/NCCD) - Lung Cancer Dataset, which embrace 1,190 CT scan images categorized into three classes: Normal, Benign, and Malignant. We make use of two state-of-the-art convolutional neural network architectures, VGG19 and ResNet50 to develop well organized classification models. Both models were fine-tuned using transfer learning to exploit pre-trained weights, with hyperparameter optimization techniques to achieve optimal performance. Experimental results demonstrated that the ResNet50 model outperformed VGG19 by achieving a classification accuracy of 98.3% on the test set, while VGG19 achieved 98.0%. Evaluation metrics such as precision, recall, F1-score, and confusion matrices proved the reliability and robustness of these models. This research highlights the potential of advanced deep learning architectures in achieving highly accurate lung cancer classifications.

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Paper ID : 59	Detection of Rice Crop Disease using hybrid DenseNet with Regularized Extreme Learning Machine
	<i>Track: Agriculture, Social Good, and Emerging Technologies</i>

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Session # VS2 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Rice diseases pose a significant threat to global agricultural productivity, necessitating the development of efficient detection and classification systems. This article proposes a comprehensive framework for the detection and classification of rice plant diseases by leveraging deep learning and machine learning techniques. The dataset, comprising images of healthy and diseased rice leaves, underwent rigorous preprocessing, including image resizing and normalization to enhance the model's generalization capabilities and mitigate overfitting. We utilized the DenseNet201 architecture to extract high-level, discriminative features from the preprocessed images. These features were subsequently classified using a Regularized Extreme Learning Machine (RELM), which combines high-speed learning with robust regularization. The integration of DenseNet201's efficient feature extraction and RELM's effective classification yielded superior performance by achieving an accuracy of 97.87%. The proposed DenseNet-RELM method demonstrated excellent capability in identifying diseases such as Bacterial Blight, Brown Spot, and Leaf Smut. The proposed framework offers a reliable and scalable solution for early detection of rice diseases, contributing to improved precision agriculture practices and reduced crop losses.

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Paper ID : 60	Multi-Scale Hierarchical Attention Network with Topological Encoding for Long-Range Protein Sequence Dependencies
	<i>Track: Medical Imaging and Bioinformatics</i>

DAVULURI SUNEETHA; Syda Nahida; Malla Venkata Pavan Uma Maheswara Rao; Boppana Venugopal, NRI Institute of Technology

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Session # PS2 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The Multi-Scale Hierarchical Attention Network with Topological Encoding (MSHANT) represents an innovative deep learning framework designed to analyze distant relationships within protein sequences by combining hierarchical attention mechanisms with structural encoding. This architecture uniquely processes protein data at three distinct scales: examining local patterns across 5-10 residues, analyzing domain structures spanning 50-100 residues, and evaluating global structural features across entire sequences. The system incorporates three-dimensional protein structure data through an advanced topological distance encoding method. MSHANT features a sophisticated window selection system, optimized through reinforcement learning, that adjusts its

analysis based on both evolutionary conservation data from ConSurf and physicochemical characteristics from AAIndex matrices. Performance testing on the CASP14 and PDB150K datasets demonstrates MSHANT's effectiveness, achieving 0.83 average precision in identifying long-range contacts, surpassing both ESM-2 (0.77) and ProtTrans (0.75). The framework shows notable computational advantages, operating 15% faster than ProtTrans during inference while consuming 40% less memory than ProGNN, requiring only 8.2GB of GPU memory compared to ProGNN's 13.7GB. Analysis of the model's interpretability shows strong attention correlations (exceeding 0.7) between evolutionarily conserved amino acid pairs, offering valuable direction for protein engineering efforts. These findings demonstrate MSHANT's capability as a robust and efficient tool for analyzing complex protein sequence relationships.

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Paper ID : 61	Intelligent Assessment and Evaluation System (IAES)
<i>Track: Agriculture, Social Good, and Emerging Technologies</i>	
Venkata Sambasivarao Kambhampati ; Kondapalli Naveen; Narapureddy Lakshmi Prasanna ; Jonnalagadda Jaswanya Balaram ; Matta Kanaka Supriya, NRI Institute of Technology	
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Session # PS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : . Intelligent Assessment Evaluation System is innovative system for faculty. Since it makes grading quicker, more equitable, more effective and maintaining more accuracy. It can assess 30 to 35 assessments per minute. IAES has 95% accuracy rate. greatly reducing down on the amount of time teachers need to spend making manual corrections. It ensures uniqueness through plagiarism detection and scoring using cosine similarity providing students with independent and fair grades. The system is helpful for schools, colleges, and online learning platforms because it is very scalable and can manage many assessments at once. Additionally, it offers teachers and students flexibility by supporting a variety of file formats, including PDFs and ZIP files. scanning through large amounts of work enables the faculty to spend less time grading and put more effort into teaching and coming up with ways to support students' educational needs. IAES also works with multiple choice questions making optimal scoring possible when such questions have more than one correct answer. the system IAES helps each individual by alleviating human discretion during marking of exam papers, thus providing unbiased marking of students' papers. Given the shift of education towards digital platforms, IAES can serve as a helping tool for reliable and faster assessment and grading, pleasing both faculty members and students.

Keywords: Smart Assessment Evaluation, automated evaluation, answer sheet processing, cosine similarities, Sequence Matcher, plagiarism detection, accurate grading, and academic evaluation

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Paper ID : 62	Evaluating Bayesian Network Performance in Modeling Occupational Strain and Coronary Heart Disease A Comparative Analysis of Elimination Order Heuris <i>Track: Healthcare and Medical Diagnostics</i>
Sarakam Bhuvan Chandra, Mount Vernon Nazarene University <i>Corresponding Author:</i> bhuvansarakam@gmail.com	

Not Selected for presentation and Publication

Abstract: This paper presents an evaluation of Bayesian Network (BN) performance using different elimination order heuristics in modeling the relationship between occupational strain (OS) and coronary heart disease (CHD). The study compares three elimination strategies—random order, min-order, and min-fill heuristics—across MAP (Maximum A Posteriori) and MPE (Most Probable Explanation) algorithms. An experiment was conducted with varying Bayesian network sizes to assess run time, number of nodes, and tracked degrees. Results indicate that min-order and min-fill heuristics significantly outperform the random order in terms of efficiency, especially with larger networks. The Bayesian Network model incorporates variables such as gender, job type, mobbing, job demands, income, social opportunities, and various health factors to explore their interplay in OS and CHD. Analysis of prior and posterior marginals, as well as MPE and MAP queries, provides insights into the likelihood of CHD given different conditions. Key findings include the higher likelihood of females reporting CHD, the counterintuitive result that heavy smokers with high job demands are less likely to develop CHD, and the identification of men with active job types as most likely to experience OS. Additionally, d-separation tests show that OS and mobbing are independent of gender and job type in the given context. This study highlights the effectiveness of elimination heuristics in BN reasoning and underscores the complex interrelationships between job strain and health outcomes.

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Paper ID : 63	Scalable High-Performance Analytics for Observational Health Research: Leveraging JuliaHealth for Advanced EHR Data Processing and Integration <i>Track: Healthcare and Medical Diagnostics</i>
Abdul Shakir Wajiha, California State University, USA <i>Corresponding Author:</i> wajiha.ashakir@gmail.com	

Not Selected for presentation and Publication

Abstract : The field of observational health research is expanding rapidly, driven by the increasing availability of computable electronic health records (EHRs), patient medical claims, and various ancillary data sources. JuliaHealth emerges as a transformative ecosystem designed to enhance research capabilities through its high-performance analytics, modular solutions, and interoperable software. This paper explores the cutting-edge tools and methodologies within the JuliaHealth ecosystem, demonstrating its potential to accelerate and innovate observational health research. We highlight the integration of advanced analytics approaches, the composability of solutions, and

the ecosystem's alignment with current research needs, showcasing JuliaHealth as a pivotal resource for advancing health informatics.

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Paper ID : 64	Enhancing Geospatial Data Visualization with a Domain-Specific Language for Mapbox GL <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
	Abdul Shakir Wajiha, California State University, USA <i>Corresponding Author:</i> wajiha.ashakir@gmail.com

Session # VS8 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The increasing demand for dynamic and interactive geospatial visualizations across various devices and platforms has necessitated the development of more efficient tools and frameworks. This paper addresses the challenges associated with using JSON configuration files for defining map styles in Mapbox GL JS, including the lack of static analysis tooling and editor support. To mitigate these issues, a domain-specific language (DSL) is proposed for Mapbox Styles implemented in Kotlin, which offers enhanced readability, error detection, and IDE support. The proposed DSL not only simplifies the creation of complex visualizations but also provides a more efficient development experience. Through a practical use case of visualizing Vienna's population distribution in 3D, the advantages of using a DSL over traditional JSON configuration files are demonstrated. Future work will focus on extending the DSL's functionality to cover all features of the Mapbox GL Style Specification and adapting it for various platforms, including Android, iOS, and Unity.

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Paper ID : 65	AI-POWERED BLOOD DONATION MANAGEMENT SYSTEM WITH REAL-TIME MATCHING AND GAMIFICATION TECHNIQUES <i>Track: Healthcare and Medical Diagnostics</i>
	S Sindhura; Komatipalli Lavanya; Mande Kavya; Nanepalli Lokesh; Murapaka Bhavani, NRI Institute of Technology <i>Corresponding Author:</i> ssindhurapraveen@gmail.com

Not Selected for presentation and Publication

Abstract : Millions of lives are delayed each year due to blood donation, but finding the right donor at the right moment remains a critical issue. Conventional practices like blood bank systems and donation camps often fail during emergencies due to infrastructural constraints, outdated information, and inappropriate mobilization of donors. Where blood is required urgently, time is of the essence, and the existing system cannot always deliver an immediate response. To fill this void, we suggest an AI-based Blood Donation Management System, a smart real-time platform linking seekers with potential donors within seconds. Based on machine learning rules, the system

recommends the most suitable donor of compatible blood group so that patients can be transfused with appropriate blood in the shortest possible time. The SVM algorithm plays a significant role in correct blood type classification and ideal matching of donors.

However, blood donation is not just about showing up; donors also need to remain healthy for future donations. Therefore, our website incorporates an AI-powered diet suggestion component using Random Forest models, which, based on age, health status, and diet inputs, generates donor-specific meal plans to optimize donor health. Additionally, donors earn coins redeemable as medical discounts on healthcare services and drugs, thus rewarding them while creating incentives for long-term well-being. With real-time AI recommendations, health-based matching, and a reward incentivizing system, the product makes giving blood easy, meaningful, and rewarding.

It is not just a system but a movement towards a future where no one has to wait for life-saving blood. The system achieved a generalization training accuracy of over 95% and a testing accuracy of approximately 55% on average across numerous data splits, demonstrating strong learning capability with scope for improvement through system tuning and data augmentation.

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Paper ID : 66	Prediction of Brain Stroke using Feature Selection and Classification
	<i>Track: Healthcare and Medical Diagnostics</i>
Lingamaneni Indraja; JONNALAGADDA CHENDRAHASA; KANTAMNENI HYMA; Paidi Sai Mani; Mulakala Lekhithasree Yadav, NRI Institute of Technology	
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Session # PS14 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Brain stroke is a life-threatening medical condition caused by an interruption in blood flow to the brain, leading to severe neurological damage or even death. It is one of the leading causes of disability and mortality worldwide, making early detection and timely intervention critical for improving patient outcomes. Traditional diagnostic methods, such as clinical assessments and radiological imaging, require expert interpretation, which can sometimes lead to delays in diagnosis. Automated and intelligent diagnostic systems can significantly aid in reducing the time required for accurate stroke detection, improving the chances of effective treatment. In this paper, we propose a CNN-based stroke prediction model that takes CT scan images as input to detect strokes with high accuracy. The dataset comprises of preprocessed CT scan images, where noise reduction, contrast enhancement, and normalization techniques are applied to improve image quality. The open-cv model extracts hierarchical features from the CT scans to effectively differentiate between stroke and non-stroke case using CNN. Our proposed model achieves an accuracy of 95%, demonstrating its reliability in stroke prediction. The integration of such deep learning-based models in clinical settings can enhance real-time stroke detection, assisting healthcare professionals in making faster and more precise diagnoses, ultimately leading to better patient care.

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Paper ID : 67	A Study of Regularization Techniques on Overall and Predicted Ratings in Multi-Criteria Recommender Systems <i>Track: NLP and Multimodal AI</i>
	HARSHITH KANUMURI, NRI Institute of Technology <i>Corresponding Author:</i> kanumuri.harshith@gmail.com

Session # PS3 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Multi-criteria recommenders allow users to rate each contextual segment and overall rating. However, developing an efficient method to forecast the overall rating with multi-criteria ratings has emerged as the primary hurdle due to over and under-fittings. Even though regularization approaches help avoid over and under-fittings in many circumstances, they have limitations since users may only be interested in some segments, which affects the overall rating. This paper proposes a new model to predict the overall rating with significant contexts. The overall and predicted ratings were analyzed using various regression cost functions.

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Paper ID : 68	Mental Health Detection <i>Track: Healthcare and Medical Diagnostics</i>
	Syda Nahida; Chikkavarapu Vijay Kumar; Daddnala Nagendra Babu; Chagantipati Aviansh; Koyyana Dilleswararao, NRI Institute of Technology <i>Corresponding Author:</i> nahida.syd@gmail.com

Not Selected for presentation and Publication

Abstract : Mental diseases such as depression, anxiety and stress have a significant effect on productivity and the general welfare of individuals. These diseases are not done by doctors for social stigma, poor awareness and mental health because of non-existence. Early identification is important to enable timely intervention and proper treatment. This research checks automated detection of mental illness based on artificial intelligence (AI), Machine Learning (ML) and Natural Language Processing (NLP). AI models can treat text information, inspect speech patterns and detect early symptoms of mental illnesses. Social media items, answers to surveys and data on clinical information are used to develop forecast models, which allow scalable and real-time mental health evaluation. Emotional analysis, intensive teaching models and convenience impetction The accuracy of finding methods that detect. The findings from this research suggest that AI-based systems discovered cases of 93.08% depression and anxiety in a test data set, and show their large capacity to complement traditional assessment of mental health. These results indicate a strong ability for such systems to increase access to mental health care and cost-effectiveness. However, it remains, such as privacy, moral implications and concerns with prejudices in the training data set. Implementation should be responsible, and moral ideas should prioritize justice, openness and data security. This research emphasizes the importance of moral use, and emphasizes the potential benefits of a-assisted monitoring of mental health and early intervention, emphasized by conclusions

with high compatibility. Future research should focus on improving these models and expanding the dataset used.

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Paper ID : 69	Heart Disease Risk Prediction Using Machine Learning <i>Track: Healthcare and Medical Diagnostics</i>
<p>Miriyala Lakshmi; Ayrimula Ashirwad Johnson; Cheedella V N D Sai Sunayana; Guntaka Lakshmi Naga Manvitha; Jillella Venkata Kedhar, NRI Institute of Technology, Agiripalli <i>Corresponding Author:</i> lakshmimiriyala2515@gmail.com</p>	

Session # PS14 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Abstract: Machine learning has the potential to be a critical tool in the diagnosis and prognosis of heart illnesses, locomotor disorders, and other conditions. Due to its ability to identify patterns in data, machine learning applications in the medical field have grown. Diagnosticians can decrease misdiagnosis by using machine learning to categorize the occurrence of cardiovascular illness. If foreseen well in advance, such information might give physicians valuable insights that allow them to modify their diagnosis and treatment plan according to each patient. Our goal is to use machine learning algorithms to predict potential heart diseases in humans. We will compare various classifiers such as decision trees, Naïve Bayes, SVM, Random Forest, and Logistic Regression in this project. We will also propose an ensemble classifier that combines strong and weak classifiers to perform hybrid classification. Because this classifier can have multiple samples for training and validating data, we will analyze both the existing and proposed classifiers to provide better accuracy and predictive analysis. This method leverages previously completed patient records to forecast a new one at an early stage, sparing lives. In order to lessen the number of people who die from cardiovascular diseases, our research will create a model that can accurately forecast cardiovascular disorders. For medical professionals, predicting and detecting heart disease has always been a crucial and difficult undertaking. Heart disease can be treated with costly medicines and surgeries provided by hospitals and other facilities. Therefore, early detection of cardiac disease will be beneficial to individuals worldwide, enabling them to take the appropriate action before the condition worsens.

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Paper ID : 70	Plant Leaf Disease Detection and Classification Using Random Forest and SVM <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Venkata Sambasivarao Kambhampati Venkata; Jyothi Sri Pappala; Manasa Sangepu; S S V Anil Rahul Tadepalli; Naga Lakshmi Yadala, NRI Institute of Technology, Agiripalli	
<i>Corresponding Author:</i> kvsrao@nriit.edu.in	

Session # PS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The integration of Artificial Intelligence in agriculture automation services, such as recommending necessities and diagnosing diseases, holds potential for groundbreaking innovations. This innovative automation approach for crop health monitoring and farming productivity opens new boundaries. Diagnostic methods for agricultural diseases with Flask based web application for real time detection and treatment recommendation of plant leaf diseases described uses modern technologies. In the implementation of machine learning, a data set of rice leaf images was classified utilizing a Random Forest Classifier with Gray-Level Co-occurrence Matrix and color histogram feature extraction methods. The application uploads images of diseases, extracts their texture, color, and uses machine learning with a pre-trained model to predict the disease. Detailed disease information is retrieved from another data set containing conditions that favor the disease, precautions, yield suggestions, pesticides, and fertilizers. The interface allows the user to upload an image and receive results implemented in HTML and JavaScript. The integration of the front-end greatly improves usability. The total accuracy of the Random Forest model is 95%. The recall value of the model is 0.9583, the precision value is 0.9642, the F1-score of the model is 0.9588. This approach facilitates precise agriculture by identifying early disease, minimizing crop loss and optimizing resource utilization. By leveraging AI-driven methods, this solution enhances plant health monitoring, enhances disease control and supports global food security.

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Paper ID : 71	Machine Learning for the Determination of Mental Health-SVM,Random Forest and DecisionTree <i>Track: Healthcare and Medical Diagnostics</i>
Ankem Tarak Ram; Ayancha Bharath; Singareddy Swetha; chavithini Santosh; Javvaji Mounika, NRI Institute of Technology	
<i>Corresponding Author:</i> tarakram8999@gmail.com	

Session # PS11 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Mental health issues are increasingly prevalent, necessitating reliable and automated diagnostic tools. This study leverages survey and behavioral data to predict mental health illnesses using Support Vector Machine (SVM), Random Forest, and Decision Tree algorithms. The system comprises two essential modules: Admin and User. The admin module facilitates dataset

management, preprocessing, model training, and performance comparison through visual analytics. The User module allows individuals to sign up, log in, and receive mental health predictions from trained models. By integrating various machine learning techniques, the system enhances diagnostic accuracy and model efficiency. This approach minimizes reliance on traditional survey-based evaluations while enabling real-time, user-friendly mental health detection. Machine learning-driven mental health prediction holds significant potential for expanding access to early assessment and intervention.

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Paper ID : 72	Decentralized Solutions for Healthcare: A Comprehensive Analysis of Blockchain's Impact on Data Privacy, Interoperability, and Supply Chain Integrity <i>Track: Cybersecurity, Blockchain, and IoT</i>
<p>MANEKAR DR. AMITKUMAR; Tiwari Shreaya; Khandar Gauri; Mandawale Amaye; Paturkar Nagesh, SSGMCE SHEGAON <i>Corresponding Author:</i> asmanekar24@gmail.com</p>	

Session # VS3 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The core features of blockchain is decentralization, immutability, and transparency these are analyzed for applications in securing electronic health records, optimizing supply chains, and automating administrative processes using smart contracts. There is a need of exploring how blockchain technology can tackle persistent challenges in healthcare, such as data breaches, fragmented systems, and administrative inefficiencies, while paving the way for secure, interoperable, and efficient healthcare solutions. This work explores the transformative potential of blockchain technology in addressing critical challenges within the healthcare industry, including data security, interoperability, and operational inefficiencies. The study further reviews the integration of blockchain with IoT and AI for real-time healthcare solutions, alongside challenges such as scalability, regulatory compliance, and legacy system integration. Structured across chapters covering technical features, applications, and comparative frameworks, this manuscript provides actionable insights for advancing blockchain adoption in healthcare.

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Paper ID : 73	A Smart and Secure IoT-Based Parking System for Efficient Space Management in Urban Areas <i>Track: Cybersecurity, Blockchain, and IoT</i>
MANEKAR DR. AMITKUMAR; Kubade Snehal; Polkat Vedanti; Patil KArtik ; Khadase Prasad, SSGMCE SHEGAON <i>Corresponding Author:</i> asmanekar24@gmail.com	
## Not Selected for presentation and Publication ##	

Abstract : The idea of "smart cities" has become increasingly popular in recent years as a result of improvements in connectivity to the Internet of Things (IoT), which have increased the dependability and productivity of urban infrastructure. Growing vehicle densities in urban areas create significant parking issues that result in traffic jams, scarce supply, and inefficiencies in conventional systems. In order to enhance user experience and optimize parking management, this study suggests an Internet of Things-based smart parking system. The Android-based Car Parking Monitoring System (ACPMS) is a Smartphone application that users may use to check availability in real time and discover nearby parking lots. The system uses Internet of Things (IoT) modules to track and exchange information about the availability of individual parking spaces. For automated management, the architecture combines cloud databases, IR sensors, GSM modules, and RFID tags. RFID tags are used for authentication upon arrival, and an in-app wallet is used to handle payments based on usage length. Sensors are installed in each parking place to show the state of vacancies, and alerts on open spots cut down on wait times. Vehicles are guided to available slots via the system's cloud integration, which simplifies the administration of occupied spaces. Camera modules and Passive Infrared Sensors (PIR) at gateways improve security by guaranteeing that only authorized Vehicles Park. With the use of an Arduino Uno microcontroller and an ESP12 Node MCU for online connectivity, this computerized device seeks to lessen fuel usage and traffic jams while offering a practical and environmentally friendly answer to urban parking issues.

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Paper ID : 74	Mood based Multi-language Music Recommendation System using Machine Learning <i>Track: NLP and Multimodal AI</i>
Syda Nahida; Pathan Tajbeeha; Sannamuri Shashank; Tangellamudi Jaswanth Sri; Yarlagadda Naga Devishi, NRI Institute of Technology <i>Corresponding Author:</i> nahida.syd@gmail.com	
## Not Selected for presentation and Publication ##	

Not Selected for presentation and Publication

Abstract : Music has a tremendous impact on human emotions, and individualized recommendations boost user engagement. Traditional methods rely on previous listening behavior but are unable to adapt to real-time emotions. This work describes a mood-based music recommendation system that combines machine learning for song categorization and deep learning for emotion perception. Users can express their mood through live camera feeds, image uploads,

emoji selection, or climate-based inferences. The system uses a Vision Transformer (ViT) to classify facial expressions and a K-Nearest Neighbor (KNN) to select music based on audio attributes such as BPM, energy, valence, and danceability. ViT achieves 95.74% accuracy, whereas the KNN classifier effectively matches songs to moods and has achieved an accuracy of 81.78% and has a Precision of 0.80, Recall of 0.80, F1 Score of 0.78, RMSE of 0.54, MAE of 0.23, MSE of 0.29. The multimodal approach ensures flexibility and relevance, which boosts user pleasure. These findings demonstrate the potential of AI-powered, emotion-aware music recommendation systems to provide tailored, context-aware experiences that improve emotional well-being.

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Paper ID : 75	Comparative Study of Machine Learning Algorithms for Fraud Detection in Online Transactions
	<i>Track: Cybersecurity, Blockchain, and IoT</i>
Yadav Priyanka; Tiwari Kuldeep Kumar; Kumar Sunil, Chandigarh University	
<i>Corresponding Author:</i> kuldeep.smvd@gmail.com	

Session # VS3 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : E-commerce greatly demands improved methods for the identification of fraudulent practices. In this paper, a comparative analysis of the most popular machine learning algorithms for the identification of fraudulent transactions in online sales, namely Decision Trees, Random Forest, Support Vector Machines, Gradient Boosting, and Neural Networks, is provided. These algorithms are discussed in this paper and their parameters based on the public data set of transactional records include accuracy, precision, recall, F1-score, and computation time. The analysis gives one insight into the respective strengths and limitations of the algorithm when it comes to its implementation in real applications. Its importance is mainly focused around the feature engineering and the optimization of a model needed for the development of a successful, scalable fraud-detection systems.

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Paper ID : 76	PrecivisioN:An integrated platform for multiple diseases detection using CNN model
	<i>Track: Healthcare and Medical Diagnostics</i>
Ashtekar Shweta, RAIT,Navi Mumbai	
<i>Corresponding Author:</i> shweta.ashtekar@rait.ac.in	

Not Selected for presentation and Publication

Abstract : PrecivisioN: a powerful diagnostic tool that ables to identify brain tumors, kidney problems, and cancers in the lungs and colon. This is a smart medical diagnostic system designed to help doctors identify critical health conditions using advanced AI. It combines several specialized

services, each focused on a different area of medical diagnosis: NeuroVision for brain tumors, NephroVision for kidney diseases, and PulmoVision for lung and colon cancers. Using powerful deep learning models like CNN and VGG16, PreciVision analyzes medical images with remarkable accuracy of 93.5% for NeuroVision ,98.2% for PulmoVision and 98% for NephroVision. It has been used in categorizing several cancer types, and accurately diagnosing conditions such as lung adenocarcinoma and colorectal adenocarcinoma.

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Paper ID : 77	Implementation of RAG based Question-Answering Application <i>Track: NLP and Multimodal AI</i>
Ashtekar Shweta, RAIT,Navi Mumbai	
<i>Corresponding Author:</i> shweta.ashtekar@rait.ac.in	

Not Selected for presentation and Publication

Abstract : This paper proposes the Google's Gemini Model to develop a Retrieval-Augmented Generation (RAG) based question-answering chatbot. With the use of cutting-edge language models and RAG architecture, this chatbot can accurately answer user questions and retrieve pertinent document portions. After loading documents, the system uses the Gemini model to create succinct responses after processing them through a vector storage for similarity-based retrieval. For those looking for exact information from large text sources, this solution offers an effective, interactive experience with Streamlit as the user interface. To provide a strong, contextually aware question-answering tool, the paper makes use of Google's Gemini Model for intelligent replies, Chroma for vector storage, and LangChain for document management.Further the system's capacity can be increased to handle document forms other than research papers, including articles, technical manuals, and court documents.

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Paper ID : 78	A Thorough Review on Crime Detection and Prevention using ML Techniques <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Garg Parth ; Aggarwal Raghav; Jaiswal Updesh, Ajay Kumar Garg Engineering College Ghaziabad	
<i>Corresponding Author:</i> Gargparth494@gmail.com	

Not Selected for presentation and Publication

Abstract : This paper surveys state-of-the-art applications of machine learning (ML) and artificial intelligence (AI) methods in crime prediction. The increasing criminal activities in urban cities require innovative solutions to enhance public safety, and crime prediction and detection systems using ML and AI are promising ways to address this issue. Such systems rely on vast amounts of data, including historical crime information, social conditions, and environmental factors, to predict

potential criminal activities. The reviewed studies categorize crime prediction technologies into two main groups: sophisticated deep learning techniques and conventional machine learning approaches. Traditional models such as decision trees, SVM, and k-nearest neighbors perform well with structured and small-scale datasets, whereas deep learning models, including convolutional neural networks, recurrent neural networks, and long short-term memory networks, excel at capturing complex patterns from large unstructured datasets. Studies have focused on integrating spatiotemporal analysis, feature extraction, and data preprocessing to enhance prediction accuracy. However, ethical issues such as privacy and algorithmic fairness remain challenges. Further research will aim to address these limitations through the development of robust, scalable models and the promotion of interdisciplinary collaboration. Using comprehensive crime analysis frameworks, these systems have the potential not only to predict but also to proactively address criminal behavior, thereby optimizing resource utilization for law enforcement agencies to enhance community safety. This abstract aggregates results from various geographical contexts, demonstrating the universal value of ML-based crime prediction systems in developing proactive crime management strategies.

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Paper ID : 79	The Impact Of AI On Human Life <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Rani Dr, Vikrama Simhapuri University <i>Corresponding Author:</i> ranimarri@gmail.com	

Session # VS2 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This article focuses primarily on how artificial intelligence changes society and human life. This explores mostly dark artificial and how it gradually changed human lifestyles. This also focuses on the areas of applications that affect both positive and negative by artificial intelligence.

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Paper ID : 80	AI-Powered Basketball Analytics: YOLOv11-Based Player, Ball, and Hoop Detection with Pose Estimation, AI Commentary, and Shot Prediction <i>Track: Computer Vision and Deep Learning</i>
Khomane Abhishek, Anantrao Pawar College of Engineering and Research <i>Corresponding Author:</i> akhomane757@gmail.com	

Session # VS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : In this research, we present an AI-powered basketball analysis system that integrates YOLOv11-based player detection, basketball tracking, and hoop recognition, along with pose estimation for advanced movement analysis. Our system accurately identifies and tracks ball possession, dribbling patterns, and shot attempts, enabling real-time performance evaluation. To

enhance interactivity, we incorporate an AI-driven commentary feature that provides real-time audio feedback when specific in-game events occur, such as double dribbles or successful shots. Additionally, our system includes a basketball shot prediction model, utilizing polynomial regression to analyze ball trajectories and predict shot success probabilities. This feature assists players in refining their shooting techniques and optimizing their performance. The entire framework is deployed within a Tkinter-based desktop application, offering a user-friendly interface for coaches, analysts, and players to monitor game activities and receive actionable insights. Our approach combines computer vision, deep learning, and real-time analytics to deliver an immersive and data-driven basketball analysis experience. By automating key aspects of player tracking, rule enforcement, and performance evaluation, this system has the potential to revolutionize basketball training, coaching strategies, and referee decision-making. The integration of AI and machine learning in sports analytics paves the way for smarter gameplay analysis, reduced human error, and enhanced player development. **Keywords:** Computer Vision, Player Detection, Player Tracking, Basketball Videos, Object Detection, YOLO Algorithm.

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Paper ID : 82	Voice-Enabled prescription using PrescribAI
	<i>Track: Healthcare and Medical Diagnostics</i>
Venkata Sambasivarao Kambhampati ; Akula Akhila; Bollu Manasa; Daggu Venkatesh; Tata Chetana Sree, NRI Institute of Technology	
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Session # PS4 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Traditional receipt methods often exclude patients with limited reading skills or physical losses, which induces the development of an advanced E-Prescription system. Advance studies have detected digital prescriptions, but some patient solid entrance mechanisms or multilingual abilities. Current systems are mainly dependent on traditional paper -based prescriptions, which are often unable to accommodate patients with limited reading skills or physical losses, causing access challenges. In addition, these systems lack multilingual support and advanced digital functions, which limits their efficiency for diverse population. This proposed system increases the traditional approach by enabling symptomatic entry through voice command or manual input, ensuring access to different populations, including older adults and people with limited writing skills. Utilization of machine learning (ML) Model-Support Vector Classifier (SVC) and Naïve bayes (NB) receives high accuracy and explains the symptoms with high precision. Doctors can undergo the symptoms, choose medications or manually prescribe treatment, while integrated AI provides individual dietary recommendations to increase patient treatment. A prominent function is a multilingual prescription, breaks language barriers and improves understanding. In addition, the system generates a wide summary of drugs, where dosage, side effects and precautions, export goods in the form of text, or via e -post, patients must ensure that patients have access to reach without physical copies. Based on previous reports, which emphasized digitalisation, but ignored inclusion, this system involves Deep seek AI for customized performance, and offers a strong, effective and patient -focused solution that leads to health care distribution and compliance. The accuracy of Support Vector

Machine (SVC) is 97% and Naïve Bayes is 93%.

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Paper ID : 83	Smart Article Assistant: Personalized Answers Using LLMs <i>Track: NLP and Multimodal AI</i>
Kamineni Vathsalya; K Siva Sairam Prasad; Mendem Bhargavi; Gnana Sri Kowshik Varma, Siddhartha Academy of Higher Education University <i>Corresponding Author:</i> vathsalyakamineni@gmail.com	
Session # VS4 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.	

Abstract : New articles are normally packed with lots of information, and in the current world, people have so little time when it comes to reading news articles. This has the effect of slowing down the process through which individuals locate useful information. The simple concept of keyword search and its variety, that is, a filter of simple documents, is not enough to deal with the meaning and the relations between different terms and texts, leading to inefficiency. To solve this problem, we present a new case of using OpenAI’s Large Language Model (LLM) API in combination with the FAISS (Facebook AI Similarity Search). In our study, we first divide news articles into small components that are semantically meaningful, then feed these fragments into the OpenAI LLM API to obtain 768-dimensional vectors, and finally build a FAISS index. The result confirmed that the system could offer immediate semantic search with an average response time of 0.2 seconds for the relevant articles. This system was implemented on a set of news articles, and it was shown that even as the set is expanded, the system works well. As a Web-based system, our system is extensible, suitable for increasing numbers of documents, and capable of providing fast, online searching. Readwise comprehensively improves news article consumption, making the content easier to get and minimizing mental load for the user.

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Paper ID : 84	Deepfake Image Detection and Classification-Vision Transformers <i>Track: Computer Vision and Deep Learning</i>
Gorintla Shobana; T venkateshkumar; Bathina Chatusankara; Pasupulethi Hemanthkumar; V Rakesh, NRI Institute of Technology <i>Corresponding Author:</i> drgshobana@gmail.com	
## Not Selected for presentation and Publication ##	

Abstract : Deepfake technology has advanced rapidly in recent years, generating highly realistic fake videos that are increasingly difficult to distinguish from real ones. These altered media pose risks for misinformation, fraud, privacy, and the trustworthiness of society, so there is a great need for detection now more than ever. Traditional deepfake detection models mainly based on CNN have limitations on generalization and adversarial robustness. This work proposes exploring transformer-

based architectures for deepfake detection since it possesses a more powerful ability in extracting global features. For this research, a pre-trained ViT model was applied using publicly available deepfake-and-real-image Kaggle datasets with advanced preprocessing steps such as resizing, normalization, and data augmentation. The proposed model, evaluated using standard parameters achieved a performance of about 96% accuracy, precision, recall, and F1 score, which is quite a massive achievement compared to traditional CNN-based methods. The confusion matrix results confirm the high classification reliability of the model, where false positives and negatives are minimized. Some experiments reveal that ViTs are capable of differentiating real from fake images and can thus be used as effective tools in deepfake detection. However, there are also challenges to address, such as the model's huge computation cost, high chance of overfitting, and the essentiality of training sets with diversity. Future work could tackle hybrid CNN-ViT models, adversarial training methods, and real-time deepfake detection systems to enhance detection accuracy and make it possible for use.

Keywords—Deepfake Detection, Vision Transformers, Image Classification, Transfer Learning.

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Paper ID : 85	An Automatic Nuclei Segmentation on Histopathology Images Using Deep Residual U-Net <i>Track: Medical Imaging and Bioinformatics</i>
Srungarapati Raj Kumar; Dammu Bhargav, Siddhartha Academy of Higher Education University <i>Corresponding Author:</i> rajkumars27113@gmail.com	

Session # VS7 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Medical image analysis requires Nuclei Segmentation as its fundamental initial process. Multiple deep learning solutions based on Convolutional Neural Networks (CNNs) have emerged to perform nuclei segmentation work in present times. This paper introduces a segmentation neural network architecture. Cell segmentation performance gets improved by combining the advantages of residual learning and U-Net methodologies into one network architecture. Such a combination of methods enables the development of networks that require fewer parameters for operation. The incorporation of residual units makes the network training smoother by countering gradient vanishing effects during learning. The nuclear segmentation model uses publicly accessible microscopy images obtained from kaggle to evaluate performance against both U-Net and various modern deep learning methods designed for nuclear segmentation. It contains nearly 2000 images. The proposed approach delivers outstanding average Intersection over Union (IoU) performance improvements relative to current state-of-the-art solutions since it generates elevated gains of 1.1% and 5.8% than standard U-Net results. The model performs excellently on all key indicator metrics which consist of accuracy alongside precision and recall along with dice-coefficient. Our proposed approach demonstrates favourable potential in becoming a promising nuclei segmentation solution for microscopy image analysis.

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Paper ID : 86	Enhancing AI-Based Waste Classification: Leveraging Deep Learning for Sustainable Waste Management <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Yalamanchili Arpitha Dr; Kodali Suchitra Kamala; Dunnapothula Eswari Naga Durga; Deevi Roopa Sri; Gumpena Lavanya, NRI Institute of Technology	
<i>Corresponding Author:</i> arpitha@nriit.edu.in	

Not Selected for presentation and Publication

Abstract : Classifying waste is the first and foremost Process of sustainable waste management, which helps to recover and utilize waste and also prevents any kind of ecological and environmental pollution, this research enhances the solve of waste classification problem using deep learning models and in particular Convolutional Neural Network and Transfer Learning. This paper proposed IoT- Based monitoring with Edges AI and cloud deployment for improving real-time waste detection and management.

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Paper ID : 87	Drug Recommendations through Sentiment Analysis using NLP <i>Track: Healthcare and Medical Diagnostics</i>
Vipparla Aruna; Srikakulapu Yogendranath ; Torlapati Mounika ; Pallapothula Bhanu Prasad ; Sailaja Veeramreddy ; Kumar Sathya Pavan Kothuri, NRI Institute of Technology	
<i>Corresponding Author:</i> aruna.vipparla5@gmail.com	

Session # PS11 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This study presents an advanced machine learning-based system designed to revolutionize drug recommendations and interaction detection, equipping both doctors and patients with data-driven decision-making tools. By analyzing patient histories, symptoms, and feedback, the system achieves an 89.8% accuracy in drug recommendations and a 94.2% F1-score in identifying potential drug interactions, significantly enhancing prescription safety and effectiveness. Additionally, it tracks patient satisfaction through medication reviews, providing essential insights into treatment outcomes. Utilizing sophisticated algorithms, the system reduces the trial-and-error approach in treatments, ensuring quicker and more precise healthcare solutions. Seamlessly integrating into healthcare applications, this intelligent platform adapts to evolving patient needs, offering reliable, personalized medication recommendations that optimize clinical outcomes and elevate patient care. Unlike conventional prescribing methods, which rely on standardized guidelines, this system continuously refines its suggestions using real-time patient data. Leveraging Natural Language Processing (NLP) and deep learning models, it efficiently processes extensive unstructured medical data, uncovering significant patterns in drug interactions and patient responses. Designed for seamless integration with healthcare infrastructures, it remains adaptable for use in hospitals and clinics, continuously improving its predictions for enhanced accuracy. By minimizing dependency on traditional trial-and-error prescription methods, the system ensures faster

and more reliable healthcare solutions. Beyond improving prescription accuracy, it establishes a new standard for AI-driven personalized medicine. With applications in pharmaceutical research and telemedicine, this advanced system is set to redefine healthcare by delivering safer, more customized, and highly effective treatments.

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Paper ID : 88	Harnessing Deep Learning for Early Disease Diagnosis
	<i>Track: Healthcare and Medical Diagnostics</i>
Chavala Santhi; Sala Deekshitha ; T Uma Maheswari; Vasam Prudhvi Raj ; Pinninti Narasimha Rao, NRI Institute of Technology	
<i>Corresponding Author:</i> shantichavala@gmail.com	

Not Selected for presentation and Publication

Abstract : A chatbot is an interactive system that relies on AI and is aimed at replicating human communication with the users via text messages, without the involvement of humans. A user of primary task must help chatbot by responding to questions it asked. Chatbots are utilized across a variety of fields, and in this case it is being applied to health services. It is involved in interaction with user who is experiencing disease, and is able to identify symptoms using natural language treatment (NLP). Based on the convolution neural network (CNN) nervous network model, the chatbot can predict diseases and recommend the appropriate medications. While it is able to predict diseases like any doctor can. The app is also has a clinical role to help the user save time and money by not engaging in unnecessary medical trips. One exciting aspect about the chatbot is that it will be able to diagnose any disease in the dataset. Existing chatbots provide similar services to diagnosing diseases; however, they merely respond to the user without asking follow-up questions to suggest medications or to gain a clearer understanding of your situation regarding health. This chatbot serves to minimize those constraints and increase the effectiveness in diagnosing disease. The system produced 95% accuracy and an F1 score of 96% using CNN models. By using performance measurements, it will provide a somewhat meaningful and effective recommendation. The use of an advanced, AI driven diagnostic system with early illness diagnosis is a necessity and an important.

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Paper ID : 89	Efficient Bird Call Identification with ResNet-50 and EfficientViT-B1 Architectures <i>Track: Computer Vision and Deep Learning</i>
Mangalampalli Tarun; Kandala Doondy Avinash; Mallolu Swetha, NRI Institute of Technology <i>Corresponding Author:</i> tarunmangalampalli@gmail.com	

Session # PS12 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Precise bird species identification is essential for monitoring biodiversity, ecological studies, and conservation. This work introduces a deep learning-based method for bird species classification from audio recordings based on mel-spectrogram representations of bird calls. Two models, ResNet-50 and EfficientViT-B1, were fine-tuned on the BirdCLEF dataset with rigorous preprocessing, such as normalization, augmentation, and stratified sampling. Experimental results show high classification accuracy, with ROC-AUC scores validating the models' performance. The efficient EfficientViT-B1 model with a small size, when paired with OneCycle learning rate scheduling and AdamW optimizer, had improved convergence and higher efficiency and is hence well-suited for deployment on resource-limited devices. The results provide scalable, automatic bird monitoring resources to conservationists and researchers

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Paper ID : 90	Hybrid Machine Learning and Deep Learning-Based Brain Stroke Prediction Model: Performance Evaluation and Result Analysis <i>Track: Healthcare and Medical Diagnostics</i>
Sai vyshnavi Gopala; Venu Gopal Pallagani; Phanindra Kumar Bellagubba; Dedeepya Nakerakanti; Chiranjeevi Markapuram; Guna Sekhar Bhavana, NRI Institute of Technology <i>Corresponding Author:</i> saivyshnavigopala@gmail.com	

Session # PS14 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Brain Stroke is one of the leading causes of disability and death worldwide, making early prediction crucial for effective intervention. This study presents a hybrid machine learning and deep learning model for stroke prediction using clinical and demographic data. The dataset undergoes preprocessing, normalization, and feature extraction to improve model performance. Multiple machine learning models—including Logistic Regression, Decision Tree, Random Forest, Support Vector Machine (SVM), and K-Nearest Neighbors (KNN)—are trained and evaluated. Additionally, an improved deep learning model is developed using a multi-layer neural network with batch normalization and dropout layers for enhanced generalization. Both pipelines incorporate comprehensive preprocessing steps such as imputation of missing values, categorical encoding, feature normalization, and dataset balancing using a custom Synthetic Minority Oversampling Technique (SMOTE). A meta-classifier (Random Forest) is employed to combine predictions from individual models, forming a hybrid ensemble approach. Experimental results demonstrate that the

proposed hybrid model achieves superior performance compared to standalone models in terms of accuracy, precision, recall, and F1-score. A graphical user interface (GUI) is also developed to facilitate real-time stroke risk assessment, providing users with a confidence score for medical consultation. This hybrid model offers a promising approach for early stroke detection, aiding healthcare professionals in making informed decisions.

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Paper ID : 91	EARLY DETECTION OF LUMPY SKIN DISEASE IN CATTLE USING A DEEP LEARNING-BASED REGION BASED FULLY CONVOLUTIONAL NETWORK (R-FCN) <i>Track: Healthcare and Medical Diagnostics</i>
<p>Bodapati Deepika Helen; Pallagani Venu Gopal; Bellagubba Phanindra Kumar; Chintalapati Satya Abhiram; Rajala Sirisha; Voleti Prudhvi Sai Chand, NRI Institute of Technology <i>Corresponding Author:</i> deepikahelen03@gmail.com</p>	

Session # VS1 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Early detection of lumpy skin disease (LSD) in cattle is crucial for effective disease management and prevention of economic losses. This study proposes a deep learning-based approach that leverages a Region-based Fully Convolutional Network (R-FCN) architecture for the binary classification of LSD images. The methodology starts by loading and preprocessing a dataset of cattle images, applying data augmentation techniques, including geometric transformations and color preprocessing, to enhance model generalization. A custom R-FCN-inspired network is designed, incorporating convolutional layers for feature extraction, region-sensitive processing layers, and global average pooling for dimensionality reduction. The network is trained using the Adam optimizer with a piecewise learning rate schedule and validated on a reserved test dataset. Evaluation metrics such as accuracy, precision, recall, F1-score, and a confusion matrix demonstrate the effectiveness of the proposed approach. The model features a user-friendly testing interface that facilitates practical application in real-world scenarios, enabling the classification of new images with high accuracy. This system provides a scalable and efficient tool for the early detection of LSD in cattle.

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Paper ID : 92	Smart Traffic Monitoring: Vision-Based Accident Detection and Analysis <i>Track: Computer Vision and Deep Learning</i>
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Durga Dr. Putta ; Rohith Rajasai Prateep Ponnaganti; Zaheeruddin Shaik Mohammad; Lakshmi Prasanna Tummuru; Tejaswini Kakumanu, NRI Institute of Technology

Corresponding Author: durga.p@nriit.edu.in

Not Selected for presentation and Publication

Abstract : This study presents an automated framework for detecting and analyzing traffic accidents in real time using surveillance footage, implemented on the Huawei HiKey970 AI demonstration board. The system integrates deep learning-based object detection and motion analysis to accurately identify and track vehicles involved in collisions. To detect accidents, the Motion Interaction Field (MIF) technique examines interactions among moving objects. For enhanced vehicle detection, the framework leverages both YOLOv3 and YOLOv5, utilizing their advanced real-time object detection capabilities to precisely identify crashed vehicles. A hierarchical clustering approach reconstructs vehicle trajectories before the collision and transforms them into a vertical perspective to support accident analysis. The Unbiased Finite Impulse Response (UFIR) filter is applied to estimate vehicle speeds without requiring prior knowledge of noise, ensuring reliable velocity predictions. Extensive experiments conducted on real-world accident surveillance footage demonstrate that YOLOv5 outperforms YOLOv3 in both detection accuracy and processing speed. The proposed system achieves an accuracy of 94%, precision of 92%, recall of 100%, and an F1-score of 93%. These results highlight its effectiveness in detecting accidents and reconstructing vehicle movements, making it a valuable tool for intelligent traffic monitoring and forensic analysis.

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Paper ID : 93	PLANT DISEASE DETECTION USING QUANTUM RECURRENT NEURAL NETWORK <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
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Session # PS8 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This study introduces a novel Quantum Recurrent Neural Network (QRNN) architecture for plant disease detection, achieving 98.8% classification accuracy across 38 disease categories in 12 crop species. The hybrid quantum-classical model combines a CNN-based feature extractor with a 4-qubit parameterized quantum circuit integrated into a recurrent structure. Compared to classical approaches, our QRNN demonstrated 15.3% higher accuracy than traditional CNNs (79.5%) and 12.7% improvement over classical RNNs (82.1%) when tested on 25,000 temporal image sequences. The model exhibited superior early detection capabilities, identifying disease signatures an average of 3.2 days earlier than conventional methods. Notably, the QRNN achieved 91.2% accuracy in detecting subtle disease progression patterns during early stages, compared to 76.8%

for classical approaches. Computational analysis revealed a 2.8x speedup in training time using quantum-enhanced processing on IBM's 16-qubit quantum computer. These results demonstrate the significant potential of quantum-enhanced neural networks in agricultural disease monitoring, particularly for early-stage detection and complex temporal pattern recognition.

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Paper ID : 94	A Deep Learning Approach for Real-Time Drug Dosage Optimization using Multi-Modal Patient Data and Safety- Constrained Reinforcement Learning <i>Track: Healthcare and Medical Diagnostics</i>
<p>Boppana Venugopal; Nallamala Sri Hari; Nakka Venkata Satyanarayana; Davuluri Suneetha, NRI Institute of Technology <i>Corresponding Author:</i> srees.boppana@gmail.com</p>	

Session # PS14 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This study provides a new deep learning framework that optimizes drug dosages in real-time based on analysis from heterogeneous patient data sources. The presented system integrates information from MIMIC-IV and eICU clinical databases with data from sleep monitoring and wearable sensors to create holistic patient evaluations. Built on top of a hierarchical transformer architecture with uncertainty quantification capabilities, the core of this framework ensures trustworthy dosage suggestions. The methodology includes standardized preprocessing techniques regarding data normalization and temporal alignment, allowing effortless incorporation of many physiological measures. Safety-centric reinforcement learning adapts patient-specific responses while maintaining tight dosing parameters. The framework shows superior performance with 92% prediction accuracy, outperforming current standards, while requiring 60% less clinical oversight and staying below a 1% safety violation rate. The system achieves a 30% relative improvement in temporal prediction accuracy over traditional approaches and allows performing rapid dosage adjustments within 5 minutes, much faster than possible with current methods. Stringent cross-validation across diverse healthcare settings proves the model's robustness and reliability, showing promise for broad clinical adoption.

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Paper ID : 95	A Quantum-Enhanced Deep Learning Architecture with Adaptive Resonance Circuits for High-Precision Tsunami Prediction
<i>Track: Agriculture, Social Good, and Emerging Technologies</i>	

Boppana Venugopal; Cheeti Naga Santha Kumari; Davuluri Suneetha; Reddi Rama Devi, NRI Institute of Technology

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Session # PS8 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Natural disasters like tsunamis pose significant threats to coastal communities worldwide, necessitating advanced prediction systems for effective early warning. This study introduces the Quantum-Enhanced Deep Learning for Tsunami Prediction (QEDLTP) architecture, a novel approach combining quantum computing principles with deep learning techniques. Utilizing an extensive dataset spanning 1995-2023, comprising 18,742 seismic events and bathymetric measurements, our framework implements a dual-stream processing architecture with Adaptive Quantum Resonance Circuits (AQRC). The model employs an innovative Quantum Feature Selection (QFS) mechanism that dynamically adjusts quantum entanglement patterns based on input characteristics. The Proposed approach processes seismic waveforms from 2,000 global stations and high-resolution bathymetric data simultaneously, achieving 98.7% prediction accuracy with response times under 3 seconds. The architecture demonstrates superior performance in complex geological settings, reducing false positives by 76% compared to traditional methods. The QEDLTP framework's quantum-enhanced processing enables 78% feature dimensionality reduction while maintaining 96.5% information retention, significantly improving computational efficiency. Testing across 250 historical tsunami events validates the model's robustness and reliability. This research establishes new benchmarks in tsunami prediction systems and opens avenues for quantum computing applications in geophysical analysis and natural disaster prediction.

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Paper ID : 96	Cataract and Glaucoma Detection with Deep Learning
<i>Track: Medical Imaging and Bioinformatics</i>	
Sikhakolli Sai Balakrishna; Rajulapati Vyshnavi; Sukhavasi Vyshnavi; Vaka Kavya; Shaik Rasheda, NRI Institute of Technology	

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Session # VS7 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Eye disease classification contributes significantly to early detection and treatment, helping prevent vision impairment and blindness. In this work, we suggest an automated approach to eye disease detection utilizing Convolutional Neural Networks (CNNs) with a ResNet50 architecture. Our model is trained using 4217 retinal pictures from the Eye Disease Classification Dataset to categorize images into four groups: Normal (1074 photos), Glaucoma (1007 images),

Diabetic Retinopathy (1098 images), and Cataract (1038 images). The dataset provides high-quality labeled images that facilitate robust model training and evaluation. Preprocessing methods including picture normalization, noise reduction, and contrast enhancement are used to increase feature extraction. Dense layers, dropout regularization, and global average pooling are added to the CNN model based on the ResNet50 to boost performance and avoid overfitting. To ensure optimal convergence, the model is trained using categorical cross-entropy loss with early stopping and Adam optimization. To evaluate the performance of the model, evaluation metrics such as classification reports, confusion matrices, loss curves, and accuracy are employed. To confirm that the trained model can generalize, it is saved and tested on fresh retinal pictures. Our method obtains a high classification accuracy 93.48%, proving its usefulness in automated diagnosis of eye disorders and indicating its potential use in telemedicine and clinical decision support systems for early eye disease identification and treatment.

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Paper ID : 97	Wrong Posture Muscle Strain Detector Using Machine Learning <i>Track: Healthcare and Medical Diagnostics</i>
	Kamineni Vathsalya; G Kranti; Bhargavi Mendem; Bukka Kranti, Siddhartha Academy of Higher Education University <i>Corresponding Author:</i> vathsalyakamineni@gmail.com

Session # VS8 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Proper posture is also important in reducing occurrence of musculoskeletal disorders especially with individuals who spend most of their time seated. In this paper, a real-time posture monitoring system exploiting computer vision and machine learning techniques to analyse user posture through webcam is proposed. Explaining shoulder distance and neck tilt angles employing MediaPipe as body landmark detection and OpenCV for video analysis, the system assumes a shoulder distance greater than 100 pixels and a neck angle above 40 degrees to indicate strain. A GUI developed on Tkinter is interactive, constantly displaying the posture status and the amount of time that the user has spent in the current posture. Furthermore, the system locates and informs the user about the body part that is under pressure. In a second, the model determines whether the posture is good or bad. The efficacy of the system in offering timely posture feedback has been established through experimental results captured at 30 Frames per Second. This approach gives a practical way of enhancing posture and may help in removing posture related health challenges.

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Paper ID : 98	Comprehensive Study on Hybrid Cryptosystems for Securing Data in Transit and Storage <i>Track: Cybersecurity, Blockchain, and IoT</i>
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Reddaiah Buduri; Radhika Doddha, Yogi Vemana University

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Session # VS3 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Security of data transferred over an open channel has become a critical issue; as a result, data integrity and authentication are essential. Cyber attacks are becoming more complicated and widespread, exposing people, businesses, and vital infrastructure at risk. Information protection is a technique used to shield data from unauthorized access. To ensure the security of information transfer, cryptographic techniques are applied. Traditional cyber security methods depends upon static rule sets and detection based on signatures sometimes fall short in the face of advanced persistent threats, polymorphic malware, and zero-day vulnerabilities. Researchers are increasingly using hybrid cyber security frameworks to address these issues. A useful technique that provides solutions to a number of significant communication network problems is algorithm hybridization. Hybrid cryptography is a form of encryption technique that combines the aspects of both symmetric key and asymmetric key encryption to achieve a combination of speed and security. Hybrid cryptography can improve the efficiency and usability of multiple encryption approaches, key exchange, digital signatures, or authentication systems. Advanced domains such as machine learning, fuzzy logic, and cryptographic techniques can be used to develop strong frameworks. By combining these domains, a multi-faceted security approach emerges one that can detect novel attacks, adapt to evolving threat landscapes, and secure resources even in distributed, resource-constrained environments. This survey explores the theoretical foundations of different hybrid methodologies, reviews cutting-edge applications and discusses advancements in developing resistant cryptography. The survey concludes by examining current challenges including scalability, adversarial robustness and proposing future directions to guide the development of next-generation cyber security ecosystems.

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Paper ID : 99	Generic Framework for Synthetic Data Generation using Large Language Models <i>Track: NLP and Multimodal AI</i>
	Vignesh Divij ; Murthy Garimella Rama, Mahindra University, Hyderabad <i>Corresponding Author:</i> divijvignesh12@gmail.com

Session # PS3 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : With the release of modern LLMs, developing synthetic data for training next generation AI models has become possible. For a model to perform well across various tasks, we need data

from various domains, but obtaining data from specialized or private domains(like healthcare, finance, etc.) is challenging. In this paper, we propose a novel framework for generating high-quality synthetic data using Generative AI. Our framework addresses the stateless nature of LLMs which causes problems in continuity and redundancy in generated data. We have suggested an architecture consisting of LLM Data Generating Unit(LDGU) which incorporates memory to maintain context across iterations, and Agentic Flow Unit(AFU) that orchestrates the data generation process through specialized agents. To evaluate our framework, we incorporated both human-as-a-judge and LLM-as-a-judge approaches and implemented feedback mechanisms for generating data. Our approach enables creation of synthetic training data that maintains essential semantic characteristics of real-world data while overcoming scarcity issues in private domains. This framework not only addresses data scarcity issues but also can generalize huge training datasets into smaller ones, ultimately decreasing the training costs of AI models.

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Paper ID : 100	Pure Source: “An Application for Food, Education, and Amenities Donation on Mobile or Web” <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Maddireddy Chaitanya Kishore Reddy; Boddupalli Naga Sai Vignesh; Abburi Venkata Kavya Sri; Chappidi Mahesh Babu; Hari Sai Yugesh, NRI Institute of Technology <i>Corresponding Author:</i> chkishore.0007@gmail.com	

Session # PS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Many nowadays struggle with food insecurity and lack of education. This mobile (or web-based) application helps tackle these problems by minimizing food waste and facilitating donations. A significant amount of food is wasted primarily due to inaccurate portion estimates. This application acts as a bridge between those in need of food and individuals or organizations with surplus food. In addition to donating food, this also provides educational support for orphaned children. Furthermore, it enables individuals to provide essential resources to orphanages and old age homes, to enhance their quality of life by fulfilling basic needs. This promotes social responsibility among all while also improving living conditions of the impoverished.

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Paper ID : 101	MY Known Pandit - A One-Stop Destination for Pandit Booking, Catering, Decor & Venue Services. <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Maddireddy Chaitanya Kishore Reddy; Gudlavalleti Manogna; Gudivada Yaswanth; Potharaju Krishna Keerthana, NRI Institute of Technology <i>Corresponding Author:</i> chkishore.0007@gmail.com	
## Not Selected for presentation and Publication ##	

Abstract : In today's fast-paced world, faith and religious traditions remain essential. However, finding experienced pandits is increasingly difficult, especially for those in metropolitan areas, different states, or abroad.¹ Limited availability, affordability concerns, and logistical challenges make organizing religious ceremonies complex ⁴.

To address this, we introduce MY Known Pandit, a user-friendly, tech-driven platform that simplifies the search for certified pandits ⁵. Our enormous network connects users with skilled, culturally diverse pandits for various rituals—from birth ceremonies to last rites—ensuring authenticity and affordability ². By matching users with pandits aligned with their cultural backgrounds, we eliminate geographical barriers.

Beyond connecting users with pandits, MY Known Pandit provides a seamless religious ceremony experience. Our one-stop pooja essentials marketplace enables users to purchase ritual items with a single click, offering customizable packages for convenience ⁶. Here we include a pop-up feature of suggesting the animal required for the specific ritual to ensure better user convenience. Additionally, our platform links users with verified caterers specializing in traditional and religious cuisine, ensuring high standards of quality, hygiene, and affordability for gatherings of any size ⁷.

To make sure the user has a seamless, hassle-free we provide decoration services and venue services for all sorts of rituals from birth to death

By merging cutting-edge technology with cultural heritage, MY Known Pandit bridges the gap between tradition and contemporary convenience ⁸.

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Paper ID : 102	Fashion Recommendation System <i>Track: NLP and Multimodal AI</i>
Choudhari Tulsi; Ghadge Nikita; Madhavi Vivek; Deore Mansi, A.C.Patil college of engineering <i>Corresponding Author:</i> tulsi.r.choudhari24@gmail.com	
## Not Selected for presentation and Publication ##	

Not Selected for presentation and Publication

Abstract : - This paper introduces a recommendation system based on deep learning that is intended to recommend accessories after users upload images of t-shirts, pants or even sarees. Users are able to upload any of these items and the system will recommend accessories specific to each item. Fashion recommendations have always been a hot topic, this paper solves one of the

deep problems of fashion recommendations. It employs a multiclass classification method in the first stage that involves a general classifier which first evaluates the clothing type and then evaluates the subcategory gen, colour and design. For example, a T-shirt would be broken down further into gender-specific sleeves, number of sleeves, colours, and different designs. These attributes are then indexed into a recommendation structure to retrieve suitable accessories such pants, shoes, watches, sunglasses, bangles, and rings. The user interface is created in React to optimize the user experience while Flask is used as a backend for REST APIs. This project utilizes a modular system as well as advanced Deep Learning architectures and guarantees improvements over existing solutions for fashion recommendations through machine learning by fostering greater personalization and precision of recommendations. A prospective enhancement may include monitoring user preferences and providing feedback to maximize the system's value for e-commerce databases.

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Paper ID : 103	From Data to Discovery: The Role Of Machine Learning In Personalized Education <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
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Not Selected for presentation and Publication

Abstract : Self-education undergoes a transformation through machine learning (ML) because it supports teachers in building and enhancing customized educational activities aligned with student-specific needs. By analyzing student interaction data, ML discovers methods to boost student engagement, comprehension, and educational success. The implementation of adaptive learning systems, predictive analytics for intervention, and automated feedback and material recommendations are key instances of ML usage. However, the educational benefits of ML remain challenged by factors such as privacy concerns, discriminatory practices, and difficulties in scaling algorithmic capabilities. The responsible application of AI systems must remain a priority to prevent improper ethical choices and unfair learning implementations. This document investigates how ML works in education by analyzing its benefits, barriers, and potential solutions for ethical AI implementation in educational systems. The research examines how ML powers personalized education while studying its advantages, obstacles, and expected trends, emphasizing the need for ethical implementation and continuous technological advancement in education systems leveraging artificial intelligence.

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Paper ID : 104	Restaurant Recommendation System based on reviews using XAI with Content-based Collaborative Filtering <i>Track: NLP and Multimodal AI</i>
Davuluri Suneetha; Parimi Bhavana Sruthi; Sangireddy Bhupendra Sai; Talasila Hima Bindu; Yadavalli Gayathri Vanaja, NRI Institute Of Technology <i>Corresponding Author:</i> sunithadavuluri8@gmail.com	
Session # PS13 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.	

Abstract : Restaurant recommendation system based on review analysis and collaborative filtering using XAI gives personalized recommendation based on user preferences provided by the user. As there is a vast number of restaurants it is hard to select a restaurant out of them. The recommendation system gives an answer in addressing this. Context-aware Collaborative filtering is a common algorithm employed by recommendation systems that are reference and information-based gained from user proposes. Term Frequency - Inverse document frequency, an NLP approach for content -based filtering aids in determining the significance of words in a document. Singular value decomposition model for collaborative filtering aims in factoring the user item matrix. Use of both the approaches leading to a system which precisely recommends restaurants matching the preference (dining preferences) of the user. Contrary to the conventional methods viz. "black box", XAI (Explainable Ai) present information on what reasons the ml model took a certain decision employing Shap technique. The system returned with 91% accuracy and f1-score of 91% through SVD model. The performance metrics assures that the model is producing effective and meaningful recommendations. The system not only improves the dining experience of the user by reducing decision-making but also gives useful insights to restaurant owners about the preferences of the customers. Through the accurate prediction of user satisfaction, Rest-Rec can help in enhancing restaurant support provided by customers and better customer retention. Bearing in mind the necessity and significance of recommendation system, a recommender named Rest-Rec is constructed for restaurants.

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Paper ID : 105	A Hybrid Intelligent Framework for Cardiovascular Disease Diagnosis Using Multi-layered Ant Colony Optimization and Enhanced Deep Learning <i>Track: Healthcare and Medical Diagnostics</i>
S Sindhura; Nakka Siva Seshu; Reddi Ramadevi, NRI Institute of Technology <i>Corresponding Author:</i> ssindhurapraveen@gmail.com	
Session # PS14 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.	

Session # PS14 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This study proposes a novel diagnostic framework by combining Multi-layered Ant Colony Optimization with advanced deep learning for cardiovascular disease diagnosis. This system includes three major components: the MACO Module for dynamic feature selection, the Enhanced

Deep Learning Neural Network with attention-based architecture, and the Advanced Bayesian Optimization System for automated parameter tuning. With intelligent preprocessing and adaptive feature extraction, this framework is capable of analyzing intricate medical datasets. This newfangled integration of evolutionary computation with neural networks enables automated optimization with high diagnostic accuracy of 98.65%. It saves a lot of manual configuration with increased processing efficiency and thus is especially valuable for clinical applications where expert knowledge about system optimization may not be available. Performance evaluation shows strong diagnostic capability in various patient cases, which establishes the potential of this framework as a robust tool for the diagnosis of cardiovascular diseases in real-world healthcare settings. **Keywords:** Multi-layered Ant Colony Optimization (MACO), Deep Learning, Cardiovascular Disease Detection, Feature Selection, Attention-based Architecture, Bayesian Optimization, Medical Diagnostics

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Paper ID : 106	Semantic-Based Dynamic Windowing for Efficient Long Document Processing in Large Language Models
	<i>Track: NLP and Multimodal AI</i>
Malla Venkata Pavan Uma Maheswara Rao; Pakalapati Srinivas; Nakka Venkata Satyanarayana, NRI Institute of Technology	
<i>Corresponding Author:</i> malla.uma9@gmail.com	

Session # PS13 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This research proposes a novel approach to dynamically optimize context windows in Large Language Models (LLMs), addressing the fundamental challenge of processing lengthy documents while maintaining computational efficiency. We introduce an adaptive windowing mechanism that automatically adjusts the context size based on semantic density and relevance, rather than using fixed-length windows. Our method employs a two-stage architecture: first, a lightweight semantic analyzer identifies information-rich segments, and second, a dynamic allocation algorithm adjusts the context window accordingly. In experiments across 50,000 documents of varying lengths (1K-100K tokens), our approach achieved a 45% reduction in computational overhead while maintaining 98% of the performance compared to full-context processing. On tasks requiring long-range comprehension, such as document summarization and complex reasoning, our model outperformed fixed-window baselines by 12% on standard benchmarks. Additionally, we observed a 30% improvement in memory efficiency, making it particularly suitable for deployment in resource-constrained environments. Our results demonstrate that dynamic context optimization can significantly enhance LLMs' ability to process long texts without compromising performance or requiring substantial additional computational resources. This approach opens new possibilities for efficient processing of lengthy documents in applications ranging from legal document analysis to scientific literature review.

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Paper ID : 107	MODERN LOAN APPROVAL PREDICTION SYSTEM BASED ON MACHINE LEARNING <i>Track: Optimization and Prediction</i>
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Not Selected for presentation and Publication

Abstract : In modern world loans are the major requirement for organizations and individuals alike. By this only, banks get major part of total profit. Due to significant number of financial constraints, the activity of loan taking has become more. Loan approval process is a challenging task for any financial institution as they need to go through several documents of a person and it becomes plenty when they need to go through several customers. This is a classification problem which defines whether the bank should consider the application for loan approval or not. the loan approval process involves assessing numerous documents and factors to determine whether an applicant is eligible for a loan. Parameters such as credit scoring, income, age, marital status, and gender are utilized to classify applicants. Machine learning techniques like Logistic Regression, Random Forest, and Naive Bayes are commonly employed for this task. These models help in automating the decision-making process, making it more efficient and enabling banks to identify eligible candidates quickly and accurately

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Paper ID : 108	Unveiling Brain Tumours: A Deep Dive into Deep Learning Approaches <i>Track: Medical Imaging and Bioinformatics</i>
Chudasama Neeta; Panchal Sandipkumar, Dr. Subhash University, Junagadh, Gujarat <i>Corresponding Author:</i> neeta.chudasama2011@gmail.com	

Not Selected for presentation and Publication

Abstract : Due to their high death rate, brain growths are between the most thoughtful and common disorders. Therefore, for a clinical diagnosis and therapy to be correct, brain tumor classification is essential. Highly precise and dependable components are essential for accurately identifying tumors, creating treatment plans, and creating outcomes for assessing brain tumor segmentation. The determination of the work is to create a prototype system that analyses the effectiveness of identifying brain tumors using a DLvarious model. The medical sector is supported and assisted by MRI in identifying even the smallest aberrant growth in any portion of the human body. Deep neural networks (NNs) several algorithms perform well in 2D image segmentation; nevertheless, 3D medical MR image segmentation of important organs is a difficult problem for NNs. In order to investigate brain cancers, the present article covers a variety of brain tumor kinds, openly accessible datasets, improvement techniques, segmentation, feature extraction, classification, DL approaches, and learning via a transfer. In this work, we tried to combine automated computer-assisted approaches for brain cancer characterization in DL frameworks with brain cancer imaging modalities. Other objectives of this article include identifying present issues by the manufacturing approaches

now in use and projecting an upcoming pattern.

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Paper ID : 109	SMART WATER STRESS MANAGEMENT IN TOMATO CULTIVATION THROUGH BIORISTOR DATA <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
	S Sindhura; Cheedirala Bhargav Reddy; Battu Chanukya; Gajula Sunanth; Doppalapudi Vaishnav, NRI Institute of Technology <i>Corresponding Author:</i> ssindhurapraveen@gmail.com

Session # PS8 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Abstract: Water stress, especially drought, is an important challenge in agriculture, affects crop and food security. The ability to predict and handle watering based on real -time data is important for sustainable agriculture. This study extends previous research by integrating an intensive learning-based CNN model with trees, random forests and LSTM networks to classify and predict water stress in tomato plants. The CNN model gained 97% accuracy, demonstrating better pattern recognition in bioelectric data from bioistor sensors. In addition, a flask-based user interface with secure authentication user interactions increases, ensuring a spontaneous and protected data input process. This extended approach significantly improves the water voltage detection, making the smart irrigation system more efficient and accessible. Tomato cultivation is very dependent on water, and productivity is unsafe for water stress, especially in areas that have water shortages. Effective water management is important for adapting crop and conservation of water resources. This study examines the use of drilling store data in handling water stress in tomato cultivation. Bioristor, a system that integrates real -time data from different sensors provides a new approach to monitor and regulate watering effectively. By using the data -driven insight into drilling stones, farmers can adequately determine the needs of watering, thus reducing water waste, and ensuring adequate crop growth. From this point of view, water use is expected to improve efficiency, increase return stability and contribute to permanent agricultural practices. The results of this study suggest that the use of smart water control systems, such as drill store, can significantly reduce the effect of water stress in tomato cultivation, which ensures both environmental and economic viability for farmers.

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Paper ID : 110	Black Eyes: Real-Time Intruder Detection System
	<i>Track: Cybersecurity, Blockchain, and IoT</i>

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Not Selected for presentation and Publication

Abstract : Security threats are changing, requiring smart, real-time intruder detection. This paper introduces Black Eyes, an IoT-driven security system combining facial recognition and anomaly detection to make security smarter. With the help of high-resolution cameras and deep learning models, it precisely identifies people and detects intrusions. Performance testing demonstrates 98.5% accuracy in clear lighting and 91% accuracy at low lighting, alerts being triggered within 1.2 seconds. It provides low false positives, scalability, and smooth IoT integration. Made for home, office, and high-security settings, it provides proactive surveillance. Future work will improve environmental adaptability, multi-modal authentication, and AI robustness and provide a new benchmark for smart security solutions.

Index Terms— IoT, Facial Recognition, Anomaly Detection, Intruder Detection, Real-Time Processing, Security Systems.

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Paper ID : 111	ENHANCING STUDENT CAREER OUTCOMES WITH PREDICTIVE ANALYTICS
	<i>Track: Agriculture, Social Good, and Emerging Technologies</i>

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Not Selected for presentation and Publication

Abstract : Student career prediction play an important role in assessing employability trends and enhancing career guidance in schools. This study applies advanced machine learning techniques like Logistic Regression, D T, R.F, SVM, and Neural Networks to predict student placement results from academic records, technical competencies, soft competencies, internships, and extracurricular activities. The system improves accuracy using data-driven information rather than traditional, human-centered evaluation methods. By automating the process, it minimizes human intervention, eliminates mistakes, and gives fair and impartial appraisals, providing equal opportunities for all students. The models are validated with accuracy, precision, recall, and F1-score to determine the best approach, with Decision Tree model achieving a staggering 91.25% accuracy, 89.19% precision, 89.73% recall, and 89.46% F1-score. It also helps students in identifying areas that require improvement on their part so that they may improve their technical as well as soft skills and prepare themselves for the job. Its scalability and flexibility allow it to be easily applied in various institutions,

courses, and departments. It closes the gap between academia and industry, and thus maximizes placement plans for students, reduces unemployment, and allows institutions to tailor training courses to enhance the employability of students.

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Paper ID : 112	Development of agriculture in disease detection accurately by using SVM through CNN Algorithms by suggesting organic pesticides <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Maddireddy Chaitanya Kishore Reddy; Dammalapati Yasarwini; Sunkara Harsha, NRI Institute of Technology	
<i>Corresponding Author:</i> chkishore.0007@gmail.com	

Session # PS8 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Farmers in the current society confront multiple challenges about selecting pesticides for their crops or plants. The expanding human population demands a rise in agricultural production quantities. Modern farming depends on pesticides since they protect crops from pests as well as diseases. Organic pesticides stand as the best option for pest control in pesticide applications. Agricultural production depends on the necessary use of pesticides. The detection of accurate crop diseases along with proper pesticide application techniques significantly boosts agricultural productivity because diseases carry heavy negative impacts on harvest yields. The authors suggest supporting a disease detection system by SVM through CNN learning-based machine learning framework. Support Vector machines excel as a disease detection method and optimized pesticide distribution optimizes the use of chemicals without diminishing their protective value. CNN can detect plant diseases and suggest pesticides by analyzing images of leaves. CNNs can be used to classify plants into different disease groups and can also provide treatment recommendations.

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Paper ID : 113	AGRICULTURAL CROP RECOMMENDATION SYSTEM FOR FARMERS USING MACHINE LEARNING TECHNIQUES <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Patve Gayatri ; Sonaje Pridil; dhole Sampada, Bharati vidyapeeth's college of Engineering for women pune	
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Not Selected for presentation and Publication

Abstract : India's socioeconomic fabric relies heavily on agriculture. Failure of farmers to use traditional and non-scientific methods to select the crop that is best suited to the land. The agriculture crop recommendation system made use of CNN, RF, and KNN has good efficiency and profitability. It was put into place with the intention of increasing productivity, reducing resource wastage,

improving crop health, and mitigating risks associated with climate variability. Preprocessing steps like collecting data, cleaning data, and extracting features that are most relevant to the chosen analysis were used in this study. According to the problem domain, numerous supervised and unsupervised machine learning algorithms are investigated. Implemented system recommend crop to farmers depending upon soil type, region and location. Using methods like Grid Search, Random Search, and Bayesian Optimization, the chosen models are trained and hyperparameter tuned to increase efficiency and accuracy. To guarantee the robustness of the model, metrics like accuracy, precision, recall, and the F1-score are used in evaluation and validation. The optimized model is then incorporated into existing systems or implemented in a web-based application for real-world usability. This framework's systematic, scalable, and efficient approach to building high-performing predictive models. In this research trained CNN model on 100 epochs and achieved the 95.25% accuracy.

Keywords- Convolutional Neural Network, Random Forest, KNN, Crop Prediction System

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Paper ID : 114	Book Recommendation System using Deep Learning
	<i>Track: NLP and Multimodal AI</i>
Syda Nahida; Lingamaneni Indraja; Pondari yashwanth; Shaik mohammad yaseer; Tummapudi Rajkumar; Jakkula Naga Ramya, NRI Institute of Technology	
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Not Selected for presentation and Publication

Abstract : It is difficult to find the right books among a million of books in the present digital age since traditional recommendation systems are non-personalized. We present a Book Recommendation System based on Neural Collaborative Filtering (NCF) in this paper to forecast user interest based on user history. Book-Crossing data of book information and user reviews are used and preprocessed by converting user and book IDs to numbers for representation embedding. Deep learning operations are applied in the NCF model to extract user-book interaction patterns, and prediction is optimized using Adam optimizer and Mean Squared Error (MSE) loss function. A user interface based on Gradio is used to make the users enter preferences such as author and genre to offer personalized recommendations to enhance their reading experience with the appropriate book recommendations. The system is trained to 95% accuracy and F1 score of 95% using NCF models. Performance metrics ensure the model provides useful and successful recommendations.

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Paper ID : 115	Blood Group Detection using Image Processing and Fingerprint <i>Track: Medical Imaging and Bioinformatics</i>
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Chavala Santhi; Venkata Yaswanth Ram Pamarthi; Rithvik Chenna Reddy Mule ; Prathyusha Kanulla ; Likhita Sowmya Murapaka, NRI Institute of Technology

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Session # PS2 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Blood group is an important medical diagnostic characteristic used to confirm compatibility for blood transfusion, organ transplant, and forensic investigation. The traditional blood grouping relies on serological testing with blood samples, laboratory tests, and trained medical professionals, making it invasive, time-consuming, and inconvenient for emergency treatment. This paper also highlights some of the drawbacks of the conventional techniques which are overcome through implementing the touchless fingerprint recognition and deep machine learning for the blood group classification. The overall system uses a CNN architecture that is designed for identifying the fingerprint ridge patterns and blood group such as A, B, AB, and O with much efficiency. They do not use actual sample interfaces and as such, the established system is a touchless one which is fast and cheap compared to conventional approaches. Some of the techniques used in the system include noise reduction, contrast stretching and ridge top extraction for enhancing the fingerprint recognition rates. This highly precise system is suitable for use in medical or forensic purposes whereby the blood group analysis is required immediately. In the current market, the system has an accuracy of up to 98% to reduce classification errors and thus increase reliability. The proposed classification model also prevents frequent intrusion of human interference which makes it easier for fast and efficient blood grouping in medical uses. Further research will then be directed more on enhancing better classification performance, bi-modal biometric such as retinal and palm vein recognition systems as well as efforts towards enhancing the real time system of the product for international market. With the development of the described AI-inspired approach it is possible to serve as a new, more scalable and accessible global solution for the development of modern medicine and the related forensic fields.

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Paper ID : 116	GEN AI REAL TIME TRANSLATION TOOL USING CHATBOT <i>Track: NLP and Multimodal AI</i>
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Lakshmi Kanth Velivila; MEDAPATI DHANA LAKSHMI; Asifa Shaik; Prem Chand Somisetty; Rakheeb Shaik, NRI Institute of Technology

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Not Selected for presentation and Publication

Abstract : This paper discusses the challenges involved in adapting ChatGPT for interactive MT and suggests solution for these problems. In addition, emphasize reducing latency, contextual coherence, handling user interaction, and resource management to improve the effectiveness of

real-time translation systems. The technology enables free cultural, professional, and personal exchange of information in the form of a further diversified globalized world through translating nearly in real-time. Through the use of a real-time translation, it is possible to have meaningful verbal communication in many situations, such as in traveling, school, and workplace, without being limited by language. The development of this tool leverages the most advanced technologies such as neural machine translation and speech recognition so that users can receive translations in real-time through text and audio outputs. Its ease of use also allows users with any level of technical expertise to utilize it, and more accurate learning algorithms come with repeated practice. Context and idiom sensitivity allows real-time translation software to pick up on the nuances and cultural connotation of spontaneous speech simultaneously as it is translating words into another language. It is a large step forward toward bridging the language gap and enhancing intercultural understanding. Machine translation (MT) has come a long way with the advent of transformer architectures such as GPT-3. Its conversational relative, ChatGPT, holds new promise for real-time participatory machine translation. However, integrating ChatGPT into real-time MT systems is fraught with several challenges. * * * * *

Paper ID : 117	Detecting File-less Malware in Network Traffic Using CNN s and Image Processing
<i>Track: Cybersecurity, Blockchain, and IoT</i>	

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Session # PS5 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Fileless malware is an evolved form of cyber threat that resides in the memory only and bypasses the traditional signature-based detection methods. We propose a machine learning-based framework for fileless malware traffic classification using image visualization techniques. Network traffic information such as packet capture and flow data are translated into graphical forms that allow deep learning models to effectively recognize malicious activity. Our proposed convolutional neural network (CNN) achieves a 96% classification accuracy with less false positives and enhanced detection reliability. Experimental evaluations using real-world datasets demonstrate the effectiveness of the model in identifying benign and malicious traffic. The cost-effective and scalable solution maximizes proactive threat detection with robust defense against emerging cyber threats.

Keywords: Traffic classification, network security, fileless malware, image visualization, machine learning, intrusion detection.

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Paper ID : 118	An Integrated Machine Learning Approach for Early Prediction and Risk Assessment of Chronic Kidney Disease <i>Track: Healthcare and Medical Diagnostics</i>
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Lakshmikanth Chowdary Velivila; Sai Devan Pittu; Venu Thota; Muzahid Basha Shaik; Lokesh Pillai, NRI Institute of Technology

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Not Selected for presentation and Publication

Abstract : Chronic Kidney Disease (CKD) is a major global health issue and early detection and diagnosis is essential, due to the inadequacy of traditional diagnostic methods to identify individuals with early-stage CKD is not possible, So advanced computational techniques are increasingly needed for early detection of CKD. We propose a robust hybrid ML framework for predicting chronic kidney disease with the integration of feature selection, data balancing technique, and ensemble learning to improve the prediction performance. We build upon existing studies by using a novel hybrid-feature selection approach involving LASSO regression and correlation-based filtering, along with tuned hyperparameters. The source of CKD dataset is from Kaggle under the Attribution 4.0 International license. The experimental results from our framework gives perform better than the previous works. The evaluation measures were measured as Precision, Recall, F1 score, Accuracy. The Random Forest model gives the best accuracy at 99.15%, followed by the Cat Boost model at 98.88% then the XG Boost and Light GBM at 98.79%. It seems from the overall better performance of ensemble methods over linear strategies (of LSVM and Logistic Regression) to adequately handle complex, non-linear data such an approach lends itself well towards being a constructive method of early detection of CKD.

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Paper ID : 119	Leveraging Deep Learning for Real-Time Financial Fraud Prevention <i>Track: Cybersecurity, Blockchain, and IoT</i>
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Sikhakolli Sai Balakrishna; Bavarisetti Venkata Mahesh; Cheeraboyina Karthik; Garimella Vijay Bhaskar; Akiri Devesh, NRI Institute of Technology

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Session # PS12 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : In today's digital economy, financial transactions serve as the foundation of commerce, but their increasing volume and complexity have also heightened the risk of fraud. Traditional rule-based detection methods struggle to keep pace with the evolving tactics of fraudsters, necessitating more adaptive and intelligent solutions. This project presents an AI-driven approach utilizing Deep Learning to detect fraudulent activities in financial transactions with greater efficiency, accuracy, and responsiveness. By leveraging advanced neural networks such as Autoencoders and Recurrent Neural Networks (RNNs), the system analyzes transaction data to identify anomalies indicative of fraud. These models are trained on extensive historical transaction datasets, incorporating features

like transaction amount, frequency, user behavior, and geolocation patterns. By recognizing subtle deviations from established transaction patterns, the system enables real-time fraud detection with minimal human oversight. The results demonstrate the effectiveness of Deep Learning in financial security, achieving a fraud detection accuracy of 97.2% while reducing false positives by 35% compared to traditional models. This innovation not only enhances security measures but also ensures a smoother user experience by minimizing disruptions to legitimate transactions. Future extensions could integrate blockchain for decentralized fraud prevention, expand datasets to reflect global financial trends, and implement adaptive learning to counter emerging threats dynamically.

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Paper ID : 120	Communication Systems for the Deaf and Mute <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
	DRL Prasanna, Vasavi College of Engineering <i>Corresponding Author:</i> prasannadusi@staff.vce.ac.in
	## Not Selected for presentation and Publication ##

Abstract : This research introduces a robust full-duplex communication system bridging the gap between Deaf and Mute (D-M) and non-deaf and mute (ND-M) individuals, eliminating the need for ND-M individuals to learn sign language. Supporting Indian Sign Language (ISL) and American Sign Language (ASL), the system enables real-time Speech-to-ISL/ASL, Text-to-ISL/ASL, and ASL-to-ISL/ASL-to-Speech translation for seamless communication. Leveraging Machine Learning (ML), Convolutional Neural Networks (CNNs), and Natural Language Processing (NLP), it ensures high accuracy in gesture recognition and context-aware text and speech conversion. Designed to be cost-effective and scalable, it can be deployed in various environments like educational institutions and public service areas. Its modular architecture allows future integration of additional sign languages. Experimental evaluations confirm an accuracy rate exceeding 95% and real-time operation, ensuring smooth communication. This assistive technology significantly enhances digital inclusivity for the D-M community, with future improvements focusing on dataset expansion, model refinement, and support for more sign languages

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Paper ID : 121	XCEPTION-DRIVEN LUNG CANCER DETECTION WITH OPTIMIZED FEATURE FUSION <i>Track: Medical Imaging and Bioinformatics</i>
	Sikhakolli Sai Balakrishna; S Raj Sagar; Kilaru Sai Krishna; Mamidi Rama Mohana Rao; Nandigam Jethya Naidu; Kondapalli Koti, NRI Institute of Technology <i>Corresponding Author:</i> rajsagar1993@gmail.com

Session # VS7 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Presently there are no efficient methodologies in place for the early assessment of lung cancer as blood tests and CT scans are very tedious and require a lot of time. In this particular research, we look for an efficient system, more accurate and faster that may automate the process of detecting and assess the severity of a lung tumor. Thus, we invented Lung-RetinaNet that features a RetinaNet architecture with context-enhanced multiscale feature merging. With this approach, and by constructing the Lung-RetinaNet model, many layers of neural networks can be integrated by means of a multi-scale feature fusion module. This advanced model of capturing semantic information is very significant in the detection of tumors of the lungs. Lung-RetinaNet employs a lightweight dilation context module as well as multi scale feature fusion. In order to improve feature extraction and tiny tumor localization in lungs images, this module contextually utilizes information with each neural network layer. Primary thesis components provide the system with better efficiency and accuracy in detecting lung tumors in comparison to previous technology based on the single sequence. Xception model was integrated in order to increase the accuracy of lung cancer categorization and it was raised to 99%. Also, it contributes to a better detection of lung cancer in images with the addition of using YOLOv5 and YOLOv8 for detection purposes. In this way, every aspect of lung cancer cases is combined in order to provide analysis comprehensively.

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Paper ID : 122	Medical Diagnosis Using Machine Learning on Cirrhosis <i>Track: Healthcare and Medical Diagnostics</i>
Sikhakolli Sai Balakrishna; S Raj Sagar; Bhagavatula Manoj Kumar; Gogulamudi Dharani; Chinni Sujitha; Bethapudi Sandhya Rani, NRI Institute of Technology	
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Not Selected for presentation and Publication

Abstract : Early detection of liver diseases and treatment can improve the survival rate. Machine learning (ML) is a powerful tool that can help in clinical analysis of liver patients. A traditional ML model includes processes such as data processing of data, extraction of functions, and classification. In the convenience extraction process, ML researchers usually use projection-based methods to remove data surplus; However, these methods cannot be optimal. In addition, many statistical projection methods have been prepared with different goals when introducing basic functions. This research appoints an ILPD, taken for the classification of chronic liver diseases from the University of California, Irvine(UCI). Data sets record 583 patient diseases, of which 400+ people have liver disease and 167 people do not have liver disease. While using several launch methods, we proposed an integrated extraction strategy for liver patient classification. In this process, our proposed method solves the lack of values and outliers in the first pre-treatment process. Then the integrated feature pre-admitted data to select the meaningful features required for extraction classification. A simulation study is also done to assess the proposed method. The strategy uses several ML algorithms, such as logistics regression (LR), Random Forest (RF), XGBoost and Support Vector Machine (SVM). The system produced an area below 88.10%, an accuracy of 85.33%, an accuracy of 92.30%, an F1 point of 88.68%and 88.20%curve (AUC) score for liver diseases. The approach we recommend registered improvements ranging between 0.10% and 18.5% (LightGBM, CAT Boost, SVC) versus the most recent research in the field. The results suggest that the proposed system in theory can

increase the clinical power of a physician in liver disease.

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Paper ID : 123	A Fine-Grained Weather Forecasting Model Based on Machine Learning That Works <i>Track: Optimization and Prediction</i>
	Kumar Vijay ; Saranya Konanki; Bhargavi Vempati; Rajdeep Indupalli; Nissy Mandala, NRI Institute of Technology <i>Corresponding Author:</i> saranya.konanki@gmail.com

Session # VS5 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This work enhances weather classification and forecasting by utilizing historical meteorological data and cutting-edge machine learning techniques. The study explores several classification models beyond conventional Logistic Regression, using a dataset of 96,453 records with 12 different characteristics. It integrates Random Forest classifiers, Decision Trees, and Support Vector Machines (SVM) to improve forecast accuracy across five weather conditions: rainy, cloudy, sunny, foggy, and overcast. The dataset provides a robust foundation for model training, containing both categorical characteristics (such as precipitation type and meteorological descriptions) and numerical variables (including temperature, humidity, and pressure).

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Paper ID : 124	Predictive Insights of Rainfall Patterns in Barpeta District Assam: A Time-Series Analysis <i>Track: Optimization and Prediction</i>
	Kamath Rajani, CSIBER <i>Corresponding Author:</i> rskamath@siberindia.edu.in

Session # VS5 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This research focuses on constructing and evaluating machine learning models for the time-series analysis and forecasting of rainfall in the Barpeta district of Assam. Assam was affected terribly by devastating floods during the beginning of monsoon 2019. The repeated flooding in this region emphasizes the need for precise rainfall forecasting to mitigate the connected risks and manage disaster preparation effectively. The present study used the percentage departures of rainfall dataset from Knoema, a web-based open data platform. Specifically, the dataset consists of monthly percentage rainfall departures from the long period averages of rainfall measures from

January 2006 to December 2016 with 132 readings. This dataset serves as the base for building forecasting models aimed at anticipating rainfall patterns in the region. The forecasting experiment is tested by constructing ANN, ETS, and ARIMA models. The comparative analysis based on residuals of errors revealed that the ANN model accurately forecasts the rainfall with less error. The residuals of errors measure the difference between the actual and model computed values. * * * * *

Paper ID : 125	Flight Fare Forecasting: Leveraging Hybrid Machine Learning Approaches for Enhanced Prediction Accuracy <i>Track: Optimization and Prediction</i>
Kumar Vijay; Paleti Kusuma Harika ; Bhatlapenumarthy Sai Durga Vyshnavi ; Yarra Chandana; Sirvisetti Krishna Teja, NRI Institute of Technology	
<i>Corresponding Author:</i> krishnatejasirvisetti@gmail.com	

Session # VS5 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : In this study, a comparative analysis of various machine learning models is conducted to predict airline ticket fares. The dataset includes features such as airline, journey day, class, source, destination, total stops, and days left until departure. Data preprocessing included transforming categorical variables into numerical values and partitioning the dataset into training and testing subsets. Three models—Random Forest, Gradient Boosting, and Linear Regression—were trained and evaluated on classification metrics Accuracy, Precision, Recall, and F1 Score. Additionally, a hybrid model combining predictions from Random Forest and Gradient Boosting was developed using weighted averaging. The results show the hybrid model outperforms individual models in terms of predictive accuracy and classification performance. A graphical user interface (GUI) was implemented to allow real-time fare prediction using the trained models. This research highlights the effectiveness of hybrid approaches in improving prediction accuracy and robustness in airline fare forecasting.

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Paper ID : 126	LLM-Enhanced Privacy-Preserving Recommendation System <i>Track: NLP and Multimodal AI</i>	Multi-Modal	Federated
Gorintla Shobana; R Mounika, NRI Institute of Technology			
<i>Corresponding Author:</i> drgshobana@gmail.com			

Session # PS13 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Traditional recommender systems face significant privacy challenges when processing user ratings and reviews in untrusted environments. While federated learning approaches provide distributed computation solutions, existing methods lack comprehensive privacy protection and

efficient multi-modal processing capabilities with modern language models. This paper presents a novel privacy-enhanced federated recommender system, incorporating a multi-layer privacy protection framework with transformer-based architectures and Large Language Models (LLMs) utilizing local differential privacy. Our approach introduces a multi-task, multi-modal learning paradigm that leverages cross-modal attention mechanisms while utilizing privacy-preserved LLM features. Experiments on the MovieLens and Restaurant Recommendation datasets demonstrate superior privacy protection (ϵ -differential privacy guarantee of 0.1) while maintaining competitive recommendation accuracy (accuracy of 0.9758, precision of 0.9958, and F1 score of 0.9856) and outperforming existing platforms like Swiggy and Zomato. The model achieves consistent performance improvements with RMSE values of 1.3 and MAE of 1.08, demonstrating effective learning capabilities. Our solution strikes an optimal balance between privacy, efficiency, and recommendation quality across both movie and restaurant domains.

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Paper ID : 127	A Multimodal Transformer-Based Framework with Integrated GNN for Early Detection and Phenotyping of Polycystic Ovary Syndrome <i>Track: Healthcare and Medical Diagnostics</i>
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Session # PS14 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Polycystic Ovary Syndrome (PCOS) affects reproductive health worldwide, yet current diagnostic approaches lack precision and early detection capabilities. This study introduces a novel multimodal deep learning framework integrating continuous biomarker monitoring with advanced feature selection techniques. We propose a hierarchical system combining PCA, Random Forest (RF), and Chi-square testing to process heterogeneous data sources, including real-time hormonal measurements, clinical biomarkers, lifestyle factors, and genetic markers. Our proposed architecture, which achieves an accuracy of 99%, employs a transformer-based backbone with a cross-attention mechanism. It also incorporates a graph neural network module for symptom interaction analysis and an autoencoder component for anomaly detection in hormonal patterns. This integrated approach demonstrates the potential for early and precise diagnosis of PCOS, advancing personalized reproductive healthcare.

* * * *

Paper ID : 128	Advanced Bankruptcy Forecasting with Hybrid Machine Learning Techniques: Insights from Unbalanced Data set <i>Track: Optimization and Prediction</i>
Matam Sravanti, CMR Technical Campus <i>Corresponding Author:</i> msravanti.ece@gmail.com	

Not Selected for presentation and Publication

Abstract : Bankruptcy forecasting plays a crucial role in maintaining financial stability and managing risks. This research enhances the precision of predicting bankruptcies by utilizing hybrid machine learning algorithms applied to an imbalanced dataset from Poland. The dataset contains challenges commonly seen in actual financial data, including class imbalance and noisy characteristics. Our strategy merges the advantages of oversampling methods, combination methods, and deep learning frameworks to improve prediction performance. Experimental findings indicate considerable enhancements in metrics such as precision, recall, and F1-score when compared to conventional approaches. The insights gained from analyzing feature importance offer a deeper comprehension of the financial factors influencing bankruptcy. This study adds value to the field by introducing a strong framework that can adapt to datasets with imbalances, providing useful insights for financial institutions aiming to reduce bankruptcy risks effectively.

Keywords: Bankruptcy forecasting, hybrid machine learning, imbalanced dataset, over sampling techniques, ensemble methods, deep learning, financial risk management

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Paper ID : 129	MULTI-LAYER DDOS ATTACK DETECTION IN STATEFUL SDN-BASED IOT NETWORKS USING LSTM <i>Track: Cybersecurity, Blockchain, and IoT</i>
Naresh Babu Tadi Siva Venkata; Indraja Pasupuleti, Sree Vahini Institute Of Science & Technology <i>Corresponding Author:</i> tsvnaresh@gmail.com	

Session # PS5 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The rapid increase in IoT network deployments has further exposed the vulnerability of Distributed Denial-of-Service (DDoS) attacks, which would seriously disrupt operations. Traditional security mechanisms are struggling to provide real-time detection and adaptive mitigation, mainly because the modern cyber threat is dynamic in nature. The paper proposes a multi-layer DDoS attack detection and mitigation framework called FMDADM that applies machine learning techniques for stateful SDN-based IoT networks. The framework has three key layers: feature extraction, multi-stage detection, and reinforcement learning-based mitigation. In the first step, SDN flow statistics are analyzed to extract critical traffic features, which are pre-filtered using entropy and Z-score anomaly detection. Next, a hybrid CNN-LSTM model classifies potential attacks with high accuracy by identifying both spatial and sequential traffic patterns. Finally, a mitigation agent based on Deep

Q-Network (DQN) dynamically enforces countermeasures such as rate limiting, black listing , and traffic redirection based upon the severity of the attack. Experimental evaluations present that FMDADM achieves high accuracy in detection rates, low false positive rates and adaptive mitigation toward making it one of the safest solutions to address the DDoS threats occurring in SDN-based IoT.

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Paper ID : 130	Personality prediction using Twitter Tweets <i>Track: NLP and Multimodal AI</i>
Lanka Kavitha; Kasaraneni Jahnvi; Konda Dona Priyanka ; Gunji Madhavi ; Gangipogu Vishal, NRI Institute of Technology	
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Not Selected for presentation and Publication

Abstract : Personality traits are a combination of an individual's thinking, emotions, and behavior, which can be inferred through textual content shared on social media platforms like Twitter. This project proposes a novel system to identify personality traits using Twitter tweets, utilizing TF-IDF for feature extraction and boosting algorithms for classification. Based on the Myers-Briggs Type Indicator (MBTI) framework, the system aims to classify four key personality traits: Introversion-Extroversion (I-E), Intuitions-Sensing (N-S), Feeling-Thinking (F-T), and Judging-Perceiving (J-P). Experimental results will demonstrate the effectiveness of the proposed system, providing a robust and scalable approach to personality identification.

* * * * *

Paper ID : 131	Deep Learning-Based Speech Emotion Recognition: Evaluating CNN, CLSTM, and LSTM Models <i>Track: NLP and Multimodal AI</i>
CHAITANYA JANNU; Bharath Dandamoodi ; Nikhil Sanjay Valluri ; Himani Kothakotamaana; Srimannarayana Adapa; Veeraswamy Parisae; Venkata Murali Krishna Chinta ; Lakshmi Amruthavalli P, NRI Institute of Technology	
<i>Corresponding Author:</i> pvspj3@gmail.com	

Not Selected for presentation and Publication

Abstract : Speech emotion recognition (SER) is a critical task in human-computer interaction, with applications ranging from healthcare to customer service. However, accurately identifying emotions from speech signals remains a challenging problem due to the complexity and variability of emotional expressions. To address this challenge, this study proposes a deep learning-based approach for automatic speech emotion recognition using Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs). The proposed model employs CNN, LSTM, and CLSTM architectures to capture both spatial and temporal features from speech signals, enhancing the accuracy and

robustness of emotion classification. While CNNs and RNNs are effective at obtaining raw audio waveform representations individually, this study examines their unified framework to enhance performance. The CNN is trained to learn detailed low-level speech representations directly from raw waveform data without relying on pre-engineered features or spectral representations, allowing it to capture narrow-band characteristics indicative of emotion. While CNN components extract detailed time frames of data, the LSTM layers model temporal dynamics. The study leverages a combined dataset comprising TESS, RAVDESS, and Combined datasets, which include a diverse range of emotional speech samples such as neutral, happy, sad, angry, fearful, disgust, and surprise. Tested with the TESS dataset, the proposed model surpassed both classification schemas and state-of-the-art baselines, demonstrating superior accuracy in emotion recognition.

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Paper ID : 132	COMPARISON OF AN INTELLIGENT DIAGNOSIS OF ANIMAL DISEASE USING HYBRID MODEL
	<i>Track: Healthcare and Medical Diagnostics</i>

Keerthana Kolavennu; Alekya Devi G.V.R.K; Ishwarya Banda ; Durga Prasad Meesala; Tirumala Rao Koya, NRI Institute of Technology

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Not Selected for presentation and Publication

Abstract : This research introduces an integrated machine learning methodology that integrates ensemble learning and deep neural networks for effective animal disease classification. The methodology involves preprocessing datasets by encoding categorical attributes and normalizing numerical features to ensure model compatibility. A bagged ensemble classifier, leveraging decision trees, is employed to extract significant predictive features, which are subsequently used as inputs for a neural network. The deep learning architecture consists of multiple fully connected layers utilizing ReLU activation, with a softmax layer at the output for classification. The effectiveness of the proposed hybrid model is assessed through essential evaluation metrics, including accuracy, precision, recall, F1-score, and a confusion matrix. Experimental results indicate that this hybrid technique significantly enhances classification accuracy, demonstrating its potential for improving disease diagnosis in veterinary medicine. The study underscores the advantages of combining ensemble learning for feature robustness with deep learning's capability to capture complex patterns, thereby offering a scalable and efficient solution for automated animal disease detection.

Keywords: Animal Disease Classification, Hybrid Machine Learning, Ensemble Learning, Deep Neural Networks, Feature Engineering, Disease Diagnosis, Veterinary Medicine, Performance Metrics.

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Paper ID : 133	Enhancing CNN Training Stability with Adaptive Weighted Loss and Learning Rate Restart: A Lightweight Approach <i>Track: Computer Vision and Deep Learning</i>
	Fatima Amber; Ram Pintu Kumar; Jadon Jitendra Singh, Amity University <i>Corresponding Author:</i> amberfatima1303@gmail.com

Session # VS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This study explores how well Adaptive Weighted Loss (AWL) and Learning Rate Restart (LRR) may improve lightweight convolutional neural networks' (CNNs') training stability and efficacy. Conventional fixed loss functions and static learning rates frequently lead to class imbalance and weak convergence, which produce suboptimal model performance. LRR avoids stagnation by frequently resetting the learning rate, while AWL ensures balanced learning by dynamically altering loss weights. This method offers a lightweight and effective solution that is appropriate for real-world applications where quick and reliable training is crucial, in contrast to intricate deep learning models that demand substantial computational resources. This study illustrates how CNNs can improve performance without raising model complexity or processing cost by concentrating on adaptive optimization strategies. When evaluated on part of the Celeb-DF dataset, the AWL + LRR model performed marginally better than the baseline CNN. While loss dropped from 0.2538 to 0.2505, accuracy rose from 91.61% to 91.64%, AUC-ROC improved from 85.85% to 86.22%, and the F1 score rose from 60.71% to 61.17%. These enhancements show that even minor changes to learning tactics can result in more stable training, which lessens susceptibility to class imbalance and speeds up convergence. This study demonstrates how well AWL and LRR optimize CNN training for reliable and effective classification, which makes them applicable to real-world scenarios in fields like fraud detection, image recognition, and other classification tasks. By analyzing its effects on various architectures, applying it to multi-class classification problems, and combining it with other adaptive optimization strategies, future research might build upon this methodology.

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Paper ID : 134	UAV-Assisted Beamforming Optimization through Multi-Agent Reinforcement Learning <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
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Not Selected for presentation and Publication

Abstract : The paper proposes a way to make the communication more efficient by using collaborative beamforming. The problem is complex because there are two conflicting objectives. First, the system should maximize the transmission rate. Second, it should minimize energy consumption. The positions of UAVs and their signal strengths affect both of these goals. Traditional optimization methods take too long to find a solution. Also, if the situation changes, the old solution

may no longer work. To solve this issue, we used Multi-Agent Deep Reinforcement Learning (MADRL). They use a specific approach called HATRPO (Heterogeneous-Agent Trust Region Policy Optimization). Then, they improve HATRPO to create a new version called HATRPO-UCB. Three techniques are added to enhance the learning process. These techniques help the UAVs to learn better strategies. Simulations show that the proposed method outperforms existing techniques. The new approach learns faster and finds better solutions. UAVs can dynamically adjust their positions and transmission parameters in real-time, making the system more adaptable to changes in the environment. By using the reinforcement learning, the UAVs can continuously improve their strategies with less manual tuning. Comparing with traditional optimization techniques, this method significantly reduces the computational cost .Furthermore, the paper also presents a detailed comparison between the proposed method and existing state-of-the-art techniques. The results of our proposed method show better performance in terms of both transmission rate and energy efficiency. To increase the reliability and performance, deep reinforcement learning in UAV-assisted communication networks is applied.

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Paper ID : 136	VOICE-ENABLED OBJECT DETECTION FOR THE VISUALLY IMPAIRED USING CNN
	<i>Track: Agriculture, Social Good, and Emerging Technologies</i>

Bolla Leela Krishna Mohan; J Deepa, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology
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Session # PS9 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This project presents a novel solution to object detection using a Convolutional Neural Network (CNN) algorithm with voice output, addressing limitations of traditional systems that primarily rely on visual outputs. Such systems can be inaccessible to the visually impaired or require continuous visual attention, which may not always be feasible. Our system uses CNN, a powerful deep learning algorithm for image recognition and classification, to efficiently detect objects from images. It also incorporates voice output functionality to announce recognized objects, making the information accessible to visually impaired users or in environments where visual attention is impractical. Additionally, the system allows users to provide data files containing images for object detection, introducing versatility and ease of integration into existing processes and workflows. The combination of CNN, voice output, and data file input enhances the accessibility, usability, and flexibility of object detection systems, making them more inclusive for various applications. We discuss how the voice output converts recognized objects into clear, audible announcements for seamless interaction. Furthermore, the data file input functionality enables users to input images for detection, particularly useful in scenarios that require batch processing or integration into existing data streams. To assess the system's performance, we conducted thorough experiments to measure its accuracy, speed, and robustness across different datasets and environments. The results demonstrated high detection accuracy, fast processing rates, and strong adaptability, confirming the system's effectiveness and reliability for practical use.

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Paper ID : 138	Legal Document Summarizer
	<i>Track: NLP and Multimodal AI</i>
Lingineni Divya, Vasavi College of Engineeringng	
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Session # VS4 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This paper introduces an AI-based tool for summarization that leverages the generations of legal and technical knowledge embedded in long, complicated legal documents. It builds on the Bidirectional and Auto-Regressive Transformers (BART) model, an advanced sequencing-to-sequencing architecture that can deliver comprehensible and condensed summaries while preserving critical legal content such as facts, issues, and decisions. The tool is fine-tuned on legal-specific datasets by training the BART model on legal texts which makes it suitable for the unique structure and language of legal texts. This is useful to save manual review things by making productivity increase for legal professionals, researchers and other end users. This project is a practical implementation of cutting-edge NLP for the legal application domain, offering a tool that increases access to information, aids in informed decision-making and makes the tasks of legal research and case preparation easier. The ROUGE scores express how well the system works, certainly in turn makes the system very effective and reliable in the real-world use case.

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Paper ID : 139	Medical Insurance Premium Prediction Using Deep Learning Algorithms
	<i>Track: Healthcare and Medical Diagnostics</i>
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<i>Corresponding Author:</i> kannan.m@christuniversity.in	

Session # VS1 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This research proposes an application of deep learning techniques towards the prediction of insurance premiums using ConvLSTM, BI-LSTM, and CNN-LSTM models. Nowadays, Insurance is becoming more sophisticated, there is a need for better models that predict premiums so that risk factors that can be properly valued. The aim of this study is to improve the accuracy and reliability of insurance premium prediction using deep learning methods. The main challenge is the shallow traditional models, whose capturing of temporal dependencies is ineffective and results are not explainable resulting in very few stakeholders having any trust to the predictions. To solve this, this study compared three models: ConvLSTM model, BI-LSTM and CNN LSTM. Of these, the BI-LSTM model was the most effective because it was able to learn bidirectional sequential patterns. These patterns were enhanced using L2 regularization, dropout and dense layers to improve generalization.

The dataset used comes from a Kaggle repository, which contained actual insurance data incorporating age, BMI, region and smoking as attributes. Results showed that BI-LSTM had performed the best as compare to other models in terms of accuracy and loss minimization. Important findings highlighted features such as age, smoking, and BMI as pivotal to estimating premiums. Also, to make the model explainable, we incorporated Explainable AI using LIME which delivers interpretable explanations by showing and visualizing the most important features for single predictions.

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Paper ID : 140	Feature-Driven Explainable AI for Chronic Kidney Disease Predictions
	<i>Track: Healthcare and Medical Diagnostics</i>
Sivannarayana Garikipati ; Tagore Mani Kumar Bellapu; Ram Prasad Chennu; Jayaraju Gattu; Gudikandula Aslesha, NRI Institute of Technology	
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Session # VS8 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Chronic Kidney Disease (CKD) is an emerging health issue affecting millions of individuals worldwide. Glomerular filtration rate (GFR), which is regarded as the most important marker of kidney function, has a strong positive relationship with blood metabolite creatinine. Measuring GFR is difficult, so CKD is first considered with creatinine levels. Although testings show promise, creatinine testing is not routinely included in regular check-ups for many countries due to the extensive and demanding tests involved. As an initial aim to address this issue, this study would consider incorporating just creatinine testing into a regular fitness test/health check. With the proposed approach taking advantage of classifier models, the overall performance was improved compared with other approaches with a respectable accuracy of 98.5%. With creatinine testing incorporated into a regular check-up, practitioners will gain pertinent and tangible information that allows for improved diagnostic results and interpretation. Moreover, a predictive web application is built using the Flask framework in order to enhance accessibility of the proposed CKD detection model. By utilizing complex analytical approaches along with the use of technology, this research intends to improve the diagnostics of CKD.

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Paper ID : 141

A Network Security Monitoring System Using Deep Learning

Track: Cybersecurity, Blockchain, and IoT

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Not Selected for presentation and Publication

Abstract : The significance of strong network security cannot be emphasized in a time of changing and more complex cyber threats. This paper presents a novel method of strengthening network defenses by building a highly flexible and durable Network Security Monitoring System (NSMS). By utilizing deep learning, more especially Self-taught Learning (STL), we set out to reinvent network security. In this study, we apply STL to the well-known NSL-KDD dataset, which is a commonly used network security monitoring System benchmark. We thoroughly analyze our NSMS solution's performance utilizing a range of important metrics, such as accuracy, precision, recall, and F-measure, in order to determine its overall effectiveness. Impressively, this method produced a 92.84% accuracy on the training set. As we use both the training and testing datasets in our work, our research expands on this basis and provides a distinct advantage for comparison, allowing a straight comparison to this earlier work. This study's main importance comes from its ability to prevent intentional attacks and to proactively identify unanticipated and unforeseeable security breaches. This research represents a significant turning point in the development of NSMS technology in the dynamic cyber security landscape, enabling enterprises to strengthen their security posture and protect their assets in a world that is becoming more interconnected.

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Paper ID : 142

PROXIMITY-BASED MUSIC PAUSE SYSTEM FOR ENHANCED CAR SAFETY

Track: Cybersecurity, Blockchain, and IoT

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Not Selected for presentation and Publication

Abstract : The term “proximity sensing” describes a system or devices’ capacity to identify whether an object or a person is present within a given range without making physical contact. Reducing distractions while driving requires being aware of other vehicles and keeping an ear out for their sounds. Distractions in cars, such as music, can impair drivers’ concentration and increase the risk of accidents. The Proximity-Based Music Pause System automatically pauses music playback when vehicles approach, with the goal of improving vehicle safety. Some of the current options, like Integration, are expensive, involve manual intervention, and lack real-time detection capabilities. In order to monitor proximity data and identify close-range vehicle interactions, proximity sensor technology was introduced and integrated into the vehicle’s infrastructure in order to solve this issue.

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Paper ID : 143	A Comprehensive Security Risk Assessment of Wireless Fidelity Protocol with respect to Smart Homes <i>Track: Cybersecurity, Blockchain, and IoT</i>
Taneja Aarushi; Singh Sneh; K Murthy Chethan, National Forensic Sciences University <i>Corresponding Author:</i> aarushi.btmtcs2142@nfsu.ac.in	

Session # VS3 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The emergence of diverse Internet of Things (IoT) devices has transformed household automation, introducing greater convenience and accessibility to people's lives. However, this technological advancement brings significant security challenges, particularly concerning wireless network infrastructure. This research paper provides a comprehensive risk assessment of WiFi protocol security within smart home ecosystems, examining critical vulnerabilities and potential attack vectors. It focuses on smart home security in the context of an evolving security landscape where WiFi serves as the lifeline for all connected devices. Drawing insights from recent cybersecurity incidents involving API vulnerabilities, botnet exploitations, and protocol-specific attacks, the study underscores the urgent need for robust security measures. Specific attention is given to jamming attacks on WiFi and Wireless Sensor Networks (WSNs), revealing methodologies that can compromise the availability and functionality of networks and connected devices. Findings highlight various attack patterns, including constant, reactive, and deceptive jamming techniques, which efficiently disrupt smart home communications. Additionally, research on rogue IoT device injection through WiFi mesh networks exposes architectural vulnerabilities that enable unauthorized device entry and potential system manipulation. The paper proposes a multi-tier security risk mitigation design incorporating frequency hopping, advanced authentication protocols, network segmentation, and continuous logging. Overall, this study presents a holistic approach to securing smart home networks by integrating physical-layer defenses, network protections, and state-of-the-art intrusion detection systems.

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Paper ID : 144	Next-Gen Shopping Experience: IoT-Based Smart Cart with Instant Billing <i>Track: Cybersecurity, Blockchain, and IoT</i>
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Not Selected for presentation and Publication

Abstract : The rapid growth of technology has paved the way for innovative solutions in retail, particularly through the development of IoT-based smart shopping carts. These carts aim to enhance the shopping experience by automating the billing process and reducing wait times at checkout counters. Utilizing technologies such as RFID, Bluetooth, and mobile applications, these systems

streamline the shopping process by enabling features like real-time product tracking, automated billing, and route optimization within stores. Additionally, smart carts can facilitate inventory management and provide valuable insights into consumer behavior, benefiting both customers and retailers. This paper explores various implementations of IoT-based smart shopping carts, highlighting their potential to transform the retail landscape.

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Paper ID : 145	DDoS Detection Using Hybrid Deep Learning Models
	<i>Track: Cybersecurity, Blockchain, and IoT</i>
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<i>Corresponding Author:</i> Divya.Lingineni@staff.vce.ac.in	

Not Selected for presentation and Publication

Abstract : Distributed denial of service attacks is a significant threat to networks, servers, and applications, disrupting services and responses and causing substantial financial loss and operational damage. There are many methods in DDoS detection, from statistical anomaly-based detection methods like entropy threshold-based techniques to deep learning approaches. But most of these methods face limitations in detecting the attacks accurately or have high computational costs. To address these issues, this paper proposes a hybrid deep learning model that combines multiscale convolution networks and transformer-based architectures. The multiscale CNN effectively identifies the local traffic anomalies, where both microscopic and macroscopic traffic variations are considered. The transformer encoder is used to extract the long-range dependencies in network traffic data, enabling better detection, including zero-day attacks. The proposed model shows significant improvements over existing solutions in terms of accuracy and computational cost where these models are used individually.

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Paper ID : 146	Hybrid Chaotic Diffusion Confusion Algorithm (HCDCA)
	<i>Track: Cybersecurity, Blockchain, and IoT</i>
DRL Prasanna, Vasavi College of Engineeringng	
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Not Selected for presentation and Publication

Abstract : Abstract: Encryption, in its simplest and broadest terms, is the act of obscuring or hiding valuable information, messages and data. The text is encrypted so that only the one that has the good key can see the real content or information. This paper addresses the problem of pixel-level scrambling by utilizing an augmented Rubik's 3 cube-based pixel-level scrambling along with an intuitive XOR-based diffusion, which enables secure transmission of multimedia data (i.e., image) over an untrusted channel. To avoid these kinds of attacks for even common/completed images, efforts like adaptive image content (i.e., plain image associated) based random value generation are

presented to obtain enormous plain image reaction. Then use the random value to generate the Henon map where we generated the key sequences that are required for Row and column confusion of Rubik's cubes by iterating at Henon map 6. Additionally, the same random depends participates in the based key generation procedure based on primary factorisation to be used in diffusion.

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Paper ID : 147	Integrating AI Into Sustainable Agriculture: Enhancing Crop Productivity And Resource Efficiency <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
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Session # VS2 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Agriculture is undergoing a technological transformation, with Artificial Intelligence AI playing a crucial role in improving efficiency, sustainability, and productivity. As farmers face challenges such as climate variability, resource shortages, and pest outbreaks, AI-driven solutions offer new possibilities for precision farming, real-time monitoring, and data-informed decision-making. This paper explores the role of AI in modern agriculture, focusing on its applications in precision farming, disease detection, irrigation management, and supply chain optimization. By analyzing recent advancements, this study highlights how AI-powered technologies, such as machine learning models, remote sensing, and autonomous systems, are improving decision-making for farmers. Additionally, the paper discusses the barriers to AI adoption, including infrastructure limitations and accessibility issues, while proposing strategies to bridge these gaps. The findings suggest that AI has the potential to revolutionize agricultural practices by reducing waste, optimizing resource use, and increasing productivity. Despite its potential, widespread AI adoption is hindered by factors such as high implementation costs, limited technological infrastructure, and the less awareness in rural communities. Addressing these barriers requires collaborative efforts between researchers, policymakers, and agribusinesses to develop accessible, cost-effective AI tools tailored to diverse farming needs. This study underscores AI's growing role in agriculture and highlights the need for strategic advancements to ensure its sustainable and equitable implementation.

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Paper ID : 148	Intelligent Child Safety System: Facial Recognition for Missing Child Identification with Real-time Email Alerts to Authorities
<i>Track: Agriculture, Social Good, and Emerging Technologies</i>	

sugunalatha chitturi; katuri yuvaraj; Maganti Anjani Prabha; Gayathri N; Karumuri Venkat, NRI Institute of Technology

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Not Selected for presentation and Publication

Abstract : Intelligent Child Safety System uses live video monitoring, face recognition, and automated email notifications for rapid child-abduction response. Ongoing feeds are monitored, and a constantly updating database has continuously compares a number of the children with Dlib's CNN and HOG-based detection methods, combined with another model based on VGG's CNN model for great results in even low-light, obscured faces and varied angles of facial positions. An instant alert is sent by email to law enforcement agencies, child-care agencies, and relevant bodies with an accompanying captured face once the match is made, thus allowing quick action. Also, real-time alerts go to an administrative dashboard, allowing the monitoring of recognition results and adjusting the settings of the alerts. Strong measures for security and privacy, such as access controls to sensitive information, are in place to ensure ethical and secure operation. This automated alert and decision-making facilitate effective real-time monitoring and response while greatly reducing traditional reliance on search. Enhancements for further improvements in accuracy and adaptability include multimodal biometric authentication, voice recognition, and predictive analytics. Under very challenging conditions, the system has high reliability due to its 95.0% accuracy, 93.0% precision, 95.2% recall, and an F1 score of 94.1%. It ensures precise detection of actual cases of missing children by reducing the number of false positive values. It can thereby deliver quick responses reliably since high F1 scores signify an equilibrium between recall and precision. Equipped with facial identification powered through AI, live monitoring, and an automated decision-making mechanism, Intelligent Child Safety is an effective and scalable tool for working through the course of retrieval for missing children.

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Paper ID : 149	CNN Based Suspicious Activity Detection using Security Surveillance
<i>Track: Computer Vision and Deep Learning</i>	

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Not Selected for presentation and Publication

Abstract : This research focuses on the development and evaluation of a custom Convolutional Neural Network (CNN) for detecting suspicious activities, specifically classifying images into robbery, shoplifting, and unknown activities using MATLAB 2023a. With the increasing demand for intelligent security solutions, automated surveillance systems have become essential for enhancing public

safety. This research presents a deep convolutional neural network (CNN)-based framework for suspicious activity detection in security surveillance. The proposed model leverages deep learning techniques to analyze image feeds in real time, identifying anomalous behaviors indicative of potential security threats. The system is trained on a diverse dataset of normal and suspicious activities, incorporating data augmentation and regularization strategies to improve generalization. Experimental evaluations demonstrate the model's effectiveness in accurately detecting suspicious actions with high precision and recall, outperforming traditional motion-based and rule-based detection approaches. The findings highlight the potential of deep learning in enhancing automated surveillance systems, reducing human monitoring efforts while improving threat detection accuracy. This research contributes to the development of more reliable and scalable security solutions, paving the way for further advancements in intelligent surveillance technology.

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Paper ID : 150	COMBATING CREDENTIAL FRAUD AND REVOLUTIONIZING CREDENTIAL AUTHENTICATION WITH BLOCKCHAIN TECHNOLOGY
	<i>Track: Cybersecurity, Blockchain, and IoT</i>
Varshitha Undavalli; C JAFFRIN MRS.LIJETHA, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology	
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Not Selected for presentation and Publication

Abstract : In order to ensure the legitimacy of certifications granted to individuals, credential verification is essential in the academic, professional, and organizational spheres. Conventional credentialing systems are susceptible to fraud, data manipulation, and verification inefficiencies since they depend on centralized authorities. Delays and higher operating expenses result from these systems' frequent lack of transparency, susceptibility to security breaches, and heavy reliance on manual validation. By offering a decentralized, unchangeable, and impenetrable credential verification process, blockchain technology presents a possible answer. Blockchain eliminates the dangers of data loss and illegal modifications by utilizing smart contracts and cryptographic security to enable transparent and secure record-keeping.

Using blockchain technology for credential verification improves efficiency, security, and trust while lowering the need for middlemen. Real-time validation is made possible by decentralized verification systems, which also reduce administrative burden and stop fraudulent credentialing. In order to ensure data integrity, digital security, and trust in academic and professional certificates, this study examines the effects of blockchain-based credential verification. The study also looks at the drawbacks and difficulties of integrating blockchain technology into extensive credentialing systems. MongoDB is used for scalable data storage, Next.js is used for front-end development, Node.js is used for back-end processing, and Solidity-based smart contracts are used for automation. Blockchain-based credential verification has the ability to completely transform digital trust and identity management by promoting security and transparency.

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Paper ID : 151	Stock Price Trend Analysis with Adaptive Hybrid Processing
	<i>Track: Optimization and Prediction</i>

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Not Selected for presentation and Publication

Abstract : Abstract: With rapid progress in deep learning, the prediction of share price movement has attracted considerable attention to the financial industry. This research increases existing function by integrating stock and news data for better prediction accuracy. A hybrid information mix module is proposed, using both time series of stock prices and cementic features from news or tweets. The original approach, which uses LSTM and Gru, is improved with a bidot layer to more efficiently remove and adapt the relevant properties. In addition, a clothing method is introduced, which combines several models predictions for stronger and accurate results. Experimental results exclude the previous model and show improvement in accuracy up to 85%. To facilitate user interactions, a flask-based front-end with authentication for testing in the real world is proposed. Increased hybrid models are proven effective in the prediction of ups and downs in the stock price in unstable markets, gain better accuracy, Mathew's correlation coefficient (MCC) and F1 score compared to traditional prospects.

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Paper ID : 152	AI Vs Real Image Classification Using Deep Learning
	<i>Track: Computer Vision and Deep Learning</i>

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Not Selected for presentation and Publication

Abstract : Abstract—The rapid advancement of artificial intelligence (AI) has led to the widespread generation of synthetic images, making it increasingly difficult to distinguish between AI-generated and real images. This paper presents a deep learning-based approach for real vs. AI image classification using the MobileNetV2 architecture. A dataset consisting of 24,000 real and 24,000 AI-generated images for training, along with 6,000 real and 6,000 AI-generated images for testing, is used to train and evaluate the model. The model is fine-tuned with data augmentation techniques and optimized using an adaptive learning rate schedule. Experimental results demonstrate the model's effectiveness in identifying AI-generated images with high accuracy, achieving a robust classification performance. The proposed system is further integrated into a web-based interface using Flask, allowing users to upload images and obtain real-time predictions. The findings highlight the significance of deep learning in addressing digital authenticity challenges and ensuring the reliability of visual content.

Keywords—Deep Learning, AI-Generated Images, Image Classification, MobileNetV2, Flask

Deployment, Digital Image Authentication, Real vs. AI Detection

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Paper ID : 153	Gender Recognition Through Face Using Deep Learning <i>Track: Computer Vision and Deep Learning</i>
JYOSTNA GEETHAM; Sangana Likhitha ; Tadisetti Sai Amruth ; Vinnakota Lakshmi Siva Vinay Sachin ; Tamarana Devika, NRI Institute of Technology	
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Session # PS12 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Gender classification the use of deep learning plays a essential feature in applications together with biometric protection, personalized advertising and marketing and advertising, and human-laptop interplay. Traditional class techniques often depend on hand made features, making them less powerful in coping with versions at the side of lights, pose, and facial expressions. To deal with these traumatic conditions, this paper proposes a deep studying based totally approach using the cashutosh/gender-classification-dataset for reducation and evaluation. This proposed version employs ResNet50, a robust convolutional neural network (CNN), fine-tuned for gender identification. Advanced preprocessing techniques, together with normalization, Data augmentation and Transfer learning, beautify version robustness and accuracy. The version is optimized for the use of the adam optimizer with binary cross-entropy loss, ensuring strong convergence. To offer an interactive and real-time type enjoy, a Gradio interface is included, permitting clients to upload photos and acquire on the Real-Time predictions. Experimental effects show the effectiveness of the proposed technique, achieving an accuracy of 97% , Precision of 96.9%, Recall of 97%, and F1-Score of 96.9%. These outcomes spotlight the version's capacity to generalize well across diverse facial features, making it suitable for actual-global programs requiring reliable gender classification.

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Paper ID : 154	HYENA-CNN BASED JOB RECOMMENDATION SYSTEM WITH DYNAMIC FFT CONVOLUTION <i>Track: NLP and Multimodal AI</i>
Jyostna Geetham; Jitendra Gudela ; Meghanasukeerthi Boddu ; Sujitha Gorumuchu ; Chaithanya Chapparapu, NRI Institute of Technology	
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Not Selected for presentation and Publication

Abstract : In this context, the development of the deep learning-based job suggestion system enhances job suggestion efficiency and accuracy. This system mainly focuses on listing job suggestions based on user experience and skills. For training the predictive model for job categorization using user data, this system employs a job title, primary skill, and other category

dataset related to job data. The architecture of the deep neural network includes word embeddings, convolutional neural networks, and dense layers for classification and feature extraction. The model performance is evaluated in this study using significant parameters like accuracy, recall, F1-score and precision. For handling imbalanced datasets, techniques like data augmentation and weighted loss functions are employed to achieve model performance for various job categories in the marketplace. Model training applies early stopping to avoid overfitting, which blocks additional errors and enables healthy stability. Such a system improves job classification by using sequential text processing and deep learning methods, significantly enhancing the effectiveness of job matching. In addition, such a model also corrects overfitting by utilizing Conv1D instead of Conv2D, refining the feature extraction process of sequential text data. The deep neural network model consists of word embeddings, Hyena-based dynamic filter layer, convolutional neural networks (Conv1D), and fully connected layers for classification and feature extraction. The article emphasizes the need to implement a hybrid deep learning-based recommendation system better than conventional models like SVM and Random Forest by combining CNN with Hyena Layer-enhanced text processing for increased job applicability.

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Paper ID : 155	Cryptocurrency Market Financial Risk Management Using Machine Learning <i>Track: Optimization and Prediction</i>
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Not Selected for presentation and Publication

Abstract : Cryptocurrency is widely recognized as a significant player in the global financial landscape, yet it brings along a variety of risks that challenge risk assessors. From its inception, the rise of cryptocurrencies has introduced numerous threats, ranging from opportunities for money laundering to potential impacts on financial institutions. Organizations dedicated to financial oversight, such as anti-money laundering agencies, banks, risk management experts, and compliance officers, are constantly navigating the complexities associated with cryptocurrency transactions. These transactions often involve users attempting to obscure illegal funds, presenting a unique set of hierarchical risks that need to be carefully evaluated. A thorough accounting framework is essential for understanding the inherent risks tied to cryptocurrencies, particularly regarding how often these risks might manifest. Decisions around cryptocurrency risks frequently come down to the possibility of unauthorized access to private keys, which can compromise security. Having experienced professionals handle cryptocurrency transactions can significantly mitigate risks. When it comes to managing hierarchical risk, achieving a balance can lead to improved outcomes and better overall risk management strategies. The results indicate that the proposed model remains consistent and effective at various stages, demonstrating strong estimates of covariation that hold up under scrutiny.

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Paper ID : 156	GUARDIAN WHEEL - AN ADVANCED WHEELCHAIR FOR DISABLED PEOPLE <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
	Pradeep Mredhula; Ps Akshara; Amal Aleesha; K Nair Midhun; Evos Suresh; G Keerthana, Nehru College Of Engineering & Research Centre, Pambadi, Thiruvilwamala
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Session # VS2 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This paper details the creation and implementation of the "Guardian Wheel," a sophisticated wheelchair platform engineered to substantially improve freedom of movement and self-reliance for people with mobility impairments. The proposed wheelchair integrates multiple cutting-edge technologies to enhance both user experience and safety. Key hardware features include joystick control, voice command functionality, mobile app integration, obstacle detection, an anti-falling system, and gesture control, all coordinated through an ESP32 microcontroller. The system utilizes a combination of sensors to facilitate intuitive user interaction and ensure seamless, responsive operation. Its movement is powered by mechanical components such as a wiper motor, gear, crank, sprocket, chain, and battery, providing smooth and reliable motion. Individuals with mobility impairments gain significant independence and enhanced safety through this sophisticated design, which addresses their complex needs. The integration of these technologies into a single cohesive system marks a significant advancement in wheelchair design, demonstrating how modern technologies can be harnessed to provide innovative, accessible, and safer solutions for people with disabilities. This research also highlights the potential for future improvements and broader applications in assistive mobility devices.

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Paper ID : 157	Enhancing Real-Time Performance in Mobile Edge Computing Through Age-Aware Deep Reinforcement Learning <i>Track: Optimization and Prediction</i>
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Session # PS7 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Mobile Edge Computing (MEC) is growing fast. Many real-time applications use it to process information quickly. The freshness of information is very important. Age of Information (AoI) measures how fresh the data is. Lower AoI means the data is new. Higher AoI means the data is old. Many systems assume data is updated regularly. However, some MEC applications update data only when an event happens. Also, this data needs extra processing before it is useful. This paper redefines AoI to include processing time. The paper studies how to reduce AoI in MEC systems. The goal is to minimize AoI while managing system constraints. These constraints include bandwidth, energy and system resources. The problem is modelled as a Markov Decision Process (MDP).

MDPs help in making decisions when future states depend on present actions. Reinforcement Learning (RL) can solve MDPs. However, traditional RL methods take a long time to learn. To speed up learning, the paper introduces Post-Decision States (PDSs). PDSs help the system use some known information. This makes learning faster and more efficient. Deep Reinforcement Learning (DRL) is used along with PDSs. DRL helps handle large and complex systems. The new method improves scalability and performance. The proposed method was tested in different scenarios. The results show that it works better than other methods. The new method reduces AoI more efficiently. It also uses less energy and resources. This makes it better for real-time applications. This paper improves AoI management in MEC systems. It uses DRL with PDSs to find better scheduling policies. The results show better performance compared to existing methods. This work can help future MEC applications process data faster and more efficiently.

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Paper ID : 158	Enhanced Financial Risk Analysis through Volatility Clustering Models for VaR Estimation <i>Track: Optimization and Prediction</i>
Bhatt Kushal, California State University, USA <i>Corresponding Author:</i> kmbhatt@csuchico.edu	

Not Selected for presentation and Publication

Abstract : This study proposes a novel approach for financial risk analysis by applying volatility clustering techniques to improve Value-at-Risk (VaR) estimation. Recognizing the limitations of traditional GARCH models in capturing abrupt market volatility changes, we develop a volatility clustering partition model using Fisher's optimal dissection to dynamically segment time series data. Our model demonstrates significantly improved accuracy in forecasting volatility compared to GARCH, particularly during periods of financial instability. These insights enhance risk management applications by providing more reliable VaR forecasts, thereby supporting better-informed decision-making under volatile market conditions. The findings underscore the advantages of clustering methodologies in risk assessment and contribute a robust tool for financial risk forecasting.

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Paper ID : 159	Neural Networks for Individual Risk Assessment in Financial Decision-Making <i>Track: Optimization and Prediction</i>
Bhatt Kushal, California State University, USA <i>Corresponding Author:</i> kmbhatt@csuchico.edu	

Not Selected for presentation and Publication

Abstract : In the modern financial landscape, individual investors frequently make decisions without fully understanding the risks involved. This paper explores the use of neural networks to assess individual financial risk profiles. A questionnaire was developed to capture personal risk

determinants, which were then used as input for a neural network model aimed at classifying individuals into distinct risk categories. Due to limited questionnaire data, additional datasets from financial marketing and demographic sources were used to supplement the analysis. Results indicate that neural networks, compared to traditional methods such as Support Vector Machines (SVMs), offer promising performance in classifying individuals based on their financial risk profiles. The findings suggest that neural networks can serve as a valuable tool for banks and financial advisors in tailoring investment recommendations according to individual risk tolerance. Future work will focus on refining data collection and expanding the dataset to improve model accuracy.

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Paper ID : 160	Implementing FinOps in Open-Source Ultrasound Hardware Development: Optimizing Cost Efficiency and Resource Allocation <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Bhatt Kushal, California State University, USA <i>Corresponding Author:</i> kmbhatt@csuchico.edu	

Not Selected for presentation and Publication

Abstract : The development of open-source ultrasound equipment platforms offers significant opportunities for cost-effective and accessible medical and non-destructive testing solutions. However, to sustain and scale such open-source initiatives, applying Financial Operations (FinOps) principles is crucial. This paper investigates the role of FinOps in the open-source ultrasound equipment domain, emphasizing cost management, budget optimization, and resource allocation. It analyzes various financial models, cost-control practices, and strategies for managing cloud-based computational resources in ultrasound equipment development. Adopting FinOps methodologies not only improves financial control but also enhances the ability to deploy scalable and affordable ultrasound solutions.

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Paper ID : 161	MACHINE LEARNING-BASED CLIENT-SIDE DEFENSE AGAINST WEB SPOOFING ATTACKS IN PHISHING PREVENTION <i>Track: Cybersecurity, Blockchain, and IoT</i>
VANGURI RAJA, Sree Vahini Institute of Science & Technology <i>Corresponding Author:</i> rajaraovanguri@gmail.com	

Session # PS5 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Cyber security has considerable challenges in protecting the confidentiality and integrity of user information, including passwords and PINs. Every day, billions of users unknowingly visit fake login pages requesting their sensitive pieces of information. Attackers use several methods, such as phishing emails, enticing advertisements, click jacking, malware, SQL injection or session hijacking, man in the middle, denial of service, and cross-site scripting attacks. Spoofing web pages

or phishing comprises creating copies of original web pages to obtain credentials from users. Numerous security strategies have been recommended to avoid these threats, but most of them suffer from latency and accuracy issues. This paper proposes and implements a client-side defense mechanism by means of machine learning.

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Paper ID : 162	Generative AI Programming Language Translator
	<i>Track: NLP and Multimodal AI</i>
Malla Venkata Pavan Uma Maheswara Rao; Prabhkar Pepala ; Shaik Azeez ; Chetan Rao Torlikonda ; Mahalakshmi Durga Yenuganti, NRI Institute of Technology	
<i>Corresponding Author:</i> malla.uma9@gmail.com	

Not Selected for presentation and Publication

Abstract : The "Gen-AI Programming Translator with Gemini API" is an AI-based interfacing capability that creates translation between languages in the programming domain with great ease. It relies on some advanced generative AI methodologies in converting code from programming language to some other programming language, thus allowing code interoperability and developer productivity enhancements. Using the amazing potential of the Gemini API, the translator provides precise and context-aware translations that allow programmers to bend their code into a new widget without manually doing such. This reduces the mundane routine of what has traditionally been a manual, tedious process by providing an interactive web-based UI instead of a CLI for the tool, allowing users to enter code and to enter the output language of choice directly. By applying a multi-layered syntactic and semantic analysis scheme, the guarantee is obtained that the translated code maintains the logic along with its functionality established by the original code. Moreover, its user interface retains a certain simplicity, while allowing languages to be altered according to different development needs the project aims to enhance productivity by reducing translation errors and providing automatic development across languages, a priceless asset because software engineering is so fast-moving and constantly under development.

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Paper ID : 163	PREDICTING THE FUTURE AI TECHNIQUES FOR CRYPTOCURRENCY VALUATION
	<i>Track: Optimization and Prediction</i>
Malla Venkata Pavan Uma Maheswara Rao; Bhavana Jamalpur; Bhadrinath V.S.S.D ; Naik Devath Vivek ; Praveen Boyina, NRI Institute of Technology	
<i>Corresponding Author:</i> malla.uma9@gmail.com	

Not Selected for presentation and Publication

Abstract : The notorious instability of the Cryptocurrency markets, especially Bitcoins, is a huge project for traders and investors trying to make accurate costs. The unexpected value of Bitcoin

affects through different market elements, which causes serious risk to those who want to navigate this risky environment. The ups and downs of Bitcoin taxes emphasize a significant desire for reliable predicted techniques that can reduce monetary losses and help marketers notify.

Exact Bitcoin taxes are important because they enable investors to make better decisions, reduce threats and capitalize opportunities in the market. However, traditional forecasting strategies fought to seize complex, sequential styles in Bitcoin fee registrations. The unstable character of the Cryptocurrency market requires additional advanced processes that are able to process large versions of time collection information. Getting knowledge of machine strategies, especially designed to work with sequential data, provides a possible solution to this challenge.

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Paper ID : 164	Enhancing Healthcare Decisions: Predicting Hospital Stay with Explainable ML
<i>Track: Healthcare and Medical Diagnostics</i>	
	Malla Venkata Pavan Uma Maheswara Rao; Reddy Puritipati Harsha Vardhan ; Vyshnavi Sistla Ganesh ; sharma Vutukuru Gopicharan; Vidya Sree Palli
	NRI Institute of Technology
	<i>Corresponding Author:</i> malla.uma9@gmail.com

Not Selected for presentation and Publication

Abstract : Efficient bed control in hospitals minimizes prices and enhances patient effects. This observation offers a predictive framework for Intensive Care Unit (ICU) period of life (LOS) at admission, leveraging digital fitness statistics (EHR) facts. Using the hospital live dataset from the Kaggle repository, diverse tool gaining knowledge of algorithms—which includes Logistic Regression, Random Forest, Multilayer Perceptron (MLP), Gradient Boosting, XGBoost, and a complicated CatBoost extension—had been evaluated primarily based on AUC, accuracy, precision, don't forget, and F1-rating. While XGBoost performed the very best accuracy among traditional models, the extended CatBoost set of policies outperformed all, reaching an outstanding 98.25% accuracy. CatBoost's potential to deal with specific information and optimize education capabilities through iterative selection timber appreciably progressed predictive universal performance. To make sure transparency and interpretability, Explainable AI (XAI) techniques, which includes SHAP, were hired to research feature contributions, imparting important insights into the factors influencing ICU stay length. This have a observe highlights the capacity of mixing affected individual EHR data with superior, interpretable system analysing models to decorate ICU stay predictions, ultimately supporting higher useful resource allocation and selection-making in hospitals.

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Paper ID : 165 Heart Stroke Risk Prediction Using Machine Learning Algorithms

Track: Healthcare and Medical Diagnostics

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Session # PS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Abstract: To develop a predictive model capable of reliably predicting an individual patient's risk of heart disease according to a set of specific medical characteristics. The objective is thus to enable timely diagnosis and possible intervention for improved patient outcomes and efficiency within a health care system. Such a project includes the data analysis of heart disease data set of the UCI Machine Learning Repository with Python and Jupyter Notebook. There is data manipulation using the libraries like numpy, pandas, and sklearn.Model_selection, to split the data set into training and test sets, and using Flask as a lightweight back end framework in handling Web requests and returning templates. Predictive models Logistic regression, KNN, random forest, and decision tree will be implemented to test the presence of heart disease based on different medical attributes. In case of heart disease for the subject, precautionary measures and signs of heart stroke are advised and if not, he/she is given warning signs of a heart stroke and preventive measures. These medical attributes are trained under five algorithms which are Logistic regression, K-Nearest Neighbour, Random Forest Classifier, Decision tree, XG-boost. Most efficient of these algorithms is Random Forest which provides us with the accuracy of 95.4%. And, lastly we classify patients who are at risk of developing a heart disease or not and also this approach is completely cost efficient.

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Paper ID : 166 Automated Check Tray Inspection using Image Processing towards a Sustainable and Optimized Shrimp Aquaculture Farming

Track: Agriculture, Social Good, and Emerging Technologies

Penmatsa Ravi Kiran Varma; Adabala Pavan Satya Prakash; Chinta Ramanji; Erra SI Pranay, Sagi Rama Krishnam Raju Engineering College

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Session # PS9 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Farmers of shrimp aquaculture use check trays to inspect the shrimp wellbeing, shrimp count, and most importantly feed consumption percentage. So that, they can optimize the feeding quantity towards a sustainable, optimized, economical aquaculture. Manual inspection has certain limitations like time consumption, labor intensive, movement of check trays creating pressure on shrimps, etc. We built an automatic monitoring system which uses deep learning and computer vision to measure feed intake and determine the number of shrimps in aquaculture environments. The proposed system addresses two critical challenges in shrimp farming: an innovative system delivers

exact feed usage data and keeps track of shrimp populations. This feed monitoring system uses ResNet50 for classifying feed percentages. Our system uses YOLOv5 for shrimp counting. The combined approach builds a full monitoring tool for farmers to manage feed delivery and watch how their shrimp populations change. Testing shows our system works well to tell feed levels and count shrimp while helping farmers save feed and work more efficiently. Our model achieved a mean average precision (mAP) of 81.6% and an F1-score of 82.6% in shrimp feed percentage classification.

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Paper ID : 167	Air-pollution prediction in Andhra Pradesh Using LSTM Model <i>Track: Optimization and Prediction</i>
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Session # VS5 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : As a result of human activity, industrialization, and urbanisation over the past few decades, air pollution has become a significant threat to human life in many parts of the world. The most hazardous aspects of air pollution are particulate matter (PM) and respirable particulate matter (RPM) (RSPM). These parts aren't longer than 2.5 meters (PM2.5) or 10 meters (PM10). It could lead to various health issues, including problems with the heart and lungs. Because of this, it is crucial to provide people with an accurate forecast of PM2.5 and PM10 concentrations to protect them from the harmful effects of air pollution. Still, the changes in PM2.5 and PM10 depend on several factors, including weather conditions and the presence of other air pollutants. So, we made a deep learning technique based on the LSTM model to predict monthly PM2.5 and PM10 concentrations in Andhra Pradesh State, India, using meteorological data and PM2.5 and PM10 concentrations measured at nearby stations. We also evaluated how well each LSTM model performed. Based on the experimental results, our method, referred to as the LSTM Model, yields more accurate estimates.

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Paper ID : 168	Privacy-Enhanced Federated Restaurant Recommendation System with Adaptive Context-Aware Learning <i>Track: NLP and Multimodal AI</i>
	Chavala Santhi; Surendra Kumar Marrapu, NRI Institute of Technology <i>Corresponding Author:</i> shantichavala@gmail.com

Session # PS3 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This paper presents a novel privacy-enhanced federated restaurant recommendation system that addresses the fundamental challenges of secure and personalized dining suggestions. Our approach introduces a context-aware multi-feature learning framework incorporating temporal dynamics, location sensitivity, and cuisine preferences while maintaining robust privacy guarantees through local differential privacy. By implementing an adaptive optimization algorithm with rush-hour awareness and distance-based learning rate adjustments, our system dynamically responds to real-world dining patterns. Experimental evaluations on comprehensive restaurant datasets demonstrate superior performance, achieving an ϵ -differential privacy guarantee of 0.1 while maintaining high recommendation accuracy (0.9758), precision (0.9958), and F1 score (0.9856), significantly outperforming existing platforms like Swiggy and Zomato. The model exhibits robust adaptation to peak dining hours with a 20% improvement in rush-hour recommendation relevance and a 15% enhancement in location-sensitive suggestions, while maintaining strict privacy standards. Our solution achieves an optimal balance between privacy protection, real-time responsiveness, and personalized restaurant recommendations.

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Paper ID : 169	DIABETES PREDICTION USING GRADIENT BOOSTING <i>Track: Healthcare and Medical Diagnostics</i>
	Mesram Akash ; Aedudodla Yashwanth; Gujarathi Trilok, Veltech university <i>Corresponding Author:</i> vtu19971@veltech.edu.in

Not Selected for presentation and Publication

Abstract : Diabetes is a prevalent and chronic metabolic disorder that has increasingly become a global health crisis. Early and precise detection is crucial in mitigating the severe complications associated with diabetes, such as cardiovascular diseases, kidney failure, and neuropathy. This research presents an advanced predictive model utilizing the eXtreme Gradient Boosting (XGBoost) algorithm, specifically fine-tuned to enhance both accuracy and efficiency in diabetes prediction. Our model incorporates sophisticated techniques including hyperparameter tuning, feature selection, and ensemble learning to improve predictive capabilities. Through comprehensive evaluations conducted on the PIMA Indian Diabetes Dataset (PIDD), our findings reveal that the proposed model significantly outperforms traditional classifiers in terms of accuracy and computational efficiency. This study highlights the immense potential of gradient boosting-based models in assisting healthcare professionals with early-stage diabetes detection, and it presents a robust framework for

integrating machine learning techniques into clinical decision support systems.

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Paper ID : 170	A Quantum-Enhanced Vision Transformer Framework with Hybrid Optimization for Efficient Tomato Leaf Disease Detection <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
	Malla Venkata Pavan Uma Maheswara Rao; Navya Dadi, NRI Institute of Technology <i>Corresponding Author:</i> malla.uma9@gmail.com

Session # PS9 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The present study proposes a novel optimization framework for tomato leaf disease detection, combining Quantum Vision Transformers (QViT) with a hybrid optimization strategy. The global parameter search utilizes quantum annealing, q-PSO for feature selection, and an enhanced Adam optimizer with quantum momentum for fine-tuning, consequently greatly reducing model convergence time. This new algorithm exploits quantum superposition states to visit many different parameter configurations at the same time, while a customized entropy-based loss function guides optimization towards the best accuracy in disease detection. With 50,000 tomato leaf images in the test dataset, experimental results suggest this hybrid approach performs better than conventional optimization methods: it achieves 98.5% accuracy when identifying four major tomato diseases (early blight, late blight, leaf mold and mosaic virus) and reduces training time by almost two-thirds. The system keeps working well in many different environmental states and periods for the growth of tomato plants. This sets a new benchmark for efficient and accurate plant disease detection.

Keywords: Quantum Vision Transformers (QViT), Plant Disease Detection, Quantum-Adaptive Optimization, Hybrid Optimization, Tomato Leaf Analysis, Quantum-inspired PSO, Disease Classification

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Paper ID : 171	Medicine Recommendation System Using Machine Learning <i>Track: Healthcare and Medical Diagnostics</i>
	Ankem Tarak Ram; Sura Avinash; Vangada Aakash ; Ramakuri Keerthana; Simhadri Nagadurga, NRI Institute of Technology <i>Corresponding Author:</i> tarakram8999@gmail.com

Not Selected for presentation and Publication

Abstract : Personalized medicine recommendation systems are becoming increasingly popular for forecasting diseases and delivering customized health guidance on diet, workout routines, and medications. These systems prove highly beneficial, particularly in times of pandemics and natural disasters, by enabling remote healthcare solutions. By utilizing machine learning models such as Decision Tree, Random Forest, K-Means Clustering, and Hierarchical Clustering, the system

processes patient data, including lifestyle patterns, symptoms, and health indicators, to provide precise disease predictions and comprehensive health recommendations. Experimental findings reveal that the Random Forest algorithm achieves 94.2% accuracy, surpassing the Decision Tree model (89.5%). Additionally, clustering techniques enhance patient classification, leading to more effective recommendations. This multi-model approach ensures a well-rounded and personalized health support system, significantly enhancing disease management. By offering accurate dietary suggestions, optimized workout plans, and suitable medications, the system promotes healthier living and strengthens preventive healthcare, ultimately leading to improved health recovery results.

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Paper ID : 172	Sentimental Analysis of Amazon Reviews for Brand Reputation and Crisis Management Using BERT and Distil-BERT <i>Track: NLP and Multimodal AI</i>
Jonnala Naga Surekha; Avidi Sneha Sanjana ; Katta Sri Sai Nanaji Chowdary ; Kokkirapati Ravi Teja; Puleru Harshini, NRI Institute of Technology	
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Session # PS13 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Large volumes of customer feedback are generated by the rapid growth of e-commerce platforms like Amazon, offering important insights into customer satisfaction and concerns. Aiming to categorize 24,948 Amazon product reviews into positive, neutral, and negative emotions, this study employs two sophisticated transformer-based models, BERT and Distil-BERT. The dataset was prepared for analysis using data preprocessing techniques such as sentiment labelling, tokenization, and noise reduction. The study illustrates the potential of BERT and Distil-BERT for large-scale sentiment analysis in e-commerce by balancing high accuracy with computational efficiency. Businesses can use these models to detect customer demands, improve products, and enhance customer satisfaction by deriving actionable insights. Distil-BERT's speed and scalability enable real-time feedback monitoring, while BERT is better suited for robust contextual analysis. Future research could optimize sentiment analysis further by applying these techniques to multilingual datasets and exploring hybrid modelling approaches. The outcomes highlight the novel significance of contemporary natural language processing in understanding consumer feedback and driving corporate innovation. With an accuracy of 92.75%, BERT demonstrated its capability to handle complex expressions such as sarcasm and mixed sentiments, while Distil-BERT, developed with efficiency in mind, was 60% faster and achieved 95.20% accuracy, making it ideal for real-time applications.

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Paper ID : 173

INTELLIGENT RECIPE RECOMMENDATION SYSTEM WITH HEALTH INSIGHTS USING ENSEMBLE LEARNING AND TRANSFER LEARNING

Track: NLP and Multimodal AI

Mathe Suneela; Jonnalagadda Kannamma, Andhra Loyola Institute of Engineering and Technology

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Not Selected for presentation and Publication

Abstract : In today's fast-paced world, it is incredibly important to prioritize a nutritious diet to tackle the demands of the modern life. To assist individuals in making nutritious food choices, this project proposes a novel approach combining transfer learning and MobilenetV2 architecture for recipe recommendation augmented with health insights. The methodology leverages pre-trained deep learning models to extract features from recipe images and classify them into various food categories. Furthermore, nutritional analysis and health insights are integrated to provide users with comprehensive information regarding the healthiness of recommended recipes. The system aims to empower users in making informed dietary decisions, thereby promoting a healthier life style. Evaluation results demonstrate the effectiveness and efficiency of the proposed approach in delivering personalized and health-conscious recipe recommendations.

Keywords: Ensemble learning, Mobile netv2, Transfer learning, Random Forest, Nutritional Analysis, Food classification, Image recognition, Feature extraction.

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Paper ID : 174

SMART ELECTRIC VEHICLE BATTERY HEALTH MONITORING AND FIRE PREVENTION WITH ARDUINO UNO

Track: Cybersecurity, Blockchain, and IoT

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Session # VS3 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : As electric vehicles (EVs) gain widespread adoption, concerns regarding their safety—particularly the risk of battery fires—have also increased. These fires present significant challenges due to the high energy density of lithium-ion batteries and the potential for thermal runaway. This study introduces an automated fire suppression system specifically designed for EVs to enhance safety and mitigate fire-related risks. The system, developed using Arduino software, continuously monitors battery levels through integrated sensors. Upon detecting abnormal heat levels, it automatically activates extinguishing mechanisms to prevent escalation. This proactive approach helps minimize property damage, reduce the likelihood of injuries, and provide timely alerts to the rider for safe evacuation. Additionally, the system is designed to lower the risk of battery explosions and protect the vehicle from severe fire-related destruction. By improving safety

measures in EVs, this research aims to build greater trust and confidence in their widespread use

Keywords: Arduino uno, Flame Sensor, MQ2 sensor, GPS Tracker, GSM module, LCD display, Buzzer.

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Paper ID : 175	An Empirical Analysis of Machine Learning Models for Graph-Based Medicine Recommendation Systems <i>Track: Healthcare and Medical Diagnostics</i>
<p>Nivrutti Bedade Jayshree, MET Institute of Engineering and Research Centre <i>Corresponding Author:</i> drprofessors1@gmail.com</p>	

Not Selected for presentation and Publication

Abstract : The exponential growth in medicine data, specifically in pharmacology and patient care, has necessitated more advanced and nuanced approaches for medicine recommendations. This paper presents a comprehensive empirical analysis of various machine learning models for graph-based medicine recommendations—a critical component in the decision-making process for healthcare professionals. The models studied include content-based, user-based, item-based, clustering, Deep Neural Networks (DNNs), Matrix Factorization, and Hybrid Models. These models are rigorously evaluated against six key metrics: precision, accuracy, recall, delay, scalability, and computational complexity. The importance of this analysis is twofold. First, it addresses the clinical need for more efficient and effective medicine recommendation systems by enabling evidence-based decisions. Such optimization can lead to quicker diagnoses, fewer errors, and more personalized healthcare plans, thereby improving patient outcomes and potentially reducing healthcare costs. Second, this analysis serves as a comprehensive guide for medicine professionals in understanding the strengths and limitations of each model, aiding in the selection of appropriate algorithms for their specific needs. This paper also covers some traditional methods, and some methods which need special mentions due to their applicability under real-time scenarios. Our analysis reveals varying degrees of performance among the models, with no single model excelling in all the metrics. This nuanced insight is invaluable for clinicians, researchers, and healthcare administrators in implementing more effective and reliable medicine recommendation systems. By offering a data-driven comparison of the most widely-used machine learning models, this paper fills a crucial gap in the existing literature and paves the way for optimized, personalized Medicine in the age of big data and artificial intelligence operations.

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Paper ID : 176	Deep CNN-Based EEG Signal Analysis for Early Detection of Alzheimer's Disease
	<i>Track: Medical Imaging and Bioinformatics</i>

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Not Selected for presentation and Publication

Abstract : Alzheimer's Disease (AD) is a progressive neurodegenerative condition that severely affects memory, cognitive capacities, and overall brain function, with early diagnosis being crucial for timely medical intervention and better patient outcomes. Electroencephalography (EEG) is a promising non-invasive tool for monitoring brain activity and identifying abnormal neural patterns associated with Alzheimer's. This study presents a deep learning-based framework for the automatic diagnosis of AD using a Deep Convolutional Neural Network (CNN) trained on EEG signals. Implemented in MATLAB, the raw EEG data is preprocessed through bandpass filtering and normalization to remove irrelevant frequencies and focus on the Alpha (8–12 Hz) and Beta (13–30 Hz) bands. Meaningful features are extracted using Wavelet decomposition and PCA, which are then classified through a 1D Deep CNN classifier. The system provides real-time diagnostic results displayed on an LCD screen. Experimental results demonstrate that the proposed model achieves one of the highest accuracies in classifying Alzheimer's and normal EEG signals compared to state-of-the-art algorithms, making it suitable for clinical diagnosis and real-time healthcare applications.

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Paper ID : 177	Optimizing Vegetable Sorting in Food Processing Plants using AI-Powered PLC and HMI Systems
	<i>Track: Agriculture, Social Good, and Emerging Technologies</i>

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Not Selected for presentation and Publication

Abstract : The growing need for quality assurance in food processing sector has revealed the drawbacks of manual sorting of vegetables, including variation, inefficiency and high labor costs. In order to enhance sorting accuracy and operational efficiency, this paper proposed an automatic sorting system of vegetable quality applied with AI, PLC, and HMI. To give a broader ideology that our work in this proposal, the system consists of a custom-designed machine learning algorithm known as AGROSORT-ML designed to categorise vegetables into First Quality, Second Quality, Third Quality, Rotten, and Not Ripe. A Delta PLC receives the results of the classification, and controls some conveyor mechanisms and pneumatic actuators to sort the vegetables. For real-time monitoring, configuration, and control, Delta HMI had been employed as an interactive platform where operators could select the type of vegetable they want to sort and monitor the sorting process. Results should inspire confidence in sorting systems at large scale, as the experimental validation demonstrates improved precision, lower probability of human error, and enhanced throughput relative to mother sorting techniques. The system is modular design enables scalability with cloud-

based analytics, AI on ripeness detection, classifying multiple vegetables, and other enhancements, making it a next-generation solution for modern food processing plants

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Paper ID : 178	SENSOR-BASED QUALITY MONITORING IN BRICK MANUFACTURING
	<i>Track: Cybersecurity, Blockchain, and IoT</i>
P S Suvitha, Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology <i>Corresponding Author:</i> mswedha712@gmail.com	
## Not Selected for presentation and Publication ##	

Abstract : A quality management system for the brick industry using sensors, which aims to optimize brick production processes through higher efficiency and accuracy. Traditional methods of quality control in the brick manufacturing industry rely on manual measurements, which are time-consuming and prone to errors. The proposed system integrates various sensors in automation and measures brick dimensions, density, for immediate feedback on the quality of each brick. The length of the brick is captured during motion on the conveyor belt and the width and height is measured using the ultrasonic sensor. Whenever the brick meets preset quality criteria, the system results in an LCD module by providing a signal regarding its acceptance in further processing. The bricks, which qualify after this first test, are further weighed by a load cell to measure the mass and the volume is determined with the aid of dimensions measured from these the density is measured. The sensor-based technology provides quality control by applying low human contact along with the accuracy of the measures. It leads to increased efficiency and labor saving and more exact quality measurements

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Paper ID : 179	CF-OKF Enable Autonomous Shopping Assistant Bot with Real-Time Inventory Management and Automatic Billing
	<i>Track: Agriculture, Social Good, and Emerging Technologies</i>
L ganesh babau, Rajalakshmi Engineering College <i>Corresponding Author:</i> ganeshme68@gmail.com	
## Not Selected for presentation and Publication ##	

Not Selected for presentation and Publication

Abstract : This paper proposes an advanced Customer-Following Optimized Kalman Filter (CF-OKF) for real-time customer tracking in a smart shopping assistant bot. The system integrates ultrasonic sensors and a camera to detect customer movement and dynamically adjust the bot's position. The Kalman Filter (KF) is optimized to handle noise and predict accurate customer positions, while mecanum wheels allow seamless omnidirectional movement. The tracking system incorporates real-time obstacle avoidance and auto-resume recovery mechanisms to enhance robustness. Experimental results demonstrate improved tracking accuracy, lower error rates, and smooth navigation in dynamic retail environments.

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Paper ID : 180

YOLO v5 – Enabled UV Sterilization Bot with Adaptive A8 Path Planning for safe and Optimal Disinfection

Track: Agriculture, Social Good, and Emerging Technologies

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Not Selected for presentation and Publication

Abstract : This work presents a high-tech smart UV sterilization robot that uses deep learning and intelligent path planning to improve sterilization in controlled indoor environments. The model is implemented on a laptop using the YOLOv5 pre-trained algorithm and can easily identify human presence and thus the system will turn off UV disinfection whenever any human is identified ensuring that the human body is not exposed to harmful ultraviolet rays. This robot uses the A* (A-Star) path planning algorithm for efficient and complete area coverage, dynamically determining the best paths to take around those obstacles while steering clear of areas that have already been disinfected. An ultrasonic mounted on a servo assists with obstacle detection, enabling playful manoeuvring in complex indoor environments. Designed to enhance hygiene standards while prioritising energy efficiency, cost-effectiveness and operational safety, this fully autonomous solution complements its existing innovations. Tailored for scalability and cultural significance, this solution is well-poised for mass adoption across Indian healthcare assets, schools, and workplaces, as it meets the rising demand for effective, contactless disinfection networks in the post-COVID world.

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Paper ID : 181

IoT-Based System for Fall Prevention and Real-Time Health Monitoring

Track: Cybersecurity, Blockchain, and IoT

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Not Selected for presentation and Publication

Abstract : Falling is often perceived as an inevitable aspect of aging, yet the consequences of falls among the elderly pose significant health risks. Older adults tend to be more frail, unsteady, and slower to react, making them particularly vulnerable to injuries from falls. Falls are a major health concern, particularly for elderly individuals, leading to serious injuries and sometimes even fatalities. Traditional fall detection systems often lack real-time intervention capabilities, which may delay emergency responses and worsen outcomes. This project proposes an IoT-based system for fall prevention and real-time health monitoring, utilizing motion sensors to detect fall symptoms. The first stage triggers a vibration alert when fall-like symptoms are detected. In the second stage, if the fall is confirmed, the user can activate an emergency button not send a notification. If the emergency button is not pressed within a specified time, the system autonomously sends a message notification

with the user's location and an emergency call to the family members. In addition to fall detection, the system integrates health monitoring features, sending alerts for abnormal health parameters, such as irregular heart rates, and helping users maintain their well-being in real-time. This IoT-based system provides immediate responses to falls and health issues, ensuring timely family members and preventing potentially fatal delays in emergency situations.

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Paper ID : 182	Pioneering 8-bit Comparator Architecture with Independent (INDEP) Gate Control <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
M Lalitha, Vels Institute of Science, Technology & Advanced Studies, Pallavaram, <i>Corresponding Author:</i> lalitharesearcher@gmail.com	

Not Selected for presentation and Publication

Abstract : This study introduces a cutting-edge methodology for developing high-performance digital circuits in the VLSI domain. The proposed architecture, an 8-bit comparator leveraging independent gate control, delivers remarkable speed and energy efficiency advancements compared to traditional designs. The integration of independent gate control enables precise modulation of comparison operations, significantly enhancing the system's versatility across diverse applications. By minimizing propagation delays, the design facilitates rapid and efficient data comparison, while its low power consumption—achieving a 40.93% reduction in power compared to traditional designs at the same input voltage—makes it ideal for energy-constrained environments. This innovative approach offers a highly optimized solution for modern systems prioritizing performance and power efficiency.

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Paper ID : 183	Innovative approach of FINFET integration for enhanced arithmetic and logic Processing functionality and efficiency <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
M Lalitha, Vels Institute of Science, Technology & Advanced Studies, Pallavaram, <i>Corresponding Author:</i> lalitharesearcher@gmail.com	

Not Selected for presentation and Publication

Abstract : The VLSI technology that integrates multiple components into one chip, striving for efficiency and miniaturization, is the primary focus here. Specifically, ALUs employing FinFET technology are highlighted, offering significant advantages in performance and efficiency compared to conventional CMOS-based ALUs. The GDI technique minimizes circuit complexity while achieving power-speed optimization, benefiting from FinFET's reduced leakage currents and enhanced scalability. The design leverages logic circuit optimization techniques to meet the demand for

efficient, low-power systems. Simulations conducted in Cadence validate the superior performance of FinFET-based ALUs, achieving a 73.6% reduction in power compared to conventional designs at the same input voltage.

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Paper ID : 184	AI-Driven Smart Resource Allocation and Signal Optimization for Next Generation 5G and Terahertz Communication Networks
	<i>Track: Optimization and Prediction</i>

S Saranya, New Horizon college of engineering
Corresponding Author: Shofiapriyadharshni@gmail.com

Not Selected for presentation and Publication

Abstract : With the creation of an Intelligence Network of Everyone that seamlessly combines Machine Learning (ML), Artificial Intelligence (AI), and the Internet of Everything (IoE), the quick development of 6G wireless networks is poised to transform wireless communication completely. 6G promises to provide ultra-reliable, minimal latency, and fast speeds connection, allowing applications like autonomous vehicles, interactive virtual worlds, and intelligent towns and cities. Interoperability is expected by 2025, and commercial availability is expected by 2030. Because of the high frequencies and dispersion limitations of THz bands, the implementation of 6G and THz communications presents substantial issues regarding power distribution, frequency effectiveness, and message enhancement. To overcome these obstacles, this paper suggests a paradigm for intelligent utilization of resources and signaling enhancement powered by AI. The platform makes use of hybrid artificial intelligence models for dynamic power administration and minimizing interference in THz systems, federated training for decentralized allocation of resources, and deep learning with reinforcement for adaptable frequency administration. It also investigates Integrated Sensing and Communication (ISAC) capabilities, which allow for intelligent choices in complicated 6G settings and real-time ambient observation. The introduction of a strong AI-enhanced security architecture protects 6G networks against privacy flaws and cyberattacks. This study improves network resilience, scaling, and effectiveness by combining model-driven signal processing methods with ML-based optimizing strategies. The research ends with a strategic plan for the development of 6G, opening the door for advanced networks of communication of the future that will revolutionize the advancement of technology and worldwide connectivity.

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Paper ID : 185	Data Retrieval Using Blockchain with Smart Contract Integration
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Track: Cybersecurity, Blockchain, and IoT

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Corresponding Author: schitracseresearch@gmail.com

Not Selected for presentation and Publication

Abstract : In an era where data security is paramount, ensuring the safe transfer and storage of sensitive information is critical. This research offers a novel, multi-layered method of protecting bank file uploads by combining cloud-based storage options with the AES (Advanced Encryption Standard) and RSA encryption algorithms. AES and a secret key are used to encrypt the bank file, which is thereafter safely encrypted using RSA. The encrypted file is divided into several sections and kept on various cloud services, like Google Drive and Firebase Storage, to further improve data security. A blockchain-based smart contract controls the encrypted AES key and file fragments, guaranteeing tamper-proof recovery, and fingerprint authentication is incorporated into the system to guarantee permitted access. File retrieval process include Fingerprint verification, RSA decryption of the AES key, and reconstruction of the encrypted file from its fragments. Confidential bank files can be handled, stored, and retrieved securely using this model's comprehensive end-to-end solution, which guarantees data confidentiality, integrity, and accessibility for only authorized users.

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Paper ID : 186	IoT-Enabled Medical Imaging Systems for Remote Diagnosis and Monitoring
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Track: Cybersecurity, Blockchain, and IoT

P Sudheer, CVR College Of Engineering

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Not Selected for presentation and Publication

Abstract : , the advanced data loss compression method given in the information compression literature. The important characteristic of the existing model finds the benefit of 2-D predictors, 2-D partitioning and classification, image optimization, and compression for 8-bit-depth images. Experimental results demonstrate the efficiency of the 2-D-MRP algorithm for the compression of medical images, achieving greater performance more than 20% for 8-bit-depth images and 13% for 16-bit depth models by comparing JPEG2000, CALIC, and HEVC and other methods of MRP approach. The proposed method involves point cloud based envelop media video pattern which is convenient for enlarged usage in image capturing method. The large information from point cloud limits the support of image pattern. 2D point clouds combined with reference are advised as an assured pattern for immersive conversation. On the other hand, the respective compression methods for this model are still in the earlier point. In addition, it is opposite to traditional image compression, which is challenging function to reduce 2D point cloud information from the uneven model. In this process, we introduce voxelized 3D point data storage. In the initial step, an input voxelized 3D point data storage is classified into segment of parallel dimensions. After a study is conducted with the

irregular structure geometry guided sparse representation is considered to reject the excess of object, which is composed as a zero-norm alignment development complication. Along with dynamic point cloud approach, an inside block prediction method is proposed to eliminate the redundancy within the blocks. In the conclusion, the features of coefficients can be examined by GSR, an effective technique is created to improvise the bit stream. Experimental results presents that the proposed compression method achieves better performance and image quality when compared with advanced methods

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Paper ID : 187	Enhancing Bike Safety with Ultrasonic Dog Repellent
	<i>Track: Cybersecurity, Blockchain, and IoT</i>
Srikakulapu Subhakar; VEMURI Veera Venkata Vara prasad; Avinigadda Thanmai Sasidhar; Sudabatula Siva Sankara Manohar, Siddhartha Academy of Higher Education University	
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Not Selected for presentation and Publication

Abstract : Night cyclists are usually at risk of being pursued by street dogs, which can result in possible accidents, injuries, and inconvenience. This project, Enhancing Bike Safety with Ultrasonic Dog Repellent, offers a novel solution that aims to solve this problem and improve the safety of cyclists. The system combines real-time detection of dogs through OpenCV-based computer vision with an ultrasonic repellent system. When detecting the availability of a dog, the system triggers an ultrasonic speaker to produce high-frequency sound waves that are audible to humans but can effectively disturb the dog and make it discontinue pursuing the rider. The heart of the system employs an Arduino Uno microcontroller to regulate the ultrasonic speaker, while a 16x2 LCD panel indicates the detection status in real time. Furthermore, the system has an in-built source of light for better visibility and precision, especially when operating at night. The device is light in weight, compact, and easy to attach to a bicycle, thus making it suitable for daily use. Through the use of IoT technology and computer vision, the project presents a secure, humane, and effective solution to the issue of dog chases, guaranteeing safety and peace of mind of nighttime cyclists. The system reduces false alarms, provides rapid response times, and provides a simple, non-invasive means to address a shared problem for cyclists.

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Paper ID : 188

CLIMATE CHANGE PREDICTION USING CLOUD COMPUTING

Track: Agriculture, Social Good, and Emerging Technologies

Prabhu Sah H.R.Narasimha, SRM Science of Institute And Technology

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Not Selected for presentation and Publication

Abstract : Among the most critical and rapidly growing challenges related to climate change, one of its effects makes a significant impact on both ecosystems and human societies. The traditional approach to mitigation of climate change is traditionally related to computational scalability along with processing data in real-time; it usually constrains the system to respond efficiently and timely. In contrast, this research idea proposes using cloud computing technologies from the perspective of AWS Cloud services to handle these challenges by providing scalable and flexible computing resources. This project will focus on accuracy in climate prediction and effective mitigation strategies using advanced techniques of distributed computing and machine learning algorithms. The project will aggregate large-scale environmental data, deploy distributed computing systems using AWS cloud, and integrate machine learning algorithms to provide actionable insights and effective strategies to combat climate change.

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Paper ID : 189

IoT BASED EV MULTIPLE FAULT DETECTION AND BATTERY MANAGEMENT

Track: Cybersecurity, Blockchain, and IoT

G Shanmugavadiel, M. Kumarasamy College of Engineering

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Not Selected for presentation and Publication

Abstract : Electric vehicle batteries are prone to overheating, overcharging, delays, and loss of capacity, all of which can compromise the performance, safety, and longevity of IoT-based EV battery monitoring and diagnostics effectively address these issues by integrating advanced sensors for temperature, energy, power. Continuous monitoring of essential parameters such as charge level Makes These sensors transmit real-time data to a se- cure cloud platform, where sophisticated analysis detects possible faults such as overheating, overcharge, short circuit, over drain etc. In the event of abnormalities, the system immediately notifies the vehicle owner and service center, enabling quick prevention to avoid major damage or accidents It also provides performance reports, which support predictive maintenance to enable failure and decreased processing time. Utilizing IoT technology for real-time monitoring, data-driven insights and reporting, the system ensures comprehensive battery health management. This innovative approach enhances battery safety, reliability and performance, and significantly extends battery life. It also builds trust between EV users and manufacturers, contributing to the widespread adoption of electric mobility solutions.

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Paper ID : 190	Birds Species Detection Using Deep Learning Image Analysis <i>Track: Computer Vision and Deep Learning</i>
Dasaradha Ram B; Vajhala Venkata Narasimha Rishik Kumar ; Rampurapu Ajay; Senapathi Baby Divya; Rajagiri Likhitha, NRI Institute of Technology <i>Corresponding Author:</i> rishivajhala17@gmail.com	

Not Selected for presentation and Publication

Abstract : Birds play a crucial role in ecosystem balance, contributing to multiple trophic levels and serving as bioindicators of climate change. Accurate species identification is essential for conservation and ecological studies. Traditional classification

methods often struggle with accuracy and scalability, making image-based deep learning models a more effective alternative. This study employs a Deep Convolutional Neural Network (DCNN) approach using the Caltech-UCSD Birds 200 dataset for training and validation. Models such as VGG16, InceptionV3, and ResNet50 are implemented with TensorFlow to construct a computational graph for feature extraction and species classification. Comparative analysis demonstrates that InceptionV3 achieves the highest accuracy (93.91%), outperforming VGG16 (82.28%) and other models. The proposed deep learning approach significantly surpasses traditional methods, establishing its effectiveness for automated bird species recognition.

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Paper ID : 191	AI-Augmented Social Health Analytics: Extracting Mental and Physical Well-being Insights from Social Media and Networks <i>Track: Healthcare and Medical Diagnostics</i>
Dr Rohit Ravindra Nikam, Sanjivani College of Engineering Kopargaon, Maharashtra <i>Corresponding Author:</i> sharathreserch@gmail.com	

Not Selected for presentation and Publication

Abstract : The proliferation of social media platforms has provided a vast source of real-time user-generated content, enabling innovative approaches to public health monitoring. This study explores AI-augmented social health analytics to extract mental and physical well-being insights from social media and online networks. Leveraging natural language processing (NLP), machine learning (ML), and deep learning techniques, we analyze sentiment trends, stress indicators, and health-related discussions to quantify mental health conditions such as anxiety and depression, as well as physical health trends like pandemic outbreaks and lifestyle diseases. Findings indicate that social media sentiment analysis correlates with mental health trends, with an accuracy of 87% in detecting stress levels. AI models trained on diverse datasets achieve a precision of 82% in identifying depressive symptoms based on linguistic markers and engagement patterns. Furthermore, deep learning-driven physical health analytics successfully predict disease spread patterns with a mean error reduction of 23% compared to traditional epidemiological models. The results demonstrate that AI-driven social

media analytics can provide real-time, scalable, and cost-effective insights into public health, aiding in early interventions and policy-making. Future research should focus on enhancing multi-modal analysis, bias mitigation, and ethical considerations to improve the robustness and fairness of AI-augmented social health analytics.

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Paper ID : 192	DISTRIBUTED INTELLIGENCE FOR CAMPUS PARKING ALLOCATION AND TRAFFIC OPTIMIZATION <i>Track: Cybersecurity, Blockchain, and IoT</i>
G Shanmugavadiel, M. Kumarasamy College of Engineering <i>Corresponding Author:</i> joshuasamual8@gmail.com	

Not Selected for presentation and Publication

Abstract : Efficient campus parking management is needed to minimise congestion, wastage of resources, and delays caused to students, staff, and visitors. The study focused on applying machine learning techniques to improve parking management systems using real-time data analysis. Such ML techniques comprise decision trees, SVMs, and neural networks developed through cameras and sensors for predicting parking availability, optimising resource allocation for multiple locations, and directing vehicles to them. The system dynamically adapts to varying traffic conditions, load levels, and periods of the day to allow further optimisation of space usage and improved mobility. Besides other advantages, predictive analytics endorses strategic infrastructure planning and improves operational efficiency. In essence, the findings of the study prove that the ML solutions for parking will enhance both campus mobility and traffic congestion during peak hours, thus encouraging sustainability.

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Paper ID : 193	A SYSTEMATIC ANALYSIS OF ADVANCED MACHINE LEARNING TECHNIQUES FOR FUNDUS IMAGE-BASED DIABETIC RETINOPATHY DETECTION <i>Track: Medical Imaging and Bioinformatics</i>
K Sudha, Vels Institute of Science, Technology & Advanced Studies, Pallavaram, <i>Corresponding Author:</i> jeniescholar@gmail.com	

Not Selected for presentation and Publication

Abstract : Diabetic retinopathy (DR) is a leading cause of blindness worldwide, necessitating early detection and accurate classification to mitigate its progression. Fundus imaging has emerged as a non-invasive and reliable method for Diabetic retinopathy (DR) diagnosis. Recent advancements in machine learning (ML) have significantly improved the precision and efficiency of fundus image-based DR detection. This paper provides a systematic analysis of advanced ML techniques employed in Diabetic retinopathy (DR) classification, emphasizing both traditional and

deep learning approaches. It explores preprocessing methods, feature extraction techniques, and state-of-the-art classification algorithms, highlighting their effectiveness and limitations. Key challenges such as imbalanced datasets, variability in image quality, and interpretability are discussed, alongside strategies to address issues. The analysis also examines emerging trends, including hybrid models and explainable AI, offering insights into future research directions. This review aims to serve as a comprehensive resource for researchers and practitioners, guiding the development of more robust and accurate ML-based solutions for DR detection.

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Paper ID : 194	SOLAR TRACKER SYSTEM USING STM32407G-DISC1 BOARD <i>Track: Cybersecurity, Blockchain, and IoT</i>
	scholar research, Anna university <i>Corresponding Author:</i> schoalrphd@gmail.com

Not Selected for presentation and Publication

Abstract : Solar energy represents a significant renewable resource with the potential to substantially reduce carbon emissions and support sustainable development. However, the efficiency of solar panels is often limited by their fixed orientation, which restricts their exposure to sunlight as the sun traverses the sky. In response to this challenge, this study introduces a prototype solar tracker designed to optimize the performance of solar panels through dynamic adjustments. Featuring a dual-axis tracking system, the prototype continuously aligns the panels with the sun's position throughout the day, ensuring maximum light absorption. This dynamic approach leads to a marked improvement in energy collection compared to conventional static panels, which are only able to capture optimal sunlight during specific periods. The enhanced efficiency achieved through dynamic movement is crucial for bolstering the practicality and efficacy of solar power systems, promoting wider adoption of renewable energy technologies. By increasing energy capture, such systems contribute to a more sustainable energy grid and provide a cost-effective solution for both residential and commercial applications. The prototype's performance has been rigorously analysed based on real-time calculations of solar energy collection throughout the day, using the sun's positional axes as a reference. Results demonstrate that the dual-axis solar tracker achieves significantly higher energy output compared to static systems by optimizing panel alignment to maximize sunlight capture. These findings validate the effectiveness of the concept. Future efforts will focus on refining the tracker's design, optimizing its algorithm for dynamic conditions, and further evaluating its performance under diverse environmental scenarios to enhance efficiency and reliability.

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Paper ID : 195

A SYSTEMATIC ANALYSIS OF MACHINE AND DEEP LEARNING FRAMEWORKS FOR HUMAN RESOURCE ATTRITION DATASET

Track: Optimization and Prediction

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Not Selected for presentation and Publication

Abstract : Employee attrition poses significant challenges for organizations, affecting productivity, workforce stability, and operational costs. The ability to predict turnover with high accuracy can assist businesses to craft meaningful retention strategies and improve human resource management strategies. This paper, systematically review the literature on using deep learning methods for employee attrition prediction and the capabilities of uncovering complex patterns and relationships from HR data. The study opens with a consideration of common attrition predictors, including job satisfaction and workload, as well as the effect of data preprocessing and feature engineering on model performance. Different deep learning architectures are discussed with respect to applicability and effectiveness in this field. The traditional models are evaluated based on the datasets used and metrics compared, and some discuss common challenges, such as imbalanced data, model interpretability, and ethics. It also looks at practical applications like proactive retention efforts and workforce planning, showcasing the transformative impact of deep learning on human resource analytics. Lastly, the review suggests ways forward for future research in areas such as explainable AI, different architectures, and the need for a more ethical approach to the context in which AI operates to ensure fairness and transparency. The present study aims to provide guidance on using deep learning techniques to solve employee attrition problems for practitioners.

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Paper ID : 196

Knowledge-Based Visual Question Answering (KB-VQA) by Integrating Large language Models (LLMs) with Complementary Answer Heuristics (CAH) for Improved Reasoning

Track: NLP and Multimodal AI

BHANUPRAKASH DUPPATI; GEETHANJALI KOOCHI, Madanapalle institute of technology and science

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Not Selected for presentation and Publication

Abstract : Knowledge-driven Visual Question Answering (VQA) necessitates combining external information apart from an image's visual elements to produce accurate and contextually appropriate answers. Although Large Language Models (LLMs) show considerable promise in this area, their deficiency in structured reasoning and restricted access to specialized information limits their effectiveness, especially in specific domains such as medical diagnostics and patient care. Current techniques either directly engage LLMs without intermediate reasoning processes or depend on explicit knowledge repositories, which frequently incorporate superfluous or outdated data. In this

study, we introduce a versatile, resilient, and domain-independent framework that improves LLM-based VQA systems via response heuristics, organized reasoning, and knowledge infusion. Our framework combines ResNet50 for extracting image features, FLAN-T5 for answering questions based on language, and a structured reasoning component for generating heuristic-guided responses.

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Paper ID : 197	Smart Garage Based On IoT Interface <i>Track: Cybersecurity, Blockchain, and IoT</i>
Chilakala Sudhamani, CMR Technical Campus <i>Corresponding Author:</i> sudhamanich@gmail.com	

Not Selected for presentation and Publication

Abstract : Nowadays, everyone facing a common problem of unnecessary vehicle parking on roads, leading to a shortage of parking spaces in densely populated areas. To address this, we proposed a smart garage system that utilizes Internet of Things (IoT) technology to enhance convenience and security for homeowners. Unlike the garages operated manually this system is highly efficient to have in any house. This system even ensures the security of the car and restricts the infiltration of the garage by unwanted guests. This system features an embedded processor and microcontroller that control the opening and closing of the garage door, as well as sensors to detect obstacles and monitor door status. The garage doors use servo motors for smooth operation, while Radio Frequency Identification (RFID) tags and readers improve security by preventing unauthorized access and IR sensors to detect the vehicle is completely parked inside the garage. This smart garage system is designed for easy integration into existing garage setups, upgrading them with smart capabilities. By integrating sensors and smart devices, the smart garage offers a seamless experience, making it easier to manage garage access while improving safety which aims to simplify daily tasks of the users.

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Paper ID : 198	Multifunctional Ground Device For Agricultural Applications <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Chilakala Sudhamani, CMR Technical Campus <i>Corresponding Author:</i> sudhamanich@gmail.com	

Not Selected for presentation and Publication

Abstract : In the past, agriculture relied heavily on manual labor, traditional tools, and basic techniques. Farmers used natural indicators such as soil texture, weather patterns, and crop rotation techniques to maintain productivity. Irrigation and pest control were done using conventional methods, resulting in lower efficiency and higher labor demands. Today, agriculture has evolved with the integration of modern technology including Radio Frequency (RF) Technology,

making it easier to manage the crop yielding. To address this we have proposed multifunctional ground devices for agriculture applications that revolutionize modern farming practices through enhanced versatility and efficiency. This system integrates multiple agriculture functionalities such as sowing, irrigation, soil leveling, pest control, crop cutting, and soil moisturizing into a single versatile platform using RF technology. This device enhances precision farming by collecting and analyzing data on soil conditions. It significantly reduces the need for multiple machines, thereby lowering operational costs, fuel consumption, and labor requirements.

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Paper ID : 199	Analysis of Object Detection through Master-RCNN
	<i>Track: Computer Vision and Deep Learning</i>
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<i>Corresponding Author:</i> anjaniverma29@gmail.com	

Session # VS6 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Efficient and accurate object detection has become a key issue in the advancement of Computer Vision systems. With the advent of deep learning techniques, object detection cures have increased dramatically. This paper aims to integrate state-of-the-art object detection techniques for object detection with the goal of achieving high accuracy with real-time performance. A major challenge in many object detection systems is the dependency on other computer vision techniques for helping the deep learning-based approach, which leads to slow and non-optimal performance. We offer a generic, adaptable, and conceptually straightforward framework for object instance segmentation. Our method effectively locates things in a picture while also producing a top-notch segmentation mask for each object. By adding a branch for predicting an object mask in tandem with the existing branch for bounding box recognition, the technique known as Mask R-CNN expands Faster R-CNN. The extended version of Mask R-CNN is also simple to generalize to different problems, enabling us to estimate human poses inside the same framework, for example. It performs well on instance segmentation, bounding box object detection, and person key point problems in the COCO suite.

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Paper ID : 200	Smart Automated Hydroponic Farming <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Raut Anuj; Mulgir Abhishek; Patil Sumit, Savitribai Phule University <i>Corresponding Author:</i> rautanuj66@gmail.com	

Not Selected for presentation and Publication

Abstract : Particularly in urban and resource-constrained areas, hydroponic farming is quickly becoming a feasible and sustainable way to overcome the drawbacks of traditional soil-based agriculture. This study combines a thorough analysis of current hydroponic automation systems with the practical application of an intelligent, economical solution utilizing Internet of Things (IoT) technology. The suggested system makes use of an ESP32 microcontroller that has sensors built in to track temperature, pH, TDS, and water level. by programmable thresholds, it automates water management, pH balancing, and fertilizer supply. All of these functions are managed by a mobile application that utilizes the Blynk IoT platform. Our method balances price, usefulness, and scalability, in contrast to many other models that are either unscalable or still too expensive for small-scale farmers. The system's ability to maintain ideal plant development conditions with little operator intervention is confirmed by the results of prototype deployment. This hybrid study aims to bridge the gap between theoretical advancements and practical deployment in smart agriculture.

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Paper ID : 201	Artificial Intelligence Modelling of performance prediction for a single channel with cavities plate type methanol-based microreformer for hydrogen generation <i>Track: Optimization and Prediction</i>
Rout Sibun, Gokhale education society R.H sapat college of engineering <i>Corresponding Author:</i> sibunrout26@gmail.com	

Not Selected for presentation and Publication

Abstract : Artificial Neural Network algorithms, viz., Levenberg-Marquardt, Bayesian Regularization and Scaled Conjugate Gradient are used for training and developing a regression model for predicting the hydrogen generation rate at various operating conditions for a single channel with cavities plate type methanol-based microreformer. The model is developed based on measured methanol conversion, hydrogen generation and carbon monoxide at different reforming temperatures and feed flow rates. While testing the model, it was observed that $R^2 > 0.999$ was obtained for all three algorithms suggesting 99.9% capture of data variability. The optimum Neural Network Architecture for the Levenberg-Marquardt Algorithm, Bayesian Regularization, and a Scaled Conjugate Gradient Algorithm are 2 19 3, 2 20 3, and 2 15 3 which refers to the input layer, hidden layer, and output layer individually. The mean squared error for all three algorithms was observed at less than 0.09. The Bayesian Regularization Algorithm provides high accuracy in comparison with Levenberg-Marquardt and Scaled Conjugate Gradient due to lower mean squared error and higher R^2 . The proposed model satisfactorily predicts hydrogen generation, CO and

methanol conversion without solving detailed governing equations, transport equations and detailed chemical reactions.

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Paper ID : 202	NFT BASED CREDIT SYSTEM USING SOLANA BLOCKCHAIN
	<i>Track: Cybersecurity, Blockchain, and IoT</i>
Cheemaladari Dinesh babu; Kakarla Nanda kishore; lagisetti Pallavi; N Vijayaraj, Vel tech University	
<i>Corresponding Author:</i> chdinesh4128@gmail.com	

Not Selected for presentation and Publication

Abstract : Blockchain technology has emerged as a promising solution for secure and verifiable academic credentialing. This work proposes an NFT-based academic credentialing system utilizing the Solana blockchain to ensure tamper-proof, decentralized, and immutable academic records. The system employs Non-Fungible Tokens (NFTs) to represent academic credits, allowing students to securely own, store, and share their credentials without reliance on third-party verification. Smart contracts automate credential issuance, revocation, and verification, reducing administrative overhead by 30% while enhancing fraud prevention by 40%. The proposed framework integrates a Next.js frontend, an Express.js backend, and IPFS for decentralized metadata storage, ensuring 75% higher scalability and 99% lower transaction costs compared to traditional Ethereum-based solutions. Performance evaluation indicates a 60% reduction in verification time, demonstrating improvements in fraud resistance, accessibility, and verification efficiency. Future work will focus on cross-chain interoperability, AI-driven fraud detection, and privacy-enhancing mechanisms to further optimize the security and adoption of decentralized academic credentialing.

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Paper ID : 203	Voltage Stability Enhancement in Microgrids: An ANN-Based Droop Control Approach
	<i>Track: Optimization and Prediction</i>
DANDAMUDI JISHNU TEJA; KANDULA RUPA, Amrita Vishwa Vidhyapeetham Coimbatore	
<i>Corresponding Author:</i> djishnuteja2006@gmail.com	

Session # PS7 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Voltage stability is a crucial aspect of modern power systems, particularly with increasing renewable energy integration and dynamic load variations. This paper presents an Artificial Neural Network (ANN)-based droop control approach utilizing state-space modeling for optimizing voltage stability. Implemented in Python, the proposed model dynamically adjusts droop parameters based on real-time system conditions, ensuring adaptive and efficient voltage regulation. The state-space framework enables comprehensive stability analysis and real-time control, improving system robustness under varying loads and disturbances. Simulation results validate the effectiveness of

the ANN Droop model in minimizing voltage deviations and enhancing overall grid stability, demonstrating its potential for real-world applications.

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Paper ID : 204	Visualising and Forecasting stocks Using Dash <i>Track: Optimization and Prediction</i>
<p>Gummadi Jitendra; Shaik Majeeda ; Tullimilli Jahnavi Durga ; Polisetti Srujan Kumar ; Yesupogu Karthik Dev, NRI Institute of Technology <i>Corresponding Author:</i> gummadijithendra@gmail.com</p>	

Session # PS7 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The goal of this project is to use contemporary web technologies and frameworks to create an interactive platform for stock market data visualization and forecasting. React, Vite, and Tailwind CSS are used in the application's frontend development to provide a quick, responsive, and visually appealing user experience. The backend is built using Python and the Flask framework, offering strong support for stock forecasting models, API interaction, and data processing. Through interactive charts, users may observe trends, examine real-time stock data, and learn about possible future price moves using predictive analytics.

Long Short-Term Memory (LSTM) networks and Random Forest Regressor models are two examples of the sophisticated machine learning models used in the application's backend to predict changes in stock prices. The Random Forest Regressor was shown to be the more accurate and dependable model for stock price prediction after an evaluation of the two models. This prediction model provides insightful information on possible market movements in the future. The software gives consumers strong forecasting capabilities by including the Random Forest Regressor, which helps them make wise financial choices. By allowing users to examine current stock data and future price projections, this project ultimately closes the gap between sophisticated data analytics and easily accessible stock market insights.

The project also offers an HTML-based homepage that serves as a friendly introduction to the functionality of the platform. Both analysts and investors can benefit from the stock forecasting feature, which predicts stock values using statistical models and machine learning approaches. The project provides an effective, user-friendly experience for forecasting and stock data analysis by combining these technologies.

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Paper ID : 205	Self-Supervised Speech Conditioned Face Generation
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Track: Computer Vision and Deep Learning

Appikatla Vasanth, Andhra Loyola Institute of Engineering and Technology

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Not Selected for presentation and Publication

Abstract : Speech conveys a wealth of biometric and behavioral characteristics, including identity, emotion, and linguistic nuances. This study presents a novel deep learning framework that synthesizes facial images directly from raw speech signals, without relying on additional identity references such as images or predefined labels. Our approach utilizes a Generative Adversarial Network (GAN) trained in an end-to-end manner, leveraging the natural alignment between audio and visual signals in videos. To facilitate training, we curate a high-quality dataset featuring expressive speakers, ensuring robust learning of audio-visual associations. Experimental evaluations demonstrate the effectiveness of our model in generating visually coherent and identity-preserving facial images from speech inputs. This research paves the way for advancements in speech-driven visual synthesis, with potential applications in personalized media generation, security, and human-computer interaction.

Index Terms— deep learning, adversarial learning, face synthesis, self supervised.

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Paper ID : 206	Rainfall Estimation Integration Using Machine Learning
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Track: Optimization and Prediction

Alabanu Siva Shankar, Andhra Loyola Institute of Engineering and Technology

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Not Selected for presentation and Publication

Abstract : Rainfall prediction plays a crucial role in agriculture, disaster management, and water resource planning. This study presents a machine learning-based approach to estimate rainfall by integrating meteorological parameters and location-based weather data. A Random Forest Classifier is trained on a balanced dataset to improve prediction accuracy. The model incorporates real-time weather data from OpenWeatherMap API and user-inputted parameters through a Streamlit-based interface. Additionally, future rainfall trends over the next six months are predicted based on historical data and simulated probability distributions. The experimental results demonstrate the model's reliability in forecasting rainfall probabilities, providing valuable insights for weather monitoring applications. This research contributes to enhancing data-driven decision-making in meteorology, agriculture, and climate science.

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Paper ID : 207	Age and Gender Prediction Using Deep CNN
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Track: Computer Vision and Deep Learning

RAMADEVI SANDIREDDY; Bezawada Deepika; Papineni Bhavani ; Chokkara Nithin Chakravarthy; Dara Anusha, NRI Institute of Technology

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Session # PS12 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : — This project utilizes international state of the art and attempts to predict age and gender from facial images by deep learning methods. The model uses CNNs to optimize feature extraction and perform multi-task learning in single face images, allowing for both accurate age estimation and gender classification. To improve robustness and generalization, extensive data preprocessing (resizing, grayscale, normalization, data augmentation, etc.) was performed. The model consists of common convolutional layers for feature extraction through shared information, followed by the dense layers for age and gender predictions, aims for positive gradients in both forward / and backward passes for several epochs. Accuracy is a common measure for gender prediction and mean absolute error is often used for age estimation. This response presents an overview of how facial feature recognition has shown that CNNs are highly effective for uncovering useful information that could be used in boilerplate identifiers, demographic studies, and in personalized user interactions.

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Paper ID : 208	Bridging Vision and Language: A CLIP-ResNet Framework for Visual Question Answering
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Track: NLP and Multimodal AI

KANDULA RUPA; DANDAMUDI JISHNU TEJA, Amrita Vishwa Vidhyapeetham Coimbatore

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Not Selected for presentation and Publication

Abstract : Visual Question Answering (VQA) is a challenging task that requires a deep understanding and interpretation of both Computer vision (CV) and natural language processing(NLP) to extract and fuse Visual and Textual features for the answer prediction. This study proposes a Visual question Answering (VQA) model that leverages multimodal fusion by integrating Convolutional Neural Networks(CNNs), a pre-trained Resnet-18 for visual feature extraction and Contrastive Language-Image Pre-training (CLIP) for processing textual questions into semantically latent space representations. The model is trained and evaluated on the DAQUAR dataset, consisting of image-question-answer triplets, with a predefined answer space. Our approach achieves high accuracy of 95.4% and generalizes well to previously unseen questions. The extracted visual and textual feature vectors are concatenated and optimized using cross-entropy loss and the Adam optimizer. Performance metrics, accuracy and weighted precision, are to assess the model's efficiency in capturing semantic correlations between visual and textual modalities.

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Paper ID : 209	Detection of Power System Anomalies Using a Fusion of Machine Learning & Deep Learning
	<i>Track: Optimization and Prediction</i>
DANDAMUDI JISHNU TEJA; KANDULA RUPA, Amrita Vishwa Vidhyapeetham Coimbatore	
<i>Corresponding Author:</i> djishnuteja2006@gmail.com	

Not Selected for presentation and Publication

Abstract : Anomaly detection in Phasor Measurement Unit (PMU) data is crucial for ensuring the stability and security of modern power grids. However, the complexity of power system dynamics and diverse operational conditions pose significant challenges. This study proposes a hybrid anomaly detection framework that combines Isolation Forest (IF) and Long Short-Term Memory (LSTM) Autoencoders, leveraging the strengths of both machine learning (ML) and deep learning (DL) techniques. IF efficiently detects anomalies using unsupervised learning, while LSTM Autoencoders capture temporal dependencies in PMU data for sequential anomaly detection. A fusion strategy integrates both models to enhance detection accuracy. The proposed framework is trained and tested on real-world PMU datasets encompassing normal operations, missing data, power disturbances, and cyber-induced anomalies. To address class imbalance, we employ the Synthetic Minority Over-sampling Technique (SMOTE), improving the detection of rare events. Performance evaluation using standard classification metrics demonstrates that the fusion model outperforms individual techniques, offering a robust and adaptive anomaly detection solution. This approach enhances situational awareness, fault diagnosis, and grid resilience, contributing to the reliability of modern power systems.

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Paper ID : 210	Extracting sentiment through handwritten content using hybrid CNN-BiLSTM
	<i>Track: NLP and Multimodal AI</i>
Mariyam Saleha; BO Joof Yahya ; Sadia Halima, Integral University	
<i>Corresponding Author:</i> saleham@iul.ac.in	

Session # VS4 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Sentiment analysis has predominantly focused on typed text, but handwritten content presents unique challenges due to variations in handwriting styles, image noise, and Optical Character Recognition (OCR) inaccuracies. This study explores sentiment extraction from handwritten text by integrating OCR, deep learning, and Natural Language Processing (NLP) techniques. A hybrid CNN-BiLSTM model is proposed, where Convolutional Neural Networks (CNN) extract spatial handwriting features, and Bidirectional Long Short-Term Memory (BiLSTM) networks capture sequential dependencies for improved text recognition. The extracted text undergoes

sentiment classification using tokenization, stopword removal, and polarity scoring. Experimental evaluations on different datasets demonstrate the effectiveness of the proposed approach, achieving over 92% accuracy in sentiment classification. The study highlights the significance of preprocessing techniques, such as grayscale conversion, binarization, and noise removal, in enhancing OCR performance. Results indicate that the hybrid deep learning approach outperforms traditional lexicon-based sentiment analysis methods. This research contributes to bridging the gap between handwritten and typed sentiment analysis, with potential applications in historical document processing, mental health assessments, and user feedback analysis. It provides future research aims to integrate transformer-based models for improved multilingual handwriting recognition and sentiment classification.

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Paper ID : 211	FantasticLamp: A Bioinformatics Pipeline for Quantifying Genomic Edits Using Genome Variation Graphs
	<i>Track: Medical Imaging and Bioinformatics</i>
Kalmotia Vijender, Wright State University, USA	
<i>Corresponding Author:</i> vijenderkalmotia2001@gmail.com	

Session # VS7 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Genome editing techniques such as CRISPR/Cas9, TALEN, and ZNF-based systems require accurate quantification of edit efficiency to assess their success and optimize methodologies. Traditional linear alignment approaches often introduce reference bias and fail to account for complex mixed edit states. In this paper, we present FantasticLamp, an open-source bioinformatics pipeline that utilizes genome variation graphs to provide an unbiased and precise assessment of genomic edits across multiple cell populations. By constructing a graph-based representation of reference and edited sequences, FantasticLamp enables accurate read mapping, edit quantification, and comparative analysis without over-reliance on a single reference genome. The pipeline integrates minimap2, seqwish, vg, and odgi for efficient sequence alignment and processing, ensuring robust performance across diverse genomic datasets. Validation using synthetic and experimental sequencing data demonstrates the effectiveness of FantasticLamp in detecting and quantifying genomic edits with high accuracy. This tool provides a scalable and unbiased solution for genome editing analysis, contributing to advancements in bioinformatics, genetic engineering, and precision medicine.

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Paper ID : 212	Emergent Synchronization and Structural Transitions in β Cell Networks: Insights from Spectral and Topological Dynamics
	<i>Track: Medical Imaging and Bioinformatics</i>
Kalmotia Vijender, Wright State University, USA	

Corresponding Author: vijenderkalmotia2001@gmail.com

Not Selected for presentation and Publication

Abstract : Understanding the mechanisms behind synchronization and phase transitions in β cell networks is pivotal for elucidating the principles of cellular communication in biological systems. This study, reveal how structural reorganization at critical tipping points drives the emergence of coordinated activity in β cell networks under varying glucose concentrations. Using spectral analysis, it identifies a pronounced increase in the largest eigenvalue and clustering coefficient as the network transitions from an uncoordinated to a synchronized state, independent of the number of connections. A transient peak in the second-largest eigenvalue and a shift in assortativity coefficients highlight the role of pre-synchronization structural changes. Additionally, the spectral gap, derived from Laplacian eigenvalues, emerges as a robust indicator of network dynamics and phase transitions. It demonstrates that a coupled model integrating explosive percolation and Ising spin dynamics successfully replicates the observed transitions. At the same time, a logistic growth framework with saturation provides a conceptual explanation for the dynamics. These findings underscore the critical interplay between structure and dynamics in β cell networks, offering broader implications for understanding synchronization in complex biological and engineered systems.

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Paper ID : 213	DEVELOPING CONFIDENTIAL REFERRAL RECRUITMENT SMART CONTRACT COTI <i>Track: Cybersecurity, Blockchain, and IoT</i>
Kumar Ritik, Veltech University <i>Corresponding Author:</i> theritik43700@gmail.com	

Not Selected for presentation and Publication

Abstract : Abstract—The rise of blockchain technology has revolutionized the digital asset industry, enabling secure, transparent, and decentralized transactions. This paper presents an innovative blockchain-powered digital asset marketplace leveraging NFTs (Non-Fungible Tokens) for tokenizing and trading digital and physical assets. Our platform integrates Polygon blockchain for reduced transaction costs and improved scalability, ensuring accessibility and efficiency. Key use cases include land records management and tokenization of rare commodities, images, and videos. The marketplace employs Next.js for frontend development, Solidity for smart contracts, MongoDB for data storage, and IPFS for decentralized asset management. This paper discusses the architecture, smart contract design, and security measures ensuring fraud-resistant and verifiable transactions. The proposed system aims to enhance trust, ownership verification, and liquidity in the digital asset ecosystem, making blockchain-based marketplaces more user-friendly, cost-effective, and scalable.

* * * *

Paper ID : 214

A Comparative Multi-Model Approach to Detecting Fake News Using Machine Learning

Track: NLP and Multimodal AI

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Session # PS13 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The rapid spread of fake news on digital platforms has serious societal consequences, particularly in specific Domain, such as political debate, health news, and financial markets. False or inaccurate information has a tremendous negative influence on society, leading to confusion and uncertainty. Misunderstandings can escalate into riots, resulting in legal issues that harm society. Detecting elusive news is a challenging task due to limited benchmark datasets and rapid publication rates. The current research examines key features applicable to the domain, such as language style, network conversations, emotional content in order to tackle the problem of identifying fake news explicitly within the domain. Machine learning (ML) algorithms show potential in spotting fake news content. Hence this study focusses at the application of a machine learning combined approach that can be used to automatically classify articles on the news. Different algorithms, including Naïve Bayes (NB), Random Forest (RF), SVMs, and XGBoost, have been compared on accuracy, precision, recall, and F1-score. These findings illustrate the potential of particular method to reduce the dissemination of misconceptions online.

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Paper ID : 215

Exploring Diverse Synaptic Subpopulations through Protein Expressions

Track: Medical Imaging and Bioinformatics

Kalmotia Vijender, Wright State University, USA

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Not Selected for presentation and Publication

Abstract : Our current understanding of synaptic connections within the brain remains limited. While traditionally categorized as excitatory and inhibitory, recent research has unveiled a more diverse array of synapse types. This study aims to characterize these distinct subpopulations based on protein expressions. Our analysis employs Array Tomography to investigate protein expressions at synaptic sites, revealing preliminary evidence for a broader range of sub-synaptic clusters beyond excitatory and inhibitory categories.

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Paper ID : 216	Improving Genome Graphing Efficiency through Seqwish Parallelization
	<i>Track: Medical Imaging and Bioinformatics</i>

C.P Prathibhamol; Rajan Akshay ; Santhosh Gouri ; Nair Ananya ; Sreekumar Vishnu ; Nair Manjusha, Amrita Vishwa Vidhyapeetham Coimbatore

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Session # VS7 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Building a genome graph is essential for multiple sequence analysis, which is necessary for both real-time disease prediction and advanced genomic research. Sequential processing in the popular GFA file generation algorithm, Seqwish, results in scalability issues and performance bottlenecks. This work solves these challenges by proposing a parallelised version of the Seqwish algorithm that will reduce runtime without compromising output correctness. Seqwish was optimised to be scalable and efficient when operating with large datasets using parallel computing methods. Compared to the traditional method, it generated GFA faster and thereby provided improved support for real-time genomic research applications. This is a crucial step towards genomic graph construction.

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Paper ID : 217	Multi-Scale Attention-Enhanced U-Net for Image Deblurring with Composite Loss Functions
	<i>Track: Computer Vision and Deep Learning</i>

Praneeth M.Som.; Reghunath Lekshmi, Amrita Vishwa Vidhyapeetham Coimbatore

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Not Selected for presentation and Publication

Abstract : Image deblurring is a challenging low-level vision task that aims to restore a sharp image from a blurred input. In this paper, we propose a Multi-Scale Attention-Enhanced U-Net for single-image motion deblurring, incorporating a novel composite loss that integrates spatial, perceptual, and frequency-domain constraints. Our model extends the U-Net architecture by introducing multi-scale feature decoding and attention mechanisms, including Convolutional Block Attention Modules (CBAM) in each encoder-decoder block and a self-attention block at the bottleneck. These enhancements allow the network to better capture both local details and global dependencies, leading to improved deblurring performance. To ensure high-quality image reconstruction, we employ a composite loss function that combines pixel-wise L1 loss, perceptual loss using VGG16 features, and a Fourier-domain loss, enforcing both structural accuracy and frequency consistency. Trained on the GOPRO dataset with minimal data augmentation, our model achieves an average Peak Signal-to-Noise Ratio (PSNR) of 28.1 dB and a Structural Similarity Index (SSIM) of 0.815 on the test set. The results demonstrate that our attention-enhanced multi-scale approach, coupled with hybrid loss functions, effectively preserves image details and textures, offering competitive performance in motion deblurring tasks.

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Paper ID : 218	Facial Emotion and Sleep Detection with Audio Feedback: A Dual-Purpose AI System
	<i>Track: Healthcare and Medical Diagnostics</i>
Rakesh Meesa; Gupta Jatin Chandra; Virinchi C H; Jayesh Majji; Reghunath Lekshmi, Amrita Vishwa Vidyapeetham Coimbatore	
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Session # VS8 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Facial emotion recognition is an indispensable component of human-computer interaction, with applications in accessibility, driver monitoring, and affective computing. This paper proposes a dual-purpose AI system for Facial Emotion and Sleep Detection with Audio Feedback, designed to assist visually impaired individuals through real-time speech output while simultaneously serving as a driver drowsiness monitor. The system employs a Convolutional Neural Network (CNN) achieving 60.81 % test accuracy (loss: 1.065) on an eight-class dataset that includes a novel "Sleep" category for drowsiness detection. The model demonstrates strong performance for dominant classes ("Happy": F1-score 0.81, "Sleep": F1-score 0.91). Face detection combines Haar cascade classification with image preprocessing techniques, and the system delivers instantaneous audio feedback through Google Text-to-Speech (gTTS). Experimental validation confirms the system's real-time effectiveness, with sleep detection achieving 60 % precision for driver monitoring applications. Technical innovations include batch normalization, dropout layers, and data augmentation to address class imbalance and prevent overfitting. This assistive solution promotes independence for visually impaired users while enhancing transportation safety through drowsiness alerts. Future work will focus on transfer learning, deeper architectures, and expanded multi-language support to improve minority class accuracy and accessibility.

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Paper ID : 219	AI-Powered Dynamic Traffic Signal System for Urban Traffic Optimization with Emergency Vehicle Prioritization
	<i>Track: Cybersecurity, Blockchain, and IoT</i>
Kumar Ajith; R S Kirubashini; S Dr Bhavani ; K Darshini; M Kalaiselvan, Sri Shakthi institute of engineering and technology	
<i>Corresponding Author:</i> ajithcm2003@gmail.com	

Session # VS3 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Efficient traffic management is becoming increasingly important in urban areas experiencing rapid growth, where traditional traffic signal systems often fail to adjust to dynamic traffic conditions. In this paper, we propose an AI-driven Dynamic Traffic Signal System (DTSS)

designed to optimize traffic flow and prioritize emergency vehicle passage at intersections. The system utilizes the Mixture of Gaussians Version 2 (MOG2) algorithm for real-time vehicle detection and traffic density estimation based on live video streams. By analysing the vehicle count at each intersection, the system dynamically adjusts traffic signal timings to minimize congestion and reduce waiting times at red lights. Furthermore, a sound sensor module is incorporated to detect sirens from emergency vehicles such as ambulances and fire trucks. Upon detecting an emergency vehicle, the system immediately alters the signal, granting priority to the emergency lane and halting traffic in all other directions, ensuring quick and safe passage. The proposed system leverages affordable hardware components, including a Raspberry Pi, CCTV cameras, and sound sensors, providing a cost-effective and scalable solution for urban traffic management. Experimental results demonstrate the system's effectiveness in reducing traffic congestion and improving emergency response times, offering a promising solution for modernizing urban traffic management.

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Paper ID : 220	Tokenized Land Ownership: A Decentralized Blockchain-Based Land Record System Using NFTs
<i>Track: Cybersecurity, Blockchain, and IoT</i>	

Bura Param Jyothi; Gadde Yaswanth; Ch Murari; N Dr.Vijayaraj, Vel Tech Rangarajan Dr.Sagunthala R&D Institute Of Science And Technology

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Not Selected for presentation and Publication

Abstract : The blockchain land records management system addresses the inefficiencies, fraud, and lack of transparency inherent in traditional land record systems by leveraging blockchain technology, decentralized storage (IPFS), NFTs, and smart contracts. This system provides tamper-proof, transparent, and secure land records, significantly reducing administrative costs and processing times. Key achievements include an average transaction processing time of 2-3 seconds, 90% user satisfaction, 100% fraud avoidance, and a 95% reduction in land-related disputes. A successful pilot rollout in a city with over 50,000 land records demonstrated the system's scalability, supporting more than 10,000 concurrent transactions and achieving an 80% reduction in processing time compared to existing systems. Future developments will focus on multi-chain compatibility, AI-based conflict resolution, IoT integration, and international standardization to enhance scalability and functionality. This system sets a new benchmark in land record management by providing a secure, efficient, and globally accessible solution for all stakeholders.

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Paper ID : 221	Predicting Depression using BERT and Wav2Vec from Fused Text and Audio Features
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Track: Healthcare and Medical Diagnostics

Jain Amita; Dixit Daksh; Dureja Naman ; Sharma Priyanshu, Netaji Subhas University of Technology

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Session # VS1 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Early and accurate detection of depression remains a critical challenge in computational mental health. This work presents a multimodal framework for automated depression detection using textual and acoustic cues. The textual modality is modeled using a BERT-based encoder to extract contextual embeddings, while the acoustic modality leverages a pre-trained wav2vec model to capture both low-level and prosodic features from raw speech. A late fusion strategy integrates these representations to enhance classification performance. The proposed architecture is evaluated on the DAIC-WOZ dataset, demonstrating improved accuracy over unimodal and traditional baselines. This study highlights the effectiveness of transformer-based models and multimodal fusion in identifying depressive symptoms from human conversations, offering a scalable and data-efficient approach to affective computing.

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Paper ID : 222	Smart Traffic Signal Management for Emergency Medical Services and Patient Health Tracking
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Track: Cybersecurity, Blockchain, and IoT

Ahmed Sufiyan; Rajendran Akshaya, Dayananda Sagar college of engineering

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Session # PS5 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The increasing population in urban areas has exacerbated traffic congestion, posing significant challenges to Emergency Medical Services (EMS). This paper presents a comprehensive solution integrating smart traffic light control and real-time patient health monitoring. The system prioritizes ambulances by dynamically adjusting traffic signals and transmits real-time patient vitals to hospitals using IoT-enabled sensors and communication systems. Experimental results demonstrate significant reductions in ambulance transit times, enhanced hospital preparedness, and improved patient outcomes.

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Paper ID : 223	Harnessing Machine Learning and Big Data to Predict Customer Dropouts in Telecom
	<i>Track: Optimization and Prediction</i>

Kothuru Sasidhar, Career Point University, KLEF

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Not Selected for presentation and Publication

Abstract : The telecom industry study is essential for increasing the profitability of enterprises, especially through precise churn prediction. This work sought to construct a churn prediction framework adapted to the operational context of SyriaTel. For accurate churn estimates, high AUC values were necessary, and the dataset was divided into 30% testing and 70% training sets. Hyperparameter adjustment and accurate model evaluation were made possible via cross-validation. To get the features ready for machine learning algorithms, feature engineering and selection techniques were used. Tree-based methods and under-sampling were used to address data imbalance. The study utilized four tree-structured machine learning models, namely Decision Tree, Random Forest, Gradient Boosting Machine, and XGBOOST. Strategic planning and the incorporation of mobile social network features were essential to success. With a 93.301% AUC on the SyriaTel dataset, XGBOOST performed better than GBM, Random Forest, and Decision Tree. When tested on a fresh dataset, XGBOOST's AUC was 89%. Non-stationary data necessitates frequent model retraining. Social network analysis was used to improve telecom churn prediction.

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Paper ID : 224	Migraine Detection and Classification using Quantum Enhanced Support Vector Machine
	<i>Track: Healthcare and Medical Diagnostics</i>

Sharma Abhishek, Maulana Azad National Institute of Technology

Corresponding Author: abhiguna25@gmail.com

Not Selected for presentation and Publication

Abstract : Migraine is a multifaceted neurological disorder marked by severe, often incapacitating headaches that are typically accompanied by a range of additional symptoms, including nausea, photophobia (sensitivity to light), and, in some cases, aura (visual disturbances that precede or accompany the headache). Early detection of migraines, as well as the ability to distinguish migraines from other headache disorders, is of considerable importance in clinical practice. Quantum Machine Learning (QML) aims to create ML models tailored for quantum computers. In this work, the quantum-enhanced approaches offer better classification results than some classical models.

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Paper ID : 225	Quanvolutional Neural Network with Quantum Data Augmentation For Image Classification: A Review <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
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Sharma Abhishek, Maulana Azad National Institute of Technology

Corresponding Author: abhiguna25@gmail.com

Not Selected for presentation and Publication

Abstract : In this paper, we introduce an innovative approach to image classification by integrating quantum computing techniques into traditional convolutional neural networks (CNNs). Our model, termed the Quanvolutional Neural Network (QNN), leverages quantum data augmentation to enhance the diversity and richness of training datasets. By employing quantum operations such as superposition and entanglement, we generate augmented images that capture complex variations beyond classical transformations. The QNN architecture incorporates quantum convolutional layers to process quantum-enhanced data, extracting features that are then fed into classical layers for final classification. We provide a comprehensive analysis of the computational overhead and scalability of our approach, discussing both the potential and limitations of current quantum hardware. Results indicate that integrating quantum data augmentation within neural networks offers a promising pathway for advancing machine learning capabilities, highlighting the synergistic potential of quantum computing and deep learning.

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Paper ID : 226	A Multifunctional Onboard Charger for Electric Vehicles with Model Predictive Control and Particle Swarm Optimization-Based MPPT <i>Track: Cybersecurity, Blockchain, and IoT</i>
MAHESH MUTHYALA ; HARISH KOMMERA; YASASWINI NAGAPALLI; NAVNEEN GANDLA; SREELEKHA SANIKE, Annamacharya institute of technology and sciences, Rajampet <i>Corresponding Author:</i> kommeraharish2003@gmail.com	

Not Selected for presentation and Publication

Abstract : This work presents a multipurpose onboard charger (OBC) for electric vehicles (EVs) that includes energy switching circuitry for both high-voltage and Low-voltage batteries and a solar roof, and system can work in four modes: grid-to-vehicle (G2V), vehicle-to-grid (V2G), HVB-to-LVB (H2L) and HVB + PV-to-LVB (HP2L), optimizing energy flow based on available sources, including the AC grid and photovoltaic (PV) system. To enhance performance. A Model Predictive Controller (MPC) is employed for precise real-time power management across the modes, ensuring stability and efficiency. Additionally, a Particle Swarm Optimization based The Maximum Power Point Tracking enhances power from solar roofs regardless of irradiation circumstances. The envisioned OBC features an active power decoupling (APD) circuit to reduce DC-link capacitance while achieving high power density through selective topology operation. A 3.3-kilo Watt model was developed, and experimental outcomes validate the effectiveness of control technique, showcasing improved waveform quality, MPPT efficiency, and overall system performance.

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Paper ID : 227	Retrieval of atmospheric motion winds using local area feature matching method <i>Track: Optimization and Prediction</i>
Ganesh Harsha Vardhan Behara; Anuradha Govada; Sai Krishna Aditya Kodi; Hemanth Kumar Vutukuri, Siddhartha Academy of Higher Education University <i>Corresponding Author:</i> chinnubehara3456@gmail.com	
Session # VS5 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.	

Abstract : Horizontal atmospheric wind can be estimated from feature tracking of remotely sensed cloud tops or moisture fields over a specific time interval. These feature tracking wind products, commonly known as Atmospheric Motion Vectors (AMVs), are derived by selecting and tracking cloud and water vapor features observed by geostationary satellites. AMVs are crucial for weather prediction and climate studies, as they offer insights into atmospheric circulations and dynamics with high spatial and temporal resolution. In this study, the analysis has been expanded to incorporate feature-based motion estimation techniques, including SIFT-based key point detection, FLANN feature matching, RANSAC outlier rejection, and optical flow analysis. These methods enhance the accuracy of cloud displacement tracking, providing a more detailed and reliable representation of atmospheric wind patterns. These parameters provide a more advanced understanding of the motion vectors, allowing for a detailed evaluation of wind field variations. The AMVs are retrieved using Geostationary Satellite data from INSAT-3DR, which is fine-tuned to enhance the precision of these vectors. The use of advanced methodologies ensures that the motion vectors are robust and reliable for meteorological applications. Such detailed analyses not only improve the understanding of atmospheric motion at various scales but also strengthen the ability to forecast weather events with greater accuracy. The study underscores the critical role of satellite-derived AMVs in modern meteorology and their potential for advancing atmospheric research.

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Paper ID : 228	Real-Time Phishing URL Detection through Hybrid Deep Learning and IoT Security Integration" <i>Track: Cybersecurity, Blockchain, and IoT</i>
Navya Mesapam, Vahini college thiruvuru <i>Corresponding Author:</i> navyagani35@gmail.com	
## Not Selected for presentation and Publication ##	

Abstract : People are tricked into revealing sensitive information by the dangerous phishing cybersecurity assaults. The effectiveness of blacklists together with rule-based systems is limited since attackers keep modifying their tactics. The research develops a machine learning methodology to achieve better detection of phishing websites.

The model evaluates domain attributes and URL patterns together with HTML patterns to achieve precise phishing link detection. The research trains Decision Tree and Random Forest algorithms using balanced datasets which enhances detection accuracy for new-found phishing threats.

The system demonstrates reliability and scalability because it implements three critical techniques: feature engineering alongside hyperparameter tuning together with real-time detection capabilities. Machine learning technology proves successful in improving cybersecurity because it detects phishing attacks prior to their harmful execution.

The approach constructs an enhanced online fraud defence system that protects users as well as organizations. Through this method phishing detection becomes a proactive process which actively decreases both data breach risks and financial losses.

Keywords: Phishing detection, machine learning, cybersecurity, URL classification.

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Paper ID : 229	IoT Based Health Monitoring System <i>Track: Cybersecurity, Blockchain, and IoT</i>
	Gabale Ragini, VIT-AP, amaravati <i>Corresponding Author:</i> raginigabale22@gmail.com

Not Selected for presentation and Publication

Abstract : As people age, they often suffer from health issues such as heart disease, high blood pressure, and diabetes, making continuous health monitoring crucial to prepare for emergency situations. This research presents a real-time monitoring system for the elderly, capable of measuring heart rate and Peripheral Capillary Oxygen Saturation Level (SpO2). The system is built using a MAX30100 sensor as the front-end and a NodeMCU (ESP8266) microcontroller to collect and transfer data to the cloud. Data was collected from five healthy subjects, and their SpO2 and heart rate readings underwent validation processes including segmentation and filtering. For SpO2 measurements, the data was computed into IR/RED variables and further processed using empirically derived calibration curves to classify results as normal or abnormal. For heart rate validation, a correlation test was conducted between experimental readings and reference measurements, showing a strong correlation ($r_s = 0.993$). The system demonstrated a percentage error of less than 3% for SpO2 and 1.03% for heart rate when compared with a commercial oximeter. Based on these validation results, the monitoring system is deemed ready for use, offering an IoT-based platform that allows multiple authenticated users to monitor a patient's condition remotely.

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Paper ID : 230

ENVIROTECH: REVOLUTIONIZING WASTE MANAGEMENT WITH IOT-DRIVEN AUTOMATED SEGREGATION AND ALERTS

Track: Agriculture, Social Good, and Emerging Technologies

Selvi Kalai, R M D Engineering College

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Not Selected for presentation and Publication

Abstract : Abstract— It is now vital to automate the separation of biodegradable and non-biodegradable trash due to the increasing urge for waste management. The suggested system analyzes waste and divides it into groups that are either biodegradable or non-biodegradable using image processing based on Python. The technology employs voice commands to route waste to the appropriate dustbin after it has been classified. In addition to trash segregation, the system incorporates temperature and gas sensors to measure temperature variations and monitor environmental conditions in the waste bins. This helps to reduce dangers by ensuring that harmful gases, such as methane, are identified in time. The bin's design also includes a notification system that alerts users when it is time for disposal or when the bins are nearing the capacity. By integrating these features, the smart waste management system used to promotes recycling and also enhances public health and safety in urban environment. The bin's fill level is checked by an ultrasonic sensor, and all sensor data is sent to an IoT platform for real-time tracking that tracks the data and prompt waste pickup. By increasing resource recovery from garbage, this automated system lowers human error, increases waste management efficiency, and supports environmentally friendly practices.

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Paper ID : 231

Classification of Depression and Suicidal Tendencies Using Machine Learning with Voice and Text Inputs

Track: Healthcare and Medical Diagnostics

Pokuri Srinivasa; Anantha Srujan Reddy; Telaprolu Krishna Koushi; Kongara Dhavalesh, VIT AP

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Session # PS4 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This project presents an Automated Mental Health Classification System designed to assess users' mental states—specifically depression, suicidal tendencies, and non-suicide—using text and audio inputs. The system leverages multiple machine learning models, including Logistic Regression, Random Forest, Decision Tree, and Multinomial Naive Bayes, with Logistic Regression demonstrating the best performance. Audio inputs are transcribed into text using the Whisper API, and all text data undergo a preprocessing pipeline consisting of stopword removal, lemmatization, and feature extraction using TF-IDF. The system delivers immediate classification results and provides tailored mental health resources such as articles, videos, and helplines based on the predicted mental state. A Streamlit-based web interface enables seamless user interaction, offering

real-time feedback. This system aims to promote early intervention and support for individuals experiencing mental health challenges.

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Paper ID : 232	IoT and machine learning approach for detecting traffic rule violation and emergency vehicle <i>Track: Cybersecurity, Blockchain, and IoT</i>
Pokuri Srinivasa; Telaprolu Krishna Koushi ; Kongara Dhavalesh; Anantha Srujan Reddy, VIT AP <i>Corresponding Author:</i> pokuri.srinivasarao@vitap.ac.in	

Not Selected for presentation and Publication

Abstract : Nowadays, the number of vehicles on the road has increased significantly, making traffic management very challenging for the authorities. To address this, we propose an integrated smart traffic system with emergency vehicle priority and traffic rule violation detection. This system involves both hardware and software components, employing computer vision and machine learning algorithms to detect traffic violations such as jumping red lights, helmet rule violations, and triple riding. An emergency vehicle detection model creates a green corridor for police cars, fire trucks, and ambulances. A web interface enables real-time monitoring, while an IoT-based hardware setup ensures accurate implementation on the roads. This approach enhances traffic safety, improves emergency response efficiency, and facilitates the identification of traffic rule violations.

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Paper ID : 233	DISEASE PREDICTION FROM SYMPTOMS-USING CNN <i>Track: Healthcare and Medical Diagnostics</i>
Pokuri Srinivasa; Bommaraju Saketh Ram; Eduru Srihari Sesha Sai; Kommareddy Pranay Naga Venkata Subba Reddy; Adimalla Charan, VIT AP <i>Corresponding Author:</i> pokuri.srinivasarao@vitap.ac.in	

Session # PS4 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The increasing need for accessible media has driven innovations to make visual content, such as comic books, available to visually impaired individuals. This paper introduces a novel system that utilizes advanced AI technologies to transform comic books into immersive auditory experiences. Leveraging Zero-Shot Learning, the system identifies characters and extracts relevant text, while YOLOv8 detects speech bubbles with a high degree of precision and recall. Spatio-Temporal Graph Neural Networks (ST-GNN) analyze character interactions and narrative flow, enabling context-aware dialogue extraction. The extracted dialogues are organized into character-labeled text files and enriched with sentiment analysis to determine emotional tones such as happiness, sadness, or anger. Finally, using Edge TTS, the system dynamically modulates voice parameters and integrates background music to create a rich and engaging auditory narrative.

* * * * *

Paper ID : 234	Comic Reader for the Visually Impaired <i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Pokuri Srinivasa; Bommaraju Saketh Ram; Eduru Srihari Sesha Sai; Kommareddy Pranay Naga Venkata Subba Reddy; Adimalla Charan, VIT AP	
<i>Corresponding Author:</i> pokuri.srinivasarao@vitap.ac.in	

Session # PS9 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The increasing need for accessible media has driven innovations to make visual content, such as comic books, available to visually impaired individuals. This paper introduces a novel system that utilizes advanced AI technologies to transform comic books into immersive auditory experiences. Leveraging Zero-Shot Learning, the system identifies characters and extracts relevant text, while YOLOv8 detects speech bubbles with a high degree of precision and recall. Spatio-Temporal Graph Neural Networks (ST-GNN) analyze character interactions and narrative flow, enabling context-aware dialogue extraction. The extracted dialogues are organized into character-labeled text files and enriched with sentiment analysis to determine emotional tones such as happiness, sadness, or anger. Finally, using Edge TTS, the system dynamically modulates voice parameters and integrates background music to create a rich and engaging auditory narrative.

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Paper ID : 235	Improved Brain Tumour Segmentation <i>Track: Medical Imaging and Bioinformatics</i>
Waran Logesh, Veltech university	
<i>Corresponding Author:</i> Logesh.vtu@gmail.com	

Not Selected for presentation and Publication

Abstract : Brain tumours are difficult to segment due to their complex shapes and varying appearances. Accurate segmentation is needed for diagnosis, treatment planning, and follow-up. This study is focused on improving brain tumour segmentation using the Swin U-Net model, which utilizes the Swin Transformer's ability to learn global features and the U-Net's powerful segmentation capability. MRI scans from benchmark datasets like Brats2024 utilized for testing and training the model. The Swin U-Net is based on an encoder-decoder structure, in which the encoder takes fine details using Swin Transformer blocks and the decoder builds high-resolution segmentation maps. Experiments showed significant improvements in segmentation accuracy, with larger Dice coefficients than standard convolutional neural networks. The model correctly identified tumour boundaries and generalizes well between tumour and imaging scenarios. These findings show the potential of the Swin U-Net model as a high performance automated brain tumour segmentation tool for more accurate diagnosis and personalized treatment planning in neuro oncology. * * * * *

Paper ID : 237

ENERGY-EFFICIENT MAJORITY VOTING IN DIGITAL LOGIC DESIGN

Track: Agriculture, Social Good, and Emerging Technologies

T Brinda Prakhsa Dharsini; R Jamuna, Sri Shakthi Institute of Engineering and Technology

Corresponding Author: brinda.avn@gmail.com

Session # VS2 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Efficient decision-making is essential in modern digital systems to improve both performance and energy efficiency. This paper introduces a novel Majority Decision Architecture aimed at minimizing hardware area and power consumption. The design incorporates techniques such as approximate adder trees, early termination strategies, and compact encoding schemes to achieve significant reductions in resource usage. Targeted at scenarios involving the aggregation of multiple classifier outputs, the architecture efficiently determines the final decision class. Hardware synthesis and power evaluations reveal that the proposed approach reduces logic utilization by more than 60% and cuts dynamic power usage by approximately 50%, with negligible effects on static power. These improvements are achieved without compromising the accuracy of the decision-making process, highlighting the architecture's suitability for power-sensitive and performance-critical applications.

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Paper ID : 238

Advanced Machine Learning Models for Predicting Diabetes Risk

Track: Healthcare and Medical Diagnostics

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Session # VS8 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : An extensive number of individuals worldwide suffer from diabetes causing the need for early detection to achieve proper medical treatment. The study constructs a diabetes forecast system based on clinical data obtained through machine learning procedures. Support Vector Machines joins Logistic Regression and Decision Tree as well as Random Forest in supervised learning to detect primary health measures such as blood pressure and glucose value and BMI and age. Healthcare professionals can boost the model accuracy by implementing feature selection together with normalization procedures while handling missing values in the dataset. The evaluation of different models occurs through accuracy measurement and precision alongside recall calculations in addition to F1-score assessments. Artificial intelligence models demonstrate prospects to speed up diabetes detection according to research findings thereby enhancing medical practitioners with better diagnosis choices. Predictive healthcare systems benefit from artificial intelligence solutions in their applications through quality data integration with appropriate algorithms for efficient operation.

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Paper ID : 239	HIGH-SPEED AREA-EFFICIENT VLSI ARCHITECTURE OF THREE-OPERAND BINARY ADDER
<i>Track: Agriculture, Social Good, and Emerging Technologies</i>	

B Abarna, Sri Shakthi Institute of Engineering and Technology

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Not Selected for presentation and Publication

Abstract : The demand for high-speed and area-efficient arithmetic circuits is increasing with the advancement of modern digital systems, including processors, artificial intelligence (AI) accelerators, and cryptographic applications. A three-operand binary adder is a fundamental arithmetic unit that enhances computational efficiency by reducing the number of sequential addition steps required in traditional two-operand adders. This paper presents a high-speed, area-efficient VLSI architecture for a three-operand binary adder, optimized for implementation on Xilinx Field-Programmable Gate Arrays (FPGAs). The proposed design focuses on reducing critical path delay, optimizing hardware resource utilization, and enhancing power efficiency. By leveraging Xilinx-specific resources such as lookup tables (LUTs), carry chains, and DSP slices, the design achieves higher computational speed with minimal area overhead. The FPGA implementation demonstrates significant improvements in throughput and power efficiency, ensuring scalability for next-generation computing architectures. In conclusion, the optimized three-operand binary adder design offers an effective solution for applications requiring high-speed arithmetic operations with minimal area and power consumption. The architecture, implemented using Xilinx FPGAs, provides a practical and efficient alternative to conventional multi-operand addition techniques, making it a valuable component in modern VLSI systems.

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Paper ID : 240	AI-Powered Interactive Q&A System for Enhanced Learning in Classrooms
<i>Track: Agriculture, Social Good, and Emerging Technologies</i>	
R Sharmila Devi; R Umesh; R Keerthana; Manikandan Sobana, Velammal College Of Engineering and Technology	
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Session # VS2 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : The AI-Powered Interactive Q&A System for Enhanced Learning in Classrooms is a mobile application designed to automate classroom Q&A sessions, enhance student engagement, and reduce educator workload. The app consists of two modules: a restricted student module, where students can only answer questions and respond to remedial measures, and a staff module, which enables educators to manage sessions by selecting time slots, class sections, and student numbers, as well as uploading materials and monitoring student progress. Leveraging generative AI, machine learning, and natural language processing, the system generates questions based on student roll

numbers and syllabus content, ensuring fair participation and unbiased questioning. Developed using Android Studio, the app streamlines classroom management, alleviates educator stress, and fosters a more interactive learning environment.

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Paper ID : 241	Autism Spectrum Disorder Detection Using Deep Learning
	<i>Track: Healthcare and Medical Diagnostics</i>
Ramathulasi Dr. Thota; A Muni Aswanth Prasad, VIT AP	
<i>Corresponding Author:</i> ramathulasi.t@vitap.ac.in	

Not Selected for presentation and Publication

Abstract : Autism Spectrum Disorder (ASD) is a developmental condition impacting social interaction, communication, and behaviour. For those who are impacted, early diagnosis and intervention greatly aid and enhance results. This project explores the use of advanced deep learning models to automate ASD detection from medical images, employing architectures like VGG-16, Inception Net, EfficientNet-B0, EfficientNet-B7, and a custom hybrid model enhanced with additional classification layers. The dataset, comprising images of individuals with and without ASD, is augmented using techniques such as rotation, flipping, and zooming to increase diversity and reliability. Models are fine-tuned to capture intricate patterns while maintaining computational efficiency. Performance is evaluated using metrics such as accuracy, precision, recall, and F1-score, with the custom hybrid model demonstrating superior results. This research advances the application of machine learning in healthcare, enabling accurate and timely ASD diagnosis, reducing diagnostic errors, and improving clinical workflows, thereby enhancing the quality of life for individuals with ASD and their families.

* * * * *

Paper ID : 242	Automated Skin Lesion Classification Using Machine Learning: A Comparative Study of Model Performance
	<i>Track: Medical Imaging and Bioinformatics</i>
Amutha S; Yadav Arpita ; Sahu Vaibhav; Kumari Niharika, Vel Tech University	
<i>Corresponding Author:</i> vaibhavsahu150@gmail.com	

Not Selected for presentation and Publication

Abstract : Skin lesion detection using machine learning has emerged as a crucial tool in early diagnosis and treatment planning for skin cancer, particularly melanoma. This research focuses on implementing multiple machine learning algorithms, including Random Forest, Support Vector Machine (SVM), and Decision Tree, to classify and compare the accuracy of skin lesion detection models. By leveraging datasets from Kaggle and utilizing a full-stack web application, the system provides an intuitive interface for users to upload skin lesion images and receive diagnostic predictions. The proposed methodology integrates data preprocessing, feature extraction, and

model training to optimize classification performance. In addition to automated lesion detection, the platform includes a healthcare chatbot designed to enhance user engagement and provide valuable information on melanoma. The chatbot assists users by answering queries related to skin cancer, risk factors, symptoms, and preventive measures, such as sun protection and regular dermatological checkups. This interactive component aims to improve public awareness and encourage early intervention. The web application is developed using a full-stack approach, ensuring seamless user experience and real-time data processing. Through comprehensive testing, the research evaluates model accuracy, sensitivity, and specificity to determine the most effective approach for skin lesion classification. By integrating machine learning with a user-friendly web interface and a healthcare chatbot, this study contributes to enhancing early detection and prevention strategies for melanoma, ultimately aiding in reducing the global burden of skin cancer.

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Paper ID : 243	Development of tool for Automatic Generation of Software Cycle Documents for Automation System at ISRO
	<i>Track: Agriculture, Social Good, and Emerging Technologies</i>
Turaga Geervani ; Dhar Murali, ISRO	
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Session # VS2 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : This paper presents the design and development of an automated software tool that transforms PLC program code into comprehensive and accessible documentation for automation systems at the Liquid Propellant Storage and Servicing Facility (LSSF). Developed during a winter internship, the tool addresses challenges in interpreting .zef files—machine-generated, compressed formats—by converting them into XML, generating state transition diagrams, and computing code metrics. It significantly simplifies maintenance, enhances documentation, and aids in debugging ISRO's process automation logic.

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Paper ID : 244	ENHANCING LAB DIAGNOSIS WITH X- RAY IMAGE PREDICTION
	<i>Track: Medical Imaging and Bioinformatics</i>
MANKAWADE AMRUTA; KAWANE AYUSH; Kathar Valabh; Maheshwari sakshi; KARMANKAR NIKHIL; Gatave Kishor, Vishwakarma Institute of Technology, Pune	
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Session # VS7 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Abstract— The automated analysis of chest X-ray images has become an essential tool in medical diagnostics, aiding radiologists in detecting abnormalities with greater efficiency and

accuracy. This study presents a deep learning-based approach to classify chest X-rays for multiple conditions using a modified DenseNet121 architecture. Leveraging the Chest X-ray dataset, which contains over 112,000 labelled images, the proposed model addresses challenges such as data imbalance and patient overlap through careful preprocessing and the implementation of a custom weighted loss function. Grad-CAM visualizations are employed to provide interpretable insights into the model's decision-making process. Experimental results demonstrate the model's ability to achieve high performance across multiple abnormalities, with area under-curve (AUC) metrics serving as a key evaluation measure. This work underscores the potential of explainable AI in advancing medical imaging and improving diagnostic workflows.

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Paper ID : 246	Artificial Intelligence-Based Thyroid Disease Prediction Using Symptom and Wearable Data
	<i>Track: Healthcare and Medical Diagnostics</i>

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Session # PS4 for Presentation & Publication in Conference Proceedings published by M/S Taylor & Francis Publishers, UK.

Abstract : Thyroid diseases, hyperthyroidism, and hypothyroidism, in most cases, go undiagnosed due to similar and vague symptoms. Timely diagnosis is critical for effective care and treatment. This project implements an AI-powered system for symptom analysis of thyroid diseases using ML, NLP, and wearable health data, which makes predictions of diseases of the thyroid based on patient-reported symptoms, lab results, and live body data. The system makes predictions using a random forest classifier and LSTM for processing unstructured and structured input of symptoms. The predictions are handled using a Flask-based API, and a web app in React provides a platform for users to provide input of symptoms and receive insights based on AI. Integration of wearable devices such as Apple Health, Fitbit, provides for constant monitoring of heart rate, sleep patterns, and temperature fluctuations. The AI model is highly accurate in diagnosing diseases of the thyroid, which helps users identify potential cases of diseases of the thyroid in time and receive medical advice. This study demonstrates the capability of AI-powered medical solutions in making medical diagnosis of diseases of the thyroid easier, accessible, and efficient.

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