Volume-4 Issue-04

Dayananda Sagar
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SCHOOL OF ENGINEERING

SOE-BULLETIN

The Official Newsletter of **School of Engineering**

APRIL 2026

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SCHOOL OF ENGINEERING

Vision

Transform lives through excellence in engineering education, research and innovation with an emphasis on sustainability, inclusive technologies and global needs.

Mission

1.Design and deliver contemporary engineering curricula to address regional and global needs while emphasizing ethics, values, integrity and regional relevance. 2.Carryout high impact academic research, industry projects and innovation activities with active student engagement to advance science and engineering knowledge and state-of-the- art industry practices. 3.Develop regional and national leaders to advance the society and economy.

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SCHOOL OF
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WORKSHOPS / SKILL DEVELOPMENT PROGRAMS

Virtual Twin Enabled Cubesat Design & Development Program Dassault Systemes La foundation 3-5 April 2026

From 3rd to 5th April 2026, the Dassault Systèmes Foundation organized a workshop titled “From Mission Goals to Hardware: The RFLP MBSE Approach for CubeSats” under the Virtual Twin Enabled CubeSat Design & Development Program at its Bengaluru facility.

Dr. Prasanthakumar H. G., Associate Professor, Department of Aerospace Engineering, Dayananda Sagar University, and Principal Investigator of the project, participated along with his team comprising Mr. Ananda (JRF), Mr. Charan Raj (ENG23AS0002), Mr. Rishab (ENG23AS0015), Mr. Ayan (ENG23AS0041), Ms. Pragati (ENG23AS0031), Mr. Keertan (ENG23EC0060), and Mr. Saatvik S (ENG23EC0093).

The workshop brought together participants from leading institutions such as Thapar Institute of Engineering & Technology, Manipal Academy of Higher Education, and Nitte Meenakshi Institute of Technology, fostering a collaborative learning environment. Sessions focused on mission concept development, feasibility analysis, and system architecture design for CubeSats using advanced Model-Based Systems Engineering (MBSE) tools, particularly CATIA Magic on the 3DEXPERIENCE platform.

One day Workshop on Build ,Test and Fly of Drone on 17 April 2026

On 17th April 2026, the Department of Aerospace Engineering, Dayananda Sagar University, conducted a one-day workshop titled “Build, Test and Fly Drone” for VI semester students.

The session was led by Mr. K. Raghav, an alumnus of DSU.
Students gained hands-on experience in drone assembly, component integration, and flight control systems. The workshop covered calibration, safety checks, troubleshooting, and fundamentals of flight dynamics and controller tuning.

Participants also engaged in real-time piloting and mission execution, gaining practical exposure to UAV systems and operations, making the session highly interactive and industry-oriented.

Technova: Igniting Innovation, Showcasing Excellence

The Department of Computer Science and Technology, School of Engineering, Dayananda Sagar University, organized “CST Project Expo–2026” on 25th April 2026. The event provided a platform for final-year students to showcase innovative and application-oriented projects.

Around 15 teams presented projects across domains such as Artificial Intelligence, healthcare, education, security, logistics, and sustainability, demonstrating strong technical skills and real-world problem-solving abilities. The expo encouraged interaction, feedback, and knowledge sharing among faculty and students.

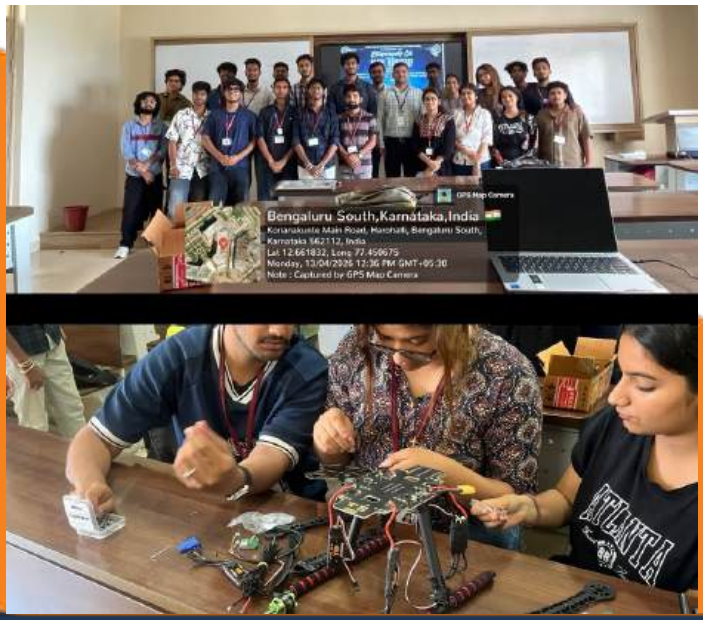
The event successfully promoted innovation, experiential learning, and interdisciplinary application of technology, reflecting the department’s commitment to academic excellence.

Workshop on “Drone Fundamentals -2026

he Department of Computer Science & Engineering, School of Engineering, Dayananda Sagar University, organized “The Drone Workshop: Fundamentals to Flight” on 13th April 2026. Conducted by the Entrepreneurship Cell, the workshop aimed to introduce students to unmanned aerial systems and enhance their practical skills.

The session covered key topics including drone components, flight mechanics, control fundamentals, Pixhawk flight controller, Mission Planner calibration, safety protocols, and a live flight demonstration. Participants actively engaged in hands-on activities such as assembling drone frames, configuring systems, and observing real-time flight operations, gaining a comprehensive understanding of drone technology.

Faculty Coordinator: Dr. Sridhar S. K.



AI Workshop by Google

The Department of Computer Science and Engineering, School of Engineering, Dayananda Sagar University, in collaboration with Aurum – The Legion (Tech Club) and She Builds – Bengaluru, organized a “Build with AI” workshop on 28th April 2026. The session, titled “Build a Location Intelligence AI Agent,” focused on integrating geospatial technologies with artificial intelligence.

The workshop was conducted by Ms. Nikita Singh, who guided participants through building AI agents using tools like Google Maps and BigQuery. The session emphasized hands-on learning and real-world applications, enabling students to gain practical exposure to AI-driven geospatial solutions.

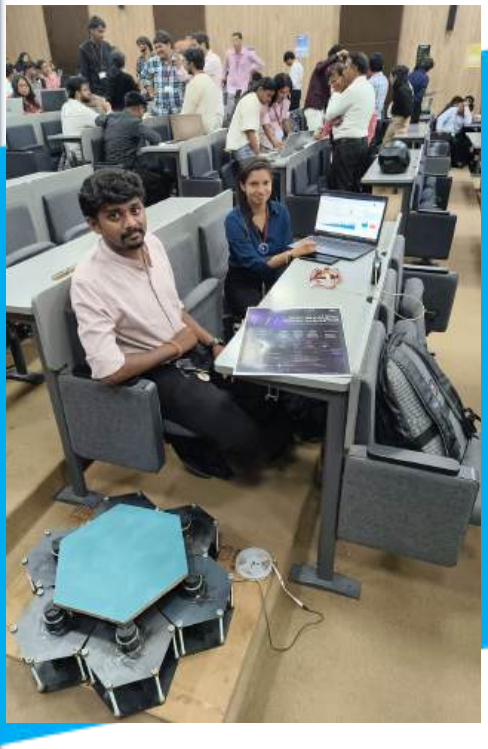
The event witnessed active participation and was supported by the Google Developer Clubs team, making it an engaging and impactful learning experience.

Faculty Coordinators: Dr. Gousia Thahniyat, Prof. Manoj Kumar N. I.

Project Expo 2K26

The Department of Computer Science and Engineering, School of Engineering, Dayananda Sagar University, organized Project Expo 2K26 on 25th April 2026. The event showcased 38 innovative capstone projects, highlighting students' creativity, technical expertise, and real-world problem-solving abilities.

The expo was inaugurated by Dr. Girisha G. S., Chairperson, CSE, who emphasized innovation and critical thinking. Projects were evaluated by an expert panel including Mr. Mekala V. Reddy (IBM) and Mr. Sidhant Dayal (ANZ), who appreciated the quality of work and provided valuable industry insights. The top three projects were recognized for excellence, followed by prize distribution.
Winners: Devesh Mamadapur, Adrian Ronan Das, Punith Kumar B, Bilal Ahmed
1st Runner-Up: Rajavarman, Sristi A. H., Anagha M. Kamat, Aarthi Nayak Ullal
2nd Runner-Up: Tavva Tejaswini Reddy, Suhaib Yasir Bhosge, Sunilakumar, Syed Fuzail Rubbani
Faculty Coordinators: Dr. Sivananda Reddy E
Dr. P. Naresh
Dr. Kumar Dilip




GPS Map Camera
Ramanagara, Karnataka, India
Dayananda Sagara Mdc, Karnataka 562112, India,
Ramanagara, Karnataka 562112, India
Lat 12.662149° Long 77.450274°
Saturday, 25/04/2026 10:51 AM GMT +05:30
Google

Frontend Launchpad

The Department of CSE (AI & DS), School of Engineering, Dayananda Sagar University, successfully conducted the “Frontend Launchpad” workshop, a 3-day hands-on program focused on HTML and CSS to strengthen frontend development skills among students.

The workshop featured interactive sessions and practical demonstrations, providing students with real-world exposure to web development concepts. The program was coordinated by Prof. Pavani Vittapalli and Prof. Prabhjot Kaur, along with student coordinators Maduraa B. S. and Jashwanth R., under the guidance of conveners Dr. Udaya Kumar Reddy K. R. and Dr. Poongodi T.

The event concluded successfully with the distribution of certificates to all participants.

Full Stack Web Development Workshop

The Department of CSE (AI & ML) successfully organized the second round of a two-day workshop on “Full Stack Web Development” on April 1st and 2nd, 2026 for 4th-semester students, focusing on the growing importance of web development in shaping modern career opportunities, along with essential technical skill sets and evolving industry expectations. The event was convened by Dr. Jayavrinda Vrindavanam V, Professor and Chairperson, CSE (AI & ML), and moderated by Dr. Sugandha Saxena, Assistant Professor, CSE (AI & ML), with coordination by Prof. Bhuvana Mohini, Prof. Nivetha R, Prof. Soheli Chakraborty, Prof. Pragnya Mishra, and Prof. Upasana Shil.

The workshop featured practical demonstrations, guided exercises, and concluded with an interactive Q&A session that addressed students’ queries, ultimately serving as a valuable platform to bridge the gap between academic learning and industry requirements while equipping students with practical knowledge and insights into full stack web development careers.

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WEBINARS / SEMINARS / TECHNICAL TALKS

A Technical Interaction session on the INSPACe Model Rocketry Competition

Students from Team Cygnus, led by Ms. Chandana K. R., Mission Director, Dayananda Sagar College of Engineering, visited the DSU Main Campus on 10th April 2026 for a technical interaction on the IN-SPACe Model Rocketry Competition.

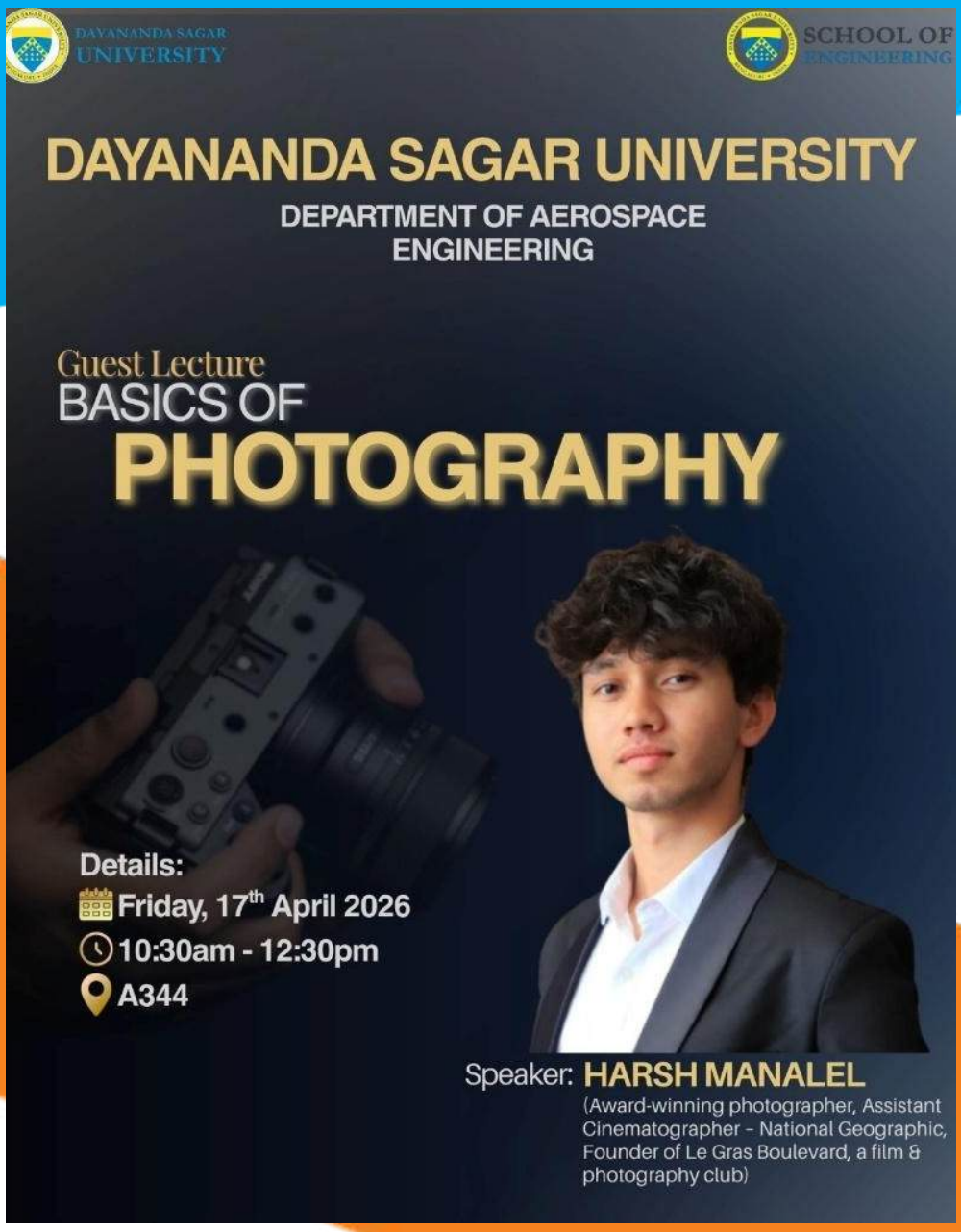
The session was led by Mr. Charan Raj (ENG23AS0002) and Mr. Rishab (ENG23AS0015) along with their team. Faculty members Dr. B. V. N. Ramakumar (Professor) and Prof. Sripad Kulkarni (Assistant Professor), Department of Aerospace Engineering, also addressed the participants.

The interaction focused on rocket design, propulsion fundamentals, safety protocols, and competition phases from concept to launch. The session provided valuable technical insights and motivated students to participate with innovation and confidence.

Guest lecture on Photography on 17 April 2026

On 17th April 2026, the Department of Aerospace Engineering, Dayananda Sagar University (DSU), organized a guest lecture on “Basics of Photography” for IV semester students as part of the Liberal Studies course. The session was delivered by Mr. Harsh Manalel, Founder of Le Gras Boulevard – a Film & Photography Club.

The lecture introduced students to key photography concepts such as composition, framing, lighting, exposure settings, and the use of natural and artificial light. Students also gained insights into visual storytelling, perspective, and subject positioning, enhancing their creativity and observational skills.



Exploring Diverse Career Pathways for Engineering Graduates

The Department of Computer Science & Technology conducted a talk entitled
"Exploring Diverse Career Pathways for Engineering Graduates" is a dynamic career talk designed to empower engineering students with the knowledge and tools necessary to navigate their professional journeys successfully on April 15, 2026, for the benefit of 6th & 4th semester CST students.

The session was delivered by Mr. Baskar Venugopalan, Director at Niyamatek Solutions Private Limited, to bridge the gap between academic learning and real-world career opportunities, ensuring students are well-prepared for the challenges and rewards of the engineering industry.

TechTalk on “Entrepreneurship in Artificial Intelligence Era

The Department of Computer Science & Engineering, School of Engineering, Dayananda Sagar University, in collaboration with Dell Technologies, organized a TechTalk on “Entrepreneurship in the Artificial Intelligence Era” on 16th April 2026. The session brought together students, faculty, and industry experts for an engaging exchange of ideas.

The talk was delivered by Mr. Vivekanandh N. R., a distinguished engineer at Dell Technologies, who shared valuable insights from his entrepreneurial journey and experience in AI-driven innovation and intellectual property. The session included an interactive Q&A, enabling students to gain deeper perspectives on career opportunities and startups in the AI domain.

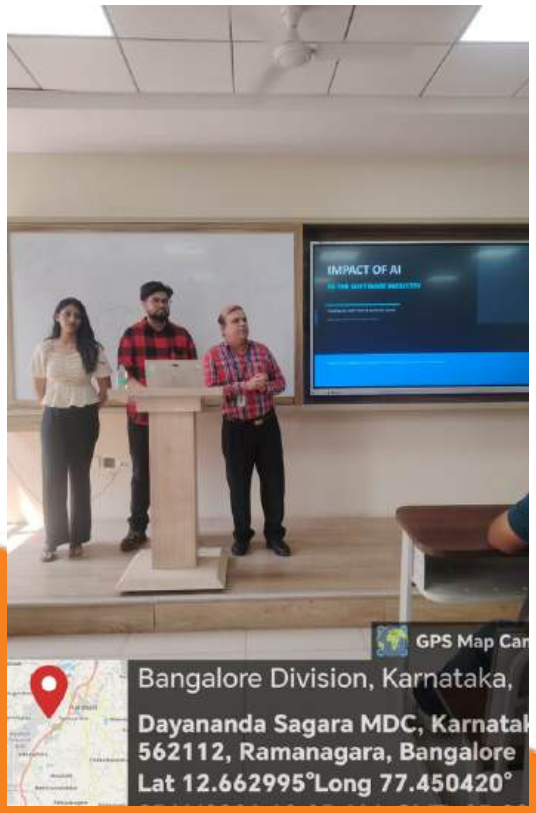
Faculty Coordinator: Dr. Sridhar S. K.

Alumni Talk on “Impact of AI in Software Industry

The Department of Computer Science and Engineering, School of Engineering, Dayananda Sagar University, organized Alumni Talk Series-7 (2026) on the topic “Impact of AI in Software Industry” on 25th April 2026. The session was delivered by alumnus Mihir Shahi (2021–2025 batch), currently a Data Scientist at TheMathCompany.

The talk provided valuable insights into the role of Artificial Intelligence in the software industry, covering current trends, real-world applications, and career opportunities. The session was highly interactive, with students actively engaging in discussions and gaining clarity on industry expectations and required skill sets

Faculty Coordinators: Dr. Gousia T
Prof. Gaurav Kumar



Technical Talk by Dr.Matteo Zallio

The Department of CSE (AI & ML) participated in a technical talk delivered by Dr. Matteo Zallio from the University of Cambridge on 22nd April 2026, which highlighted the growing significance of artificial intelligence as a fundamental skill comparable to reading, writing, and mathematics in earlier times. The session emphasized the role of AI in research, showcasing how it enhances efficiency, accelerates innovation, and enables data-driven decision-making.

The talk was attended by 4th-semester CSE (AI & ML) students along with the faculty coordinator, Dr. Ankita Thakkar, Assistant Professor, CSE (AI & ML), making it an insightful learning experience that strengthened students' understanding of AI's evolving impact.

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EVENTS: PROFESSIONAL SOCIETIES / CLUB ACTIVITIES

Guest lecture on CFD Organised jointly by Aeronautical Society of India (AESI) and Dayananda Sagar University (DSU)

The Department of Aerospace Engineering, Dayananda Sagar University, organized a guest lecture on 15th April 2026 titled “Computational Fluid Dynamics in Modern Aero Engine Design: Industrial Practices, Challenges, and Emerging Innovations.” The session was delivered by Dr. Sivapragasam, the esteemed speaker.

The lecture highlighted the critical role of Computational Fluid Dynamics (CFD) in solving complex design challenges in modern aero engines. Students gained practical insights into the application of CFD in designing and optimizing components such as compressors, turbines, and combustion systems to enhance performance, efficiency, and reliability.

The session also covered industrial practices in leading aerospace organizations and the integration of advanced technologies like high-performance computing, digital twins, and AI-driven simulations. Emerging trends in aero engine design and future research directions were discussed, providing students with valuable industry-oriented knowledge.

Guest Lecture on Aircraft Hangar Maintenance on 15-16 April 2026

The Department of Aerospace Engineering, Dayananda Sagar University, organized a guest lecture on 15th & 16th April 2026 titled “Aircraft Hangar Maintenance” for VI semester students. The session was delivered by Mr. A. Srinivasa, Consultant at Genser Aerospace.

The lecture provided insights into hangar operations, including scheduled and unscheduled maintenance, line and base maintenance practices, and aircraft inspection procedures such as pre-flight and transit checks. It also emphasized the importance of maintenance documentation, logbooks, and regulatory compliance.

Students gained knowledge on safety protocols, Foreign Object Damage (FOD) control, and quality assurance practices, making the session highly informative and industry-relevant.

Dayananda Sagar University Tech Fest CelestAI’26

The Department of Aerospace Engineering, in collaboration with the Departments of Electronics and Communication Engineering and Data Science, Dayananda Sagar University, organized the Tech Fest “CelestAI’26” from 23rd to 25th April 2026.

The Aerospace Engineering department hosted technical events under the banner “Sky Rift,” featuring competitions on rovers, drones, and RC planes, which saw enthusiastic participation and innovation. The fest was inaugurated by distinguished dignitaries Prasanth Balakrishnan Nair and Rahul Sharanappa Sankanur.

CelestAI’26 attracted participants from across Karnataka, providing a dynamic platform for technical exchange, creativity, and interdisciplinary collaboration. The event offered hands-on exposure to emerging technologies and was a grand success in promoting innovation and practical learning.

INAUGRATION OF IEEE AESS SOCIETY STUDENT'S CHAPTER

The Department of Aerospace Engineering, Dayananda Sagar University (DSU), inaugurated the IEEE Aerospace and Electronic Systems Society (AESS) Student Chapter (SBC14026I) on 25 April 2026.

The event was graced by the Chief Guest, Puneet Kumar Mishra, whose presence added significant prestige to the occasion. The chapter is mentored by Dr. Nagaraja S. R., Chairman, Department of Aerospace Engineering, and Dr. Hariharan V. K., Director, CSST, DSU.

The DSU IEEE-AESS Student Chapter operates under the guidance of Dr. Pushpa Mala S., Branch Counsellor, with Dr. Prasanthakumar H. G. serving as the Student Branch Advisor – AESS, and Mr. Charan Raj R. as the Student Branch Chair. The inauguration marks a significant milestone in strengthening professional engagement, fostering research, and promoting technical collaboration in aerospace and electronic systems among students.

DSU TECHFLIX SEASON-2 - LA CASA DE CODE - 24-hours National level Hackathon

The Department of Computer Science and Engineering, School of Engineering, Dayananda Sagar University, organized “TECHFLIX – LA CASA DE CODE”, a 24-hour hackathon that brought together students for an intensive experience of innovation, coding, and collaboration.

The event followed a multi-round format, progressing from screening and qualifiers to semi-finals and finals. Participants developed solutions across domains such as healthcare, education, sustainability, and smart cities, with guidance from industry mentors and parallel workshops on emerging technologies. Teams were evaluated on innovation, technical complexity, practicality, and presentation.

The hackathon concluded with a valedictory ceremony, recognizing outstanding teams for their creative and impactful solutions.

Winner: Team Boomers (Lekh Nayak, Vedant Tamboli, Sarang Patil)
1st Runner-Up: Entropy Engineers (Dhanush N, Gracey Dugar, Disha S. Jain)
2nd Runner-Up: Ayudham (Monjit Borah, Abhinav Mehta, D. A. Ajay)

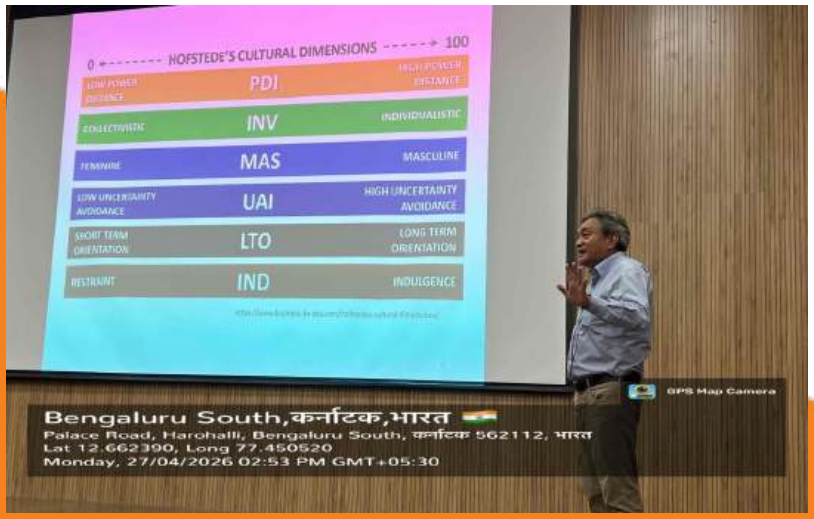
Faculty Coordinators: Dr. Meenakshi Malhotra, Dr. Sivananda Reddy E., Dr. Gousia Thanniyath, Dr. George Fernandez, Dr. K. Vengatesan, Dr. P. Naresh, Dr. Chetan V. Sagarnal, Prof. Vishwas D. B., Prof. Bharath M. B., Prof. Santhosh M., Prof. Diana George, Prof. Yashaswini H. C.

Japan Endowed Course

The Department of Computer Science and Technology, School of Engineering, Dayananda Sagar University, organized a Japan Endowed Course Lecture on “Business Culture and Characteristics of Japanese Companies, Communication Style, and Workplace Mindset” on 27th April 2026.

The session was delivered by Prof. Kuroda Kazumitsu, Chief Management Consultant, Japan Productivity Center, who provided insights into Japanese work culture and compared it with the US and India. The lecture covered Hofstede’s Cultural Dimensions, management philosophies, and emphasized the importance of cross-cultural competency, skill development, and career growth.

The event was attended by around 180 students and was graced by Dr. B. S. Satyanarayana (Vice Chancellor), Dr. Udaya Kumar Reddy (Dean, SoE), and Dr. M. Shahina Parveen (Chairperson, CS&T).



DSU Annual TechFest – CELESTAI 2026, CSE

The Department of Computer Science and Engineering (Data Science) at Dayananda Sagar University organized CELESTAI 2026, an AI-themed national-level techfest, from 23rd to 25th April 2026 in collaboration with the Departments of Electronics & Communication Engineering (ECE) and Aerospace Engineering under the guidance of Dr. Shaila S G and respective chairpersons. Coordinated by Faculty Coordinator Shivamma D. along with student coordinators, the event featured Poster Presentation, Tech Exhibition, and Game Rush on 23rd April, where students showcased innovative ideas and prototypes across AI, Data Science, Robotics, Electronics, and Aerospace, followed by the EDGE IQ Challenge, a 24-hour hackathon on 24th and 25th April focused on developing AI-driven solutions to real-world challenges. The event was mentored and evaluated by experts from MathWorks and witnessed enthusiastic participation, fostering innovation, collaboration, and exposure to emerging technologies.

IGNITE, Pragathi & Pinnacle Project Expo 2026

The Department of Computer Science and Engineering (Data Science) at Dayananda Sagar University organized a series of academic events—IGNITE: Project Showcase 2026 (4th Semester), Pragathi Project Expo 2026 (6th Semester), and Pinnacle Capstone Project Expo 2026 (8th Semester)—on 22nd April 2026. These events provided a platform for students to showcase innovative projects and technical skills across domains such as Artificial Intelligence, Machine Learning, Cybersecurity, Data Science, and Web Technologies, with participation from around 180 students (4th semester), 130 students (6th semester), and 57 students (8th semester). Projects were presented through posters, live demonstrations, and prototypes, and evaluated based on innovation, technical understanding, and practical applicability, creating an interactive environment that strengthened problem-solving, communication, and industry readiness while promoting interdisciplinary collaboration and experiential learning.

Expert talk on “Faculty as Trusted Engine of Innovation, Talent, and Societal Value in the Cognitive Era

The Department of Computer Science & Engineering, School of Engineering, Dayananda Sagar University, in collaboration with the IEEE Computer Society Student Chapter, successfully organized an insightful session titled “Faculty as Trusted Engine of Innovation, Talent, and Societal Value in the Cognitive Era” on 28th March 2026.

The session featured distinguished speakers Rashmi Fernandes and Prasad R. N., who delivered engaging talks and interacted actively with participants, fostering meaningful discussions and idea-sharing. The enthusiastic participation made the session highly interactive and impactful.

Faculty Coordinators: Dr. Basavaraj N. Hiremath, Dr. Savitha Hiremath
Branch Counselor: Dr. Pushpa Mala S
Student Coordinators: IEEE CS Student Members

Invited talk on "Together for health. Stand with science

The Departments of Computer Science & Engineering and Computer Science & Medical Engineering, School of Engineering, Dayananda Sagar University, organized an invited talk titled “Together for Health. Stand with Science” on 7th April 2026, marking World Health Day. The session was delivered by Dr. Priyadarisini N. J., Associate Professor, Department of Community Medicine, CDSIMER, DSU.

The talk emphasized the importance of science-based healthcare practices, informed lifestyle choices, and community awareness in promoting overall well-being. It also highlighted practical aspects such as balanced nutrition, mental health, and stress management techniques including yoga, meditation, and mindfulness. The session provided valuable insights into maintaining physical and emotional health, especially for students.

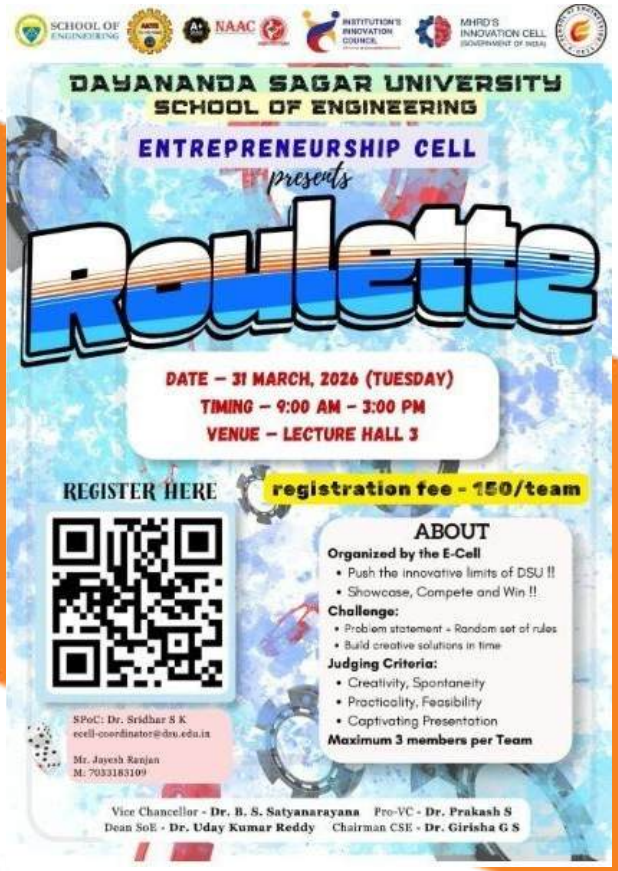
Resource Person: Dr. Priyadarisini N. J.
Faculty Coordinator: Prof. Mala B. A.
Student Coordinator: Mr. Pavan Kumar G. R.

E-cell Innovation Challenge “Roulette 2026

The Department of Computer Science & Engineering, School of Engineering, Dayananda Sagar University, organized “Roulette 2026” on 31st March 2026, in association with the E-Cell. The event was an innovative challenge where student teams developed solutions based on randomly assigned combinations of industry, technology, and target audience.

Participants showcased creativity, spontaneity, and problem-solving skills while pitching their ideas within a limited time. The event fostered innovation, teamwork, and entrepreneurial thinking, with winners receiving cash prizes and recognition.

Faculty Coordinator: Dr. Sridhar S. K.

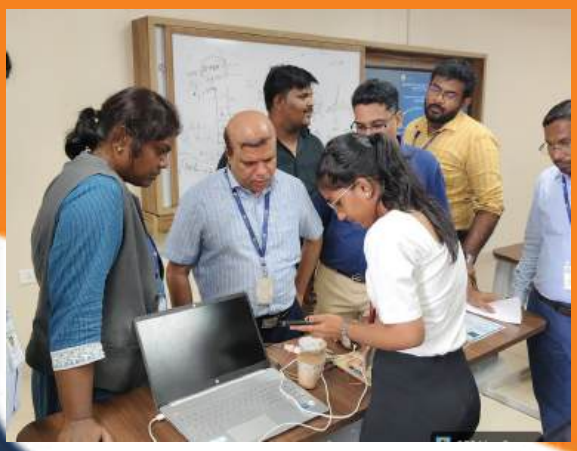


IoT Project Exhibition

The Department of Computer Science and Engineering, School of Engineering, Dayananda Sagar University, organized an IoT Project Exhibition on 27th April 2026. The event showcased innovative student projects built using embedded systems, sensors, and Internet of Things (IoT) technologies.

The exhibition featured projects across domains such as healthcare, agriculture, smart homes, safety, and environmental monitoring. Students presented working models and demonstrations, highlighting their creativity, technical skills, and problem-solving abilities. The event successfully promoted practical learning and innovation among students.

Faculty Coordinators: Dr. Jeeva S., Prof. Vishwas D. B.



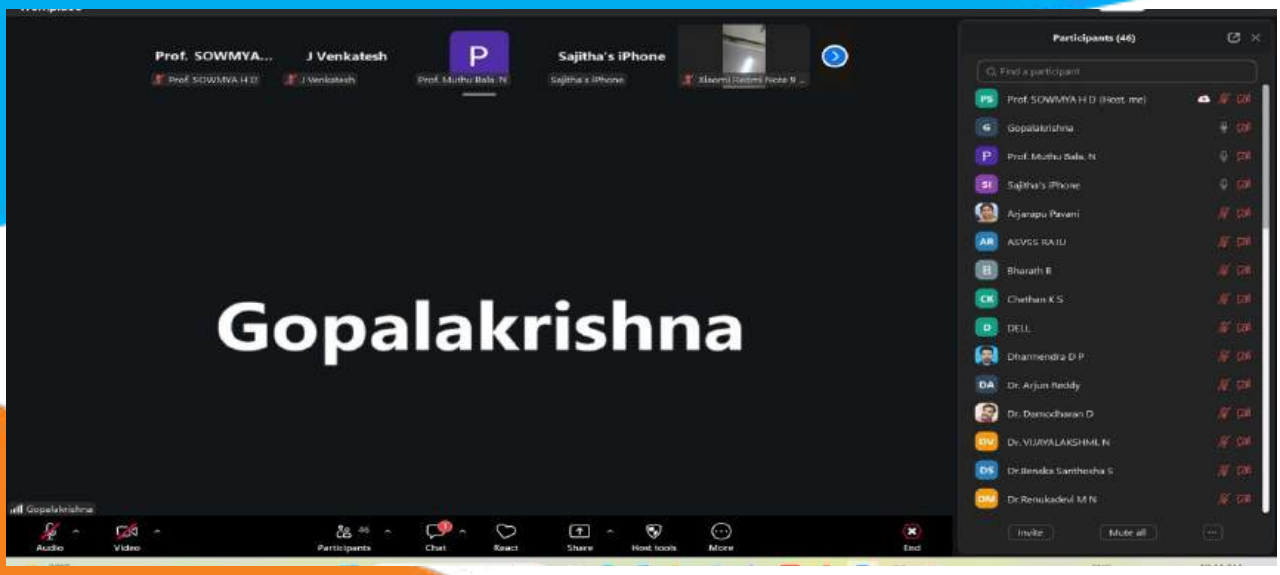
Parent Teacher Meeting for 4th and 6th Sem 2025-26

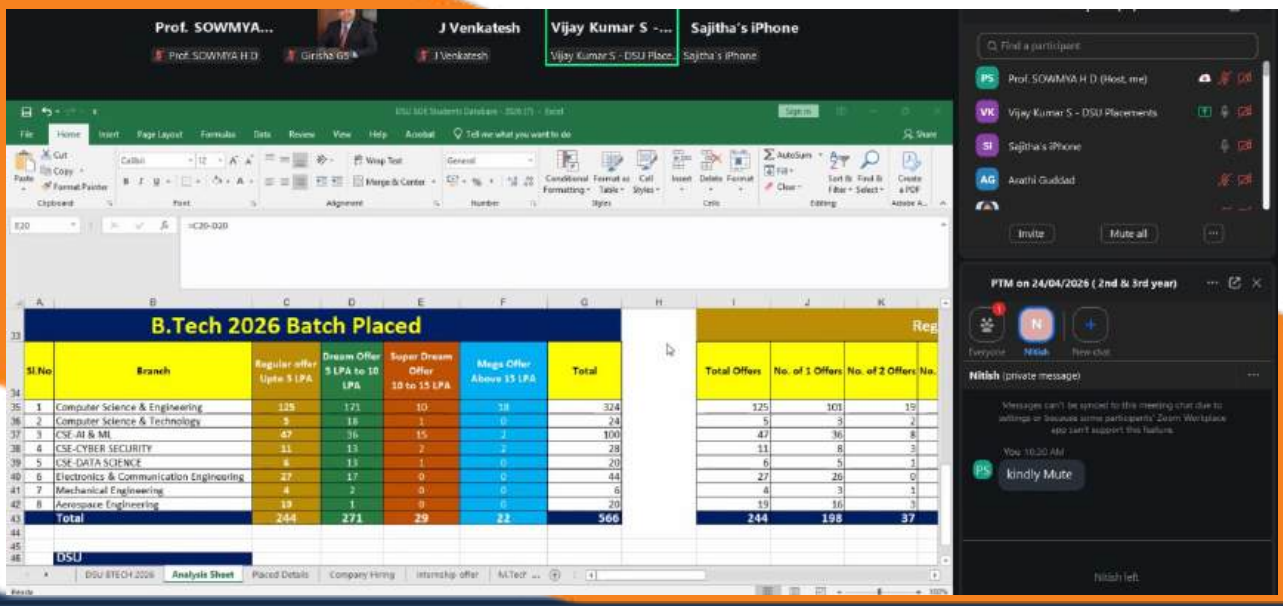
The Department of Computer Science and Engineering, School of Engineering, Dayananda Sagar University, conducted a Parents–Teachers Meeting (PTM) on 24th April 2026 for 2nd and 3rd year students (4th and 6th semesters).

The session included an overview of the department's curriculum, achievements, workshops, industry collaborations, and placement activities. Faculty members shared detailed insights into students' academic performance, attendance, and skill development, while parents received individualized feedback and were encouraged to actively support their wards.

The meeting also highlighted the importance of extracurricular activities and holistic development. Valuable inputs on curriculum design and student progress were discussed, making the session informative and interactive.

Faculty Coordinators: Prof. Mutubala, Prof. Sowmya H. D.





TECHFLIX SEASON 2: PROMPT WAR

The Department of Computer Science & Engineering, School of Engineering, Dayananda Sagar University, organized Techflix Season 2: Prompt Wars on 15th April 2026. Conducted in collaboration with Google for Developers and industry partners, the hackathon focused on prompt engineering and AI-driven problem-solving, attracting around 200 participants.

With a prize pool of ₹50,000, the event featured intensive problem-solving, collaboration, and real-time learning. Participants developed innovative AI-based solutions and presented them before a panel of judges. The hackathon successfully highlighted emerging skills in prompt engineering and fostered creativity, critical thinking, and technical excellence.

Faculty Coordinators: Dr. Meenakshi Malhotra, Dr. Sivananda Reddy E., Prof. Bharath M. B., Prof. Vishwas D. B.

Techflix Season 2: Future Front-National Level Symposium

The Department of Computer Science & Engineering, School of Engineering, Dayananda Sagar University, organized Techflix Season 2: Future Front – National Level Symposium on 16th April 2026. The symposium focused on research frontiers in advanced computing for AI-empowered cyber-physical and IoT systems, bringing together students and professionals to explore emerging technologies.

A key highlight was the Tech Talk on “Transition from Business Intelligence to Decision Intelligence” by Mr. R. N. Prasad, who emphasized the growing importance of data-driven decision-making and the integration of AI in modern workplaces. The session showcased real-world applications of Decision Intelligence, highlighting its role in improving efficiency and enabling informed decision-making.

Winners:
Team LexUs: Partha Sarathi, Prajwal Nag M. S., S. Ashwin Suhaass, Toluchuru Thrinath Chowdary
Team DevaOs Layer: A. B. S. D. Praneesh, Aadav V., Srujan Reddy

Faculty Coordinators: Dr. Meenakshi Malhotra, Dr. Sivananda Reddy E., Dr. Revathi V., Dr. Savitha Hiremath, Dr. P. Naresh

Techflix Season 2: CYBERANARCHY CTF Event

The Department of Computer Science & Engineering, School of Engineering, Dayananda Sagar University, organized Techflix Season 2: CYBERANARCHY CTF on 15th April 2026 as a 3-hour cybersecurity wargame. The event featured team-based participation, where students solved challenges across domains such as web exploitation, cryptography, reverse engineering, digital forensics, and binary exploitation.

Participants engaged in real-time problem-solving with a live leaderboard, tackling challenges inspired by real-world scenarios, including encryption decoding, vulnerability exploitation, forensic analysis, and OSINT investigations. The event provided a competitive and hands-on learning experience in cybersecurity.

Winners:
1st Prize: Team The Big O – Abhijit Kumar Singh, Sankalp Shankar, Abhishek (MAHE Bengaluru)
2nd Prize: Team Code Commando – Karan Sharma (DSU)
3rd Prize: Team Call of Code – Prrajwal Kataokkar, Sanidhya Jain (DSU)

Faculty Coordinators: Dr. Meenakshi Malhotra, Dr. Sivananda Reddy E., Prof. Nandini K., Prof. Kavyashree Pattan

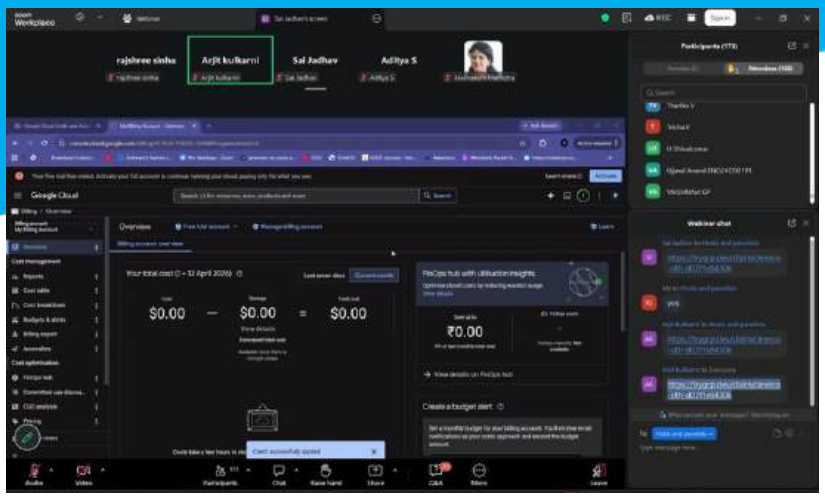
Student Coordinators: Satyam Raj, Hridya Praveen M. K.

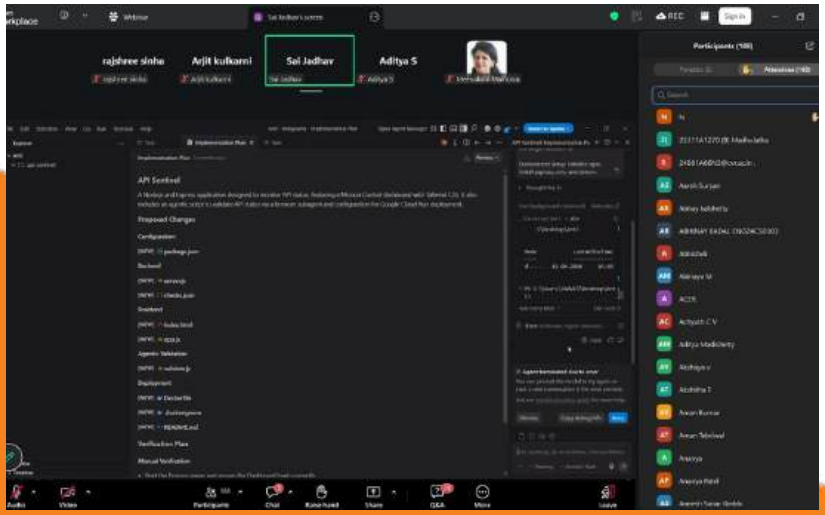
Techflix Season 2: Vibe with DSU

The Department of Computer Science & Engineering, Dayananda Sagar University, in collaboration with Reskill and Google for Developers, organized the “Vibe with DSU – Build with AI” workshop on 12th April 2026. Conducted online as a precursor to Techflix Season 2, the session introduced students to AI and cloud-based application development.

The hands-on workshop enabled participants to build AI agents using Google AI tools, integrate APIs, and deploy applications on cloud platforms. With over 545 registrations and 210 active participants, the session provided practical exposure to prompt engineering, agentic workflows, and real-world AI development.

Faculty Coordinators: Dr. Meenakshi Malhotra, Dr. Sivananda Reddy E.





DSU Techfest – CELESTAI 2026, ECE

The DSU Techfest – CELESTAI 2026, held on 23rd April 2026 at the School of Engineering, Dayananda Sagar University, was a vibrant celebration of innovation, technology, and creativity. The event was organized by the Department of Electronics and Communication Engineering and IEEE Circuits & Systems Society, in collaboration with the Departments of Aerospace Engineering and Computer Science Engineering (Data Science).

The fest began with an inaugural ceremony featuring a traditional diya lighting and welcome address by Dr. Arun Balodi, followed by guest talks and a panel discussion on emerging technologies, entrepreneurship, and career opportunities.

CELESTAI 2026 featured a wide range of technical and creative events, including RoboEdge, Edge IQ Hackathon, Blazewing, Rover Rumble, Flight Surge, Prompt Wars, and UI/UX Challenge, along with engaging activities like Tech Quest, Tech Walk, Game Rush, and Techzibition. These events provided a dynamic platform for students to showcase their skills in robotics, AI, aerospace, and design.
The fest witnessed enthusiastic participation from students across institutions and concluded with recognition of winners across multiple competitions. It successfully fostered innovation, teamwork, and experiential learning.

The event was led by convenors and organizers including Dr. Divyashree H. B., Dr. Prashanthakumar H. G., Dr. Arun Balodi, Dr. Nagaraja S. R., Dr. Shaila S. G., and Ms. Shivamma D., whose efforts ensured its grand success.


FELICITATIONS


FELICITATIONS

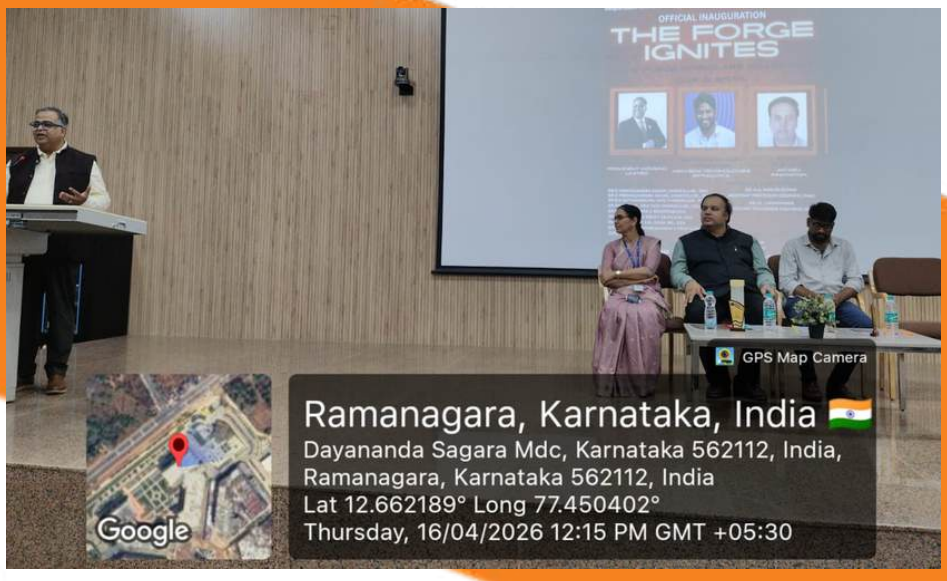

CELESTAI'26

Inaugration of RAISE Student Club

The Department of CSE (AI & ML) successfully inaugurated the RAISE (Responsible Artificial Intelligence for Sustainability & Social Entrepreneurship) Student Club on April 16, 2026, marking the launch of an initiative dedicated to fostering responsible innovation in artificial intelligence with a strong emphasis on sustainability and social entrepreneurship.

The event brought together distinguished guests including Dr. Gopiprasad Srinivasan from Provident Housing Limited, Mr. Surya Prakash Bhandar from Xenveda Technologies and Erthaloka, and Mr. Vinod Shankar from AIC-DSU Innovation, along with faculty members, to create a platform for promoting ethical AI practices and collaborative learning among students. The program was convened by Dr. Jayavrinda Vrindavanam V, Professor and Chairperson, CSE (AI & ML), and coordinated by Dr. A. Nippun Kumaar, Associate Professor, and Dr. M. Lakshmanan, Assistant Professor, CSE (AI & ML).

The inauguration signifies a progressive step toward nurturing socially responsible AI practitioners and encouraging students to develop innovative solutions addressing real-world challenges.



Project Expo 2026

The Department of CSE (AI & ML) organized the Project Exhibition—"Project Expo 2026"—on April 25, 2026, at the CDSIMER Auditorium, Dayananda Sagar University, showcasing a diverse range of innovative projects developed by VIII semester students in the domains of Artificial Intelligence and Machine Learning, reflecting their creativity, technical proficiency, and problem-solving capabilities. The exhibition provided a dynamic platform for students to present solutions built using cutting-edge technologies such as generative AI, large language models (LLMs), deep learning, and IoT-based systems.

The event was graced by Dr. Gopiprasad Srinivasan from Provident Housing Limited as the chief guest and was further honored by the presence of Mr. Zuhair Z. Ahmed and Mr. Tariq Iqbal, co-founders of Mirai Labs, as distinguished guests of honor. The program was convened by Dr. Jayavrinda Vrindavanam V, Professor and Chairperson, CSE (AI & ML), and coordinated by Dr. Vinutha N, Associate Professor, and Prof. Pradeep Kumar K, Assistant Professor, CSE (AI & ML), making it an enriching academic initiative that reinforced the department's commitment to experiential learning, innovation, and excellence in AI and ML education.

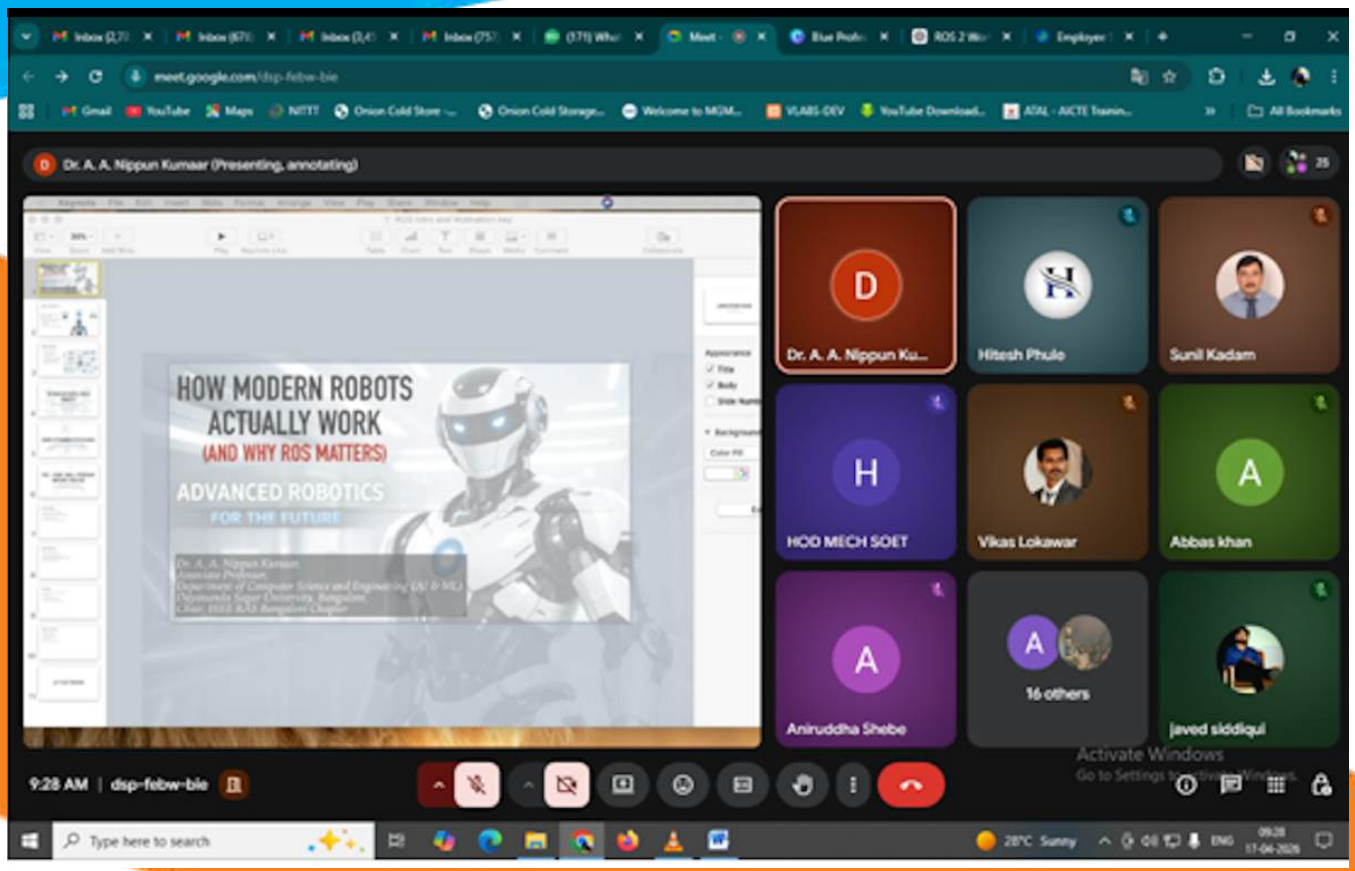
ROS Workshop 2026

The School of Engineering, Dayananda Sagar University, in association with the Department of Computer Science and Engineering (Artificial Intelligence and Machine Learning) and IEEE RAS SBC-DSU, organized a ROS Workshop on April 7, 2026, from 8:30 am to 4:00 pm, featuring Dr. A. A. Nippun Kumaar, Chair, IEEE RAS Bangalore Section, as the resource person and technical speaker, with the event hosted by Mrs. Rutu P and followed by an engaging Quizathon conducted by Mr. Diayana K.

During the session, Dr. Nippun Kumaar introduced the fundamentals of robotics and key ROS concepts including nodes, topics, communication mechanisms, architecture, and real-world applications, enabling participants to build a strong foundation in robotics and automation. A total of 20 participants, including 7 IEEE RAS members, actively took part in the workshop, which concluded successfully with a vote of thanks delivered by Krishna Siddharth.

ROS 2 Workshop 2026

The IEEE Robotics and Automation Society (RAS) Bangalore Section Student Chapter of Dayananda Sagar University, in collaboration with the School of Engineering and Technology, MGM University, Maharashtra, organized a workshop on ROS 2 on April 17, 2026, from 9:00 am to 12:00 pm, featuring Dr. A. A. Nippun Kumaar, Chair, IEEE RAS Bangalore Section and Associate Professor, CSE (AI & ML), Dayananda Sagar University, along with student contributors Ms. Rutu Patil (R&AI Department) and Ms. Samskruthi R (CSE (AI & ML) Department), who led the technical and hands-on sessions. With the participation of 56 students, the workshop combined theory and practical learning, covering key ROS 2 concepts such as nodes, topics, publishers and subscribers, as well as simulation using Turtlesim, services, and actions, thereby providing valuable exposure to robotics software development and highlighting the growing enthusiasm for robotics and automation among students.



Alumni Meet 2026

The Department of CSE (AI & ML) organized the “Alumni Meet 2026” on April 25, 2026, for passed-out students of the department at Dayananda Sagar University, providing a platform for alumni to reconnect with their alma mater, interact with faculty members, and share their professional experiences and insights with the academic community.

The event was graced by Dr. Gopiprasad Srinivasan from Provident Housing Limited as the Chief Guest and was convened by Dr. Jayavrinda Vrindavanam V, Professor and Chairperson, CSE (AI & ML), with coordination by Dr. Vinutha N, Associate Professor, and Prof. Pradeep Kumar K, Assistant Professor, CSE (AI & ML). The Alumni Meet served as a meaningful initiative to strengthen the bond between the institution and its alumni while fostering continued engagement and collaboration.

Persona Forge, Organied by the Echoes of Lumière

“Persona Forge,” conducted on April 30, 2026, by Echoes of Lumière at the School of Engineering, saw participation from 9 teams across branches. Held from 11:00 a.m. to 1:30 p.m. in Lecture Hall 3, the event challenged students to design fictional characters based on given scenarios using mediums like sketches, digital art, or 3D models.

Participants presented their creations to judges Dr. Sudha D and Mr. Purab Jha, showcasing strong creativity, originality, and storytelling skills. The diverse approaches—from traditional sketches to digital designs—highlighted adaptability and artistic expression.

The event successfully encouraged innovation, communication, and cinematic thinking, aligning with the club’s mission to foster creativity and interdisciplinary skills among engineering students.

Faculty Coordinators: Dr.Rochna Roy and Dr. V.Sreemathy

SCHOOL OF ENGINEERING

INDUSTRIAL VISITS/INDUSTRY–INSTITUTE INTERACTION

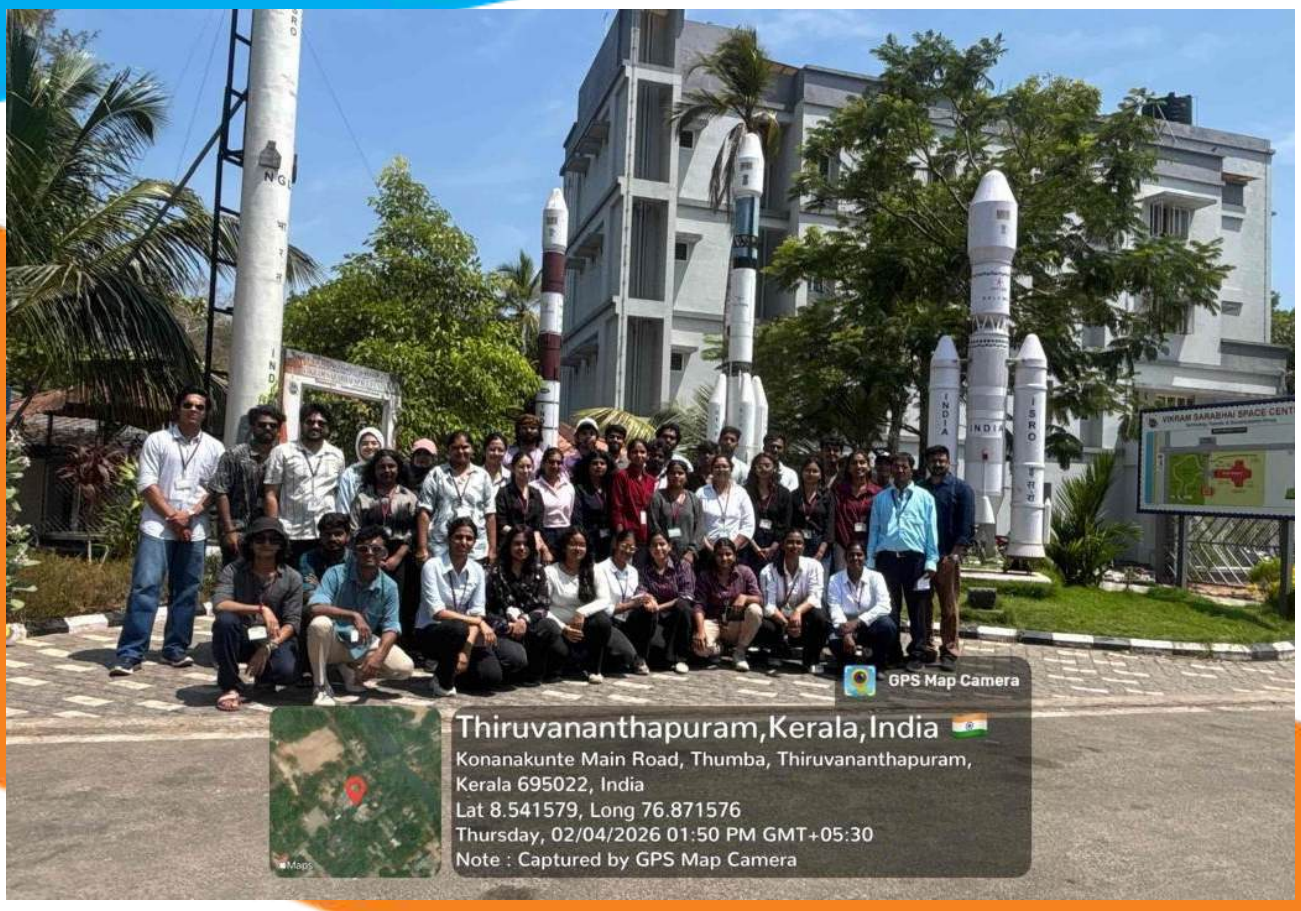
MoUs

Vikram Sarabhai Space Centre Museum visit on 02/04/26

The Department of Aerospace Engineering, Dayananda Sagar University, organized an industrial visit to the Vikram Sarabhai Space Centre Museum on 2nd April 2026 for VI semester students.

The visit was accompanied by Dr. Srinath, Dr. Kartik (Assistant Professors), and Mr. Harish K. L. Students gained valuable exposure to various types of rockets, including sounding rockets and launch vehicles, along with their subsystems. The visit provided key insights into rocket design, propulsion systems, staging mechanisms, payload integration, and mission planning.

Students also developed a deeper understanding of the evolution of India's space programs, materials used in aerospace structures, and the importance of precision engineering and quality control in launch vehicle development. Overall, the visit enhanced their practical knowledge, strengthened their conceptual understanding, and inspired them towards future careers in the aerospace sector.



INDUSTRIAL VISIT TO TRIVENI TURBINES

The Department of Mechanical Engineering, DSU organized an industrial visit to Triveni Turbine Limited on 22 April 2026. Dr. Ramkumar B. V. N., Professor, Department of Aerospace Engineering, DSU, accompanied around 15 students from IV semester Aerospace Engineering during the visit. The students gained valuable insights into the fundamentals of turbine design, working principles, and industrial applications, enhancing their understanding of energy conversion systems and real-world engineering practices.

Industrial Visit to Vaidyuthi Mobility

The Department of CSE (AI & ML) organized an industrial visit to Vaidyuthi Mobility on April 8 and 9, 2026, for VI semester students, offering valuable practical exposure to emerging technologies in the electric mobility domain and their integration with artificial intelligence. During the visit, students interacted with industry experts, observed live demonstrations, and gained insights into the design, development, and deployment of EV systems.

The event was convened by Dr. Jayavrinda Vrindavanam V, Professor & Chairperson, CSE (AI & ML), and coordinated by Dr. Govind Kumar Pandey, Assistant Professor, and Dr. A. Vegi Fernando, Associate Professor, CSE (AI & ML), with faculty coordinators including Dr. Nippun Kumaar, Prof. Pragnya Mishra, Dr. Mude Nagarjuna Naik, and Prof. R. Nivetha. The visit served as a valuable learning experience, strengthening the connection between academic knowledge and real-world industrial applications in AI-enabled electric mobility.

Industrial Visit to NewSpace Research and Technologies

An industrial visit was organized by the Department of CSE (AI & ML) for VI and IV semester students on April 15, 2026 to NewSpace Research and Technologies, Bengaluru, a reputed Indian aerospace and defense R&D organization known for its pioneering work in unmanned aerospace systems for both military and civilian applications. The visit aimed to provide students with practical exposure to advanced aerospace technologies and their integration with Artificial Intelligence and cyber-physical systems, offering opportunities to interact with industry professionals, witness live demonstrations, and understand the design, development, and deployment of unmanned aerial systems and intelligent platforms.

The event was convened by Dr. Jayavrinda Vrindavanam V, Professor and Chairperson, CSE (AI & ML), and coordinated by Dr. Govind Kumar Pandey, Assistant Professor, and Dr. A. Vegi Fernando, Associate Professor, CSE (AI & ML), with Prof. Partha Portim Sen, Assistant Professor, serving as the faculty coordinator, making the visit a valuable experience in bridging academic concepts with real-world aerospace applications.

Educational Visit to IISc Bangalore Fab Lab & Maven Silicon

Students from the Department of Electronics and Communication Engineering, Dayananda Sagar University, visited the Indian Institute of Science (IISc) Fab Lab, organized by Maven Silicon on March 7, 2025, under the guidance of Dr. Divyashree H B and Mrs. Prabavathi, Assistant Professors, Department of ECE.

The visit offered practical exposure to semiconductor fabrication, including cleanroom facilities and key equipment such as photolithography, CVD, and SEM. A tutorial session by Maven Silicon experts covered essential chip fabrication processes.

Students also explored research exhibits on MEMS, biosensors, and nanotechnology. The visit was highly informative and strengthened their understanding of microelectronics and VLSI concepts.

Educational Visit to Bharat Electronics Limited – CRL, BENGALURU

The Department of ECE, Dayananda Sagar University, organized an educational visit to BEL–CRL, Bengaluru, on April 28, 2026, led by Dr. Navya R and Dr Pushpa Mala S, with 40 students from ECE and CSE.

The visit offered valuable exposure to advanced defense technologies, including radar systems, 5G/6G communication, AI/ML, robotics, and quantum technologies. Students attended technical sessions, witnessed live demonstrations, and interacted with scientists and engineers.
This experience helped bridge the gap between theory and practical applications, while also highlighting the importance of indigenous technology in national defense.

Overall, the visit was insightful and inspiring for students aspiring toward careers in core engineering and research.

Industry Interaction with C-DOT

The Department of ECE at Dayananda Sagar University participated in an industry interaction with Centre for Development of Telematics to explore collaboration in indigenous telecom solutions.

The discussion highlighted C-DOT's strengths in 4G/5G, next-generation switching, cybersecurity, quantum communication, and AI-based network management, along with opportunities to align these with DSU's industry expertise. Key outcomes included identifying joint PoC areas, exploring technology transfer, and enabling co-development aligned with initiatives like BharatNet and Atmanirbhar Bharat.

The session was attended by Dr. S. Arungalai Vendan (Professor), Dr. Pushpa Mala S (Associate Professor), Dr. Sneha Sharma (Assistant Professor), and Dr. Deepthi Chamkur V (Assistant Professor), reflecting the department's commitment to academia–industry collaboration.

Industrial Visit to Jawaharlal Nehru Planetarium

Dr. Bhavana Rikhari was invited to attend the World Quantum Program organized by the Vision Group on Science and Technology (VGST), Government of Karnataka, held on 15 April 2026 at the Jawaharlal Nehru Planetarium, Bengaluru, as part of the ongoing ECRA–VGST project. A few students, along with Prof. Pradeep Kumar Badiya, accompanied her to participate in the event.

Industrial Visit to Triveni Turbines Limited

Dr. Saravana Bavan, Dr. Vinayak Hemadri, and Dr. Naseem Khayum guided the industrial visit organized by the Department of Mechanical Engineering to Triveni Turbines Limited on 22 April 2026. The visit provided students with practical exposure to turbine manufacturing processes and energy systems, helping them gain valuable insights into real-world engineering applications.

SCHOOL OF
ENGINEERING

FACULTY ACHIEVEMENTS

Dr. U. Pavan Kumar
Assistant Professor
Department of Data Science

Dr. Santhosh Kumar G
Associate Professor
Department of Data Science

Prof. Prapti Bhattacharjee
Assistant Professor
Department of Data Science

Dr. U. Pavan Kumar, Dr. Santhosh Kumar G, and Prof. Prapti B have published a research paper titled “Contrast Enhancement in Mammogram Images using CLAHE and CNN-based Approaches” in the 2026 6th International Conference on Expert Clouds and Applications (ICOECA) on 23rd April 2026.

Contrast Enhancement in Mammogram Images using CLAHE and CNN-based Approaches

Publisher: IEEE | Cite This | PDF

U. Pavan Kumar ; E. Vijaya Lakshmi ; G. Santhosh Kumar ; Prapti Bhattacharjee ; S. Gokulakrishnan ; G. Sajiv All Authors

Abstract

Document Sections

I. INTRODUCTION

II. RELATED WORK

III. PROPOSED METHODOLOGY

IV. EXPERIMENTAL SETUP AND RESULTS

V. DISCUSSION

Show Full Outline

Abstract:

Radiologists often struggle to analyse mammograms due to the poor visibility of complex structural details. Image contrast issues can result in lost early-stage micro-calcifications, spiculated masses, and architectural distortions. This study introduces a contrast enhancement technique that combines Contrast Limited Adaptive Histogram Equalization (CLAHE) with a lightweight Convolutional Neural Network (CNN) refinement module, designed and trained to the MIAS dataset. The CLAHE algorithm works to correct overall brightness inconsistencies in the image by redistributing the intensities, and the CNN branch works to sharpen the edges of lesions and restore the details of the soft tissue to improve the overall image without adding artifacts. The proposed technique outperformed enhancement methods by other researchers. Mean PSNR of 34.92 dB and SSIM of 0.921 were achieved improving contrast by 2.5% to 19.4% over CLAHE, and were 8.4% to 11.9% improvement over other deep enhancement models. The final assessment of each image showed a notable improvement over other methods in the visibility of regions containing delicate and subtle details of the tumor. Consequently, we believe that the technique demonstrated in this study will result in more accurate, reliable manual diagnoses and more efficient automated diagnoses.

Dr. Santhosh Kumar G
Associate Professor
Department of Data Science

Dr. Suresh A has successfully presented a research paper titled “An Explainable Framework for Anomaly Detection in Database Query Logs Using Isolation Forest and SHAP” at the Third International IEEE Conference on Trends in Quantum Computing and Emerging Business Technologies (TQCEBT’26), organized by CHRIST (Deemed to be University), Pune Lavasa Campus in collaboration with IEEE Pune Section.

Dr. Santhosh Kumar G
Associate Professor
Department of Data Science

Dr. Suresh Arumugam has published a research paper titled “Multimodal AI Integration: Text, Speech, and Image for Human Interface” at the 2026 2nd International Conference on Cognitive Computing in Engineering, Communications, Sciences and Biomedical Health Informatics (IC3ECSBHI), organized under the banner of IEEE.

Conferences > 2026 2nd International Confer...

Multimodal AI Integration Text Speech and Image for Human Interface

Publisher: IEEE Cite This PDF

Suresh A ; Sindhu A ; Suresh Kandasamy ; Souramita Bhowmik ; Prapti Bhattacharjee All Authors

Abstract

Document Sections

I. Introduction

II. Literature Survey

III. Proposed Methodology

IV. Mathematical Model

V. Results and Discussion

Show Full Outline

Authors

Figures

References

Keywords

Abstract:
The multimodal artificial intelligence produces more natural interactions and enhanced Natural Language Processing abilities. develops original method to enhance ChatGPT multimodal functionality through machine learning techniques that analyze text and images and speech data. The system employs Convolutional Neural Network CNNs to process images and Long Short-Term Memory LSTM for Voice data temporal analysis and Transformers for text current systems. The temporal relationship analysis and essential feature identification to achieve proper multimodal analysis and system evaluates data context information. The experimental results demonstrate that the proposed system achieves better performance than the system through its enhanced accuracy and fast processing speed and real-time feedback and analysis capabilities which improve system performance through advanced methods. The output results point to future research paths for virtual assistants and customer service and educational technology applications. This paper proves the requirement for single-channel processing of different input types while creating a base for future investigations about system development and enhancement in limited environments.

Published in: 2026 2nd International Conference on Cognitive Computing in Engineering, Communications, Sciences and Biomedical Health Informatics (IC3ECSBHI)

Date of Conference: 12-14 February 2026

DOI: 10.1109/IC3ECSBHI67834.2026.11468881

Date Added to IEEE *Xplore*: 14 April 2026

Publisher: IEEE

ISBN Information:

Conference Location: Greater Noida, (Delhi NCR), India

Sindhu A
Assistant Professor
Department of Data Science

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Date Added to IEEE *Xplore*: 14 April 2026

Publisher: IEEE

ISBN Information:

Conference Location: Greater Noida, (Delhi NCR), India

Prof. Kishor Malakar
Assistant Professor
Department of Data Science

Prof. Kishor Malakar has successfully presented a research paper titled “An Integrated Dual-Headed CNN–LLM Framework for Simultaneous Alzheimer’s Stage and Brain Tumor Classification from MRI Scans” at the 2026 International Conference on Computing Theory and Wireless Communications (ICCTWC), organized under IEEE Maharashtra Section, held from 1st to 2nd April 2026.

DKTE
Promoting Excellence in Teaching, Learning & Research

2026 International Conference on Computing Theory and Wireless Communications (ICCTWC)

IEEE Maharashtra Section

1st – 2nd Apr 2026

Certificate

This is to certify that Dr./Prof./Mr./Ms. Kishor Malakar has presented paper entitled An Integrated Dual-Headed CNN–LLM Framework for Simultaneous Alzheimerâ€™s Stage and Brain Tumor Classification from MRI Scans in 2026 International Conference on Computing Theory and Wireless Communications (ICCTWC) during 1st & 2nd April 2026.

Dr. D V Kodavade
Conference Chair

Dr. J. P. Kharat
Convener

Dr. L S Admuthe
General Chair

Dr. Santhosh Kumar G
Assistant Professor
Department of Data Science

Dr. Santhosh Kumar G has successfully completed a Faculty Development Program on Data Science (ML & AI) conducted by the EICTA Consortium (a joint initiative of MeitY and IITs, NITs, and IIITs) from 23rd February 2026 to 8th March 2026.

इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY

EICTA Consortium
A joint initiative of MeitY and IITs, NITs and IIITs

EICTA Consortium

(A Joint Initiative of MeitY and IITs, NITs and IIITs)

Certificate

This is to certify that
Dr. / Mr. / Ms. **Santhosh Kumar G** of
Dayananda Sagar University, Harohali, Bengaluru
has completed the **Faculty Development Program** on
Data Science (ML & AI)
from 23-02-2026 to 08-03-2026

Date of Issue: 30-03-2026

Prof B. V. Phani
Chief Investigator, E&ICT Academy, IIT Kanpur

EICT Academies: IIT Kanpur, IIT Guwahati, IIT Roorkee, MNIT Jaipur, IIITDM Jabalpur, NIT Patna, NIT Warangal

Dr. Shaila SG
Professor and Chairperson
Department of Data Science

Dr. Shaila S. G has successfully participated in a One-Day Workshop on Ethics, Transparency, and Accountability in AI-Assisted Research Writing, organized by the School of Advanced Sciences (SAS) in association with the Internal Quality Assurance Cell (IQAC), Vellore Institute of Technology (VIT), Vellore, on 5th March 2026

VIT
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

VIT QUALITY WEEK

[2nd – 6th March 2026]

School of Advanced Sciences (SAS)
in association with
Internal Quality Assurance Cell (IQAC)

Certificate of Participation

This is to certify that

Dr. Shaila S.G, Professor, Department of Computer Science & Engineering (Data Science), Dayananda Sagar University, Bengaluru has participated in the Workshop titled "One-Day Workshop on Ethics, Transparency, and Accountability in AI-Assisted Research Writing", held on 05.03.2026 at Vellore Institute of Technology, Vellore.

Dr. Ramanujan R
Deputy Director-IQAC

Dr. Amitava Mukherjee
Director-RAAC

Dr. Karthikeyan K
Dean-SAS

VIT - A Place to learn; A Chance to grow

Shivamma D
Assistant Professor
Department of Data Science

Dr. Shaila SG
Professor and Chairperson
Department of Data Science

Shivamma D and Dr. Shaila S. G have published a research paper titled “Vision Transformer Driven Sustainable Classification of Compound Facial Expressions Using Morphological Features” in the 2026 International Conference on Innovative Computing, Intelligent Communication and Smart Electrical Systems (ICSES), held at Chennai, India, in 2026. The paper is indexed with DOI: 10.1109/ICSES66558.2026.11478858.

Conferences > 2026 International Conference...

Vision Transformer Driven Sustainable Classification of Compound Facial Expressions Using Morphological Features

Publisher: IEEE | Cite This | PDF

Shivamma D ; Shaila S G ; Shreedhara K S All Authors

Abstract

Document Sections

I. Introduction

II. Related Work

III. Proposed Methodology

IV. Results and Discussion

V. Conclusion and

Abstract:

Facial expressions experienced in day-to-day situations can hardly be related to a particular basic emotion. In more occasions, they portray a combination of emotions, which are often referred to as compound facial expressions. It is not easy to distinguish and categorize such expressions due to the fact that the changes of the face involved are very subtle and can be common to more than one emotion. The paper is aimed at creating a sustainable method that can be used to classify facial expression, which have been described as sustainable, based on morphological analysis of the face and a vision transformer (ViT) learning framework. The suggested approach looks at structural indicators of the significant areas of the face as the eyebrows, the eyes, the lips, and general outlines of the muscles, which are important in conveying mixed feelings. Through the manipulation of self-attention mechanism of Vision Transformers, the model comes to learn the global relationships between regions of the face, and thus depicts complex emotional patterns in a more comprehensive manner compared to traditional methods that involve convolutional neural networks. This method is

Mr. Mithun Kumar
Assistant Professor
Department of Data Science

Prof. Mithun Kumar has successfully presented a research paper titled “Emotion-Adaptive Intelligent Systems Using Multisensory Data Fusion” at the 2026 International Conference on Intelligent Computing (IConIC), organized by Panimalar Engineering College, held on 27th and 28th March 2026.

PANIMALAR ENGINEERING COLLEGE

JAISAKTHI EDUCATIONAL TRUST
An Autonomous Institution & Affiliated to Anna University,
Approved by AICTE, New Delhi, Accredited by National Board of Accreditation(NBA)
Bangalore Trunk Road, Poonamallee, Chennai-600123

ICONIC 2K26

This is to certify that Dr./Mr./Ms. Mithun Kumar

from DayanandaSagar University has presented paper

titled Emotion-Adaptive Intelligent Systems Using Multisensory Data Fusion

in 2026 International Conference on Intelligent Computing (IConIC)

held on 27th & 28th March, 2026.

FACULTY CO-ORDINATOR

CO-CONVENOR
Mrs. S. VIMALA

HEAD OF THE DEPARTMENT

IEEE COMPUTER SOCIETY

Mr. Mithun Kumar
Assistant Professor
Department of Data Science

Prof. Mithun Kumar has successfully presented a research paper titled “Energy Efficient TinyML Models for Intelligent Wearable Devices” at the 2026 International Conference on Intelligent Computing (IConIC), organized by Panimalar Engineering College, held on 27th and 28th March 2026.

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FACULTY CO-ORDINATOR

CO-CONVENOR
Mrs. S. VIMALA

HEAD OF THE DEPARTMENT

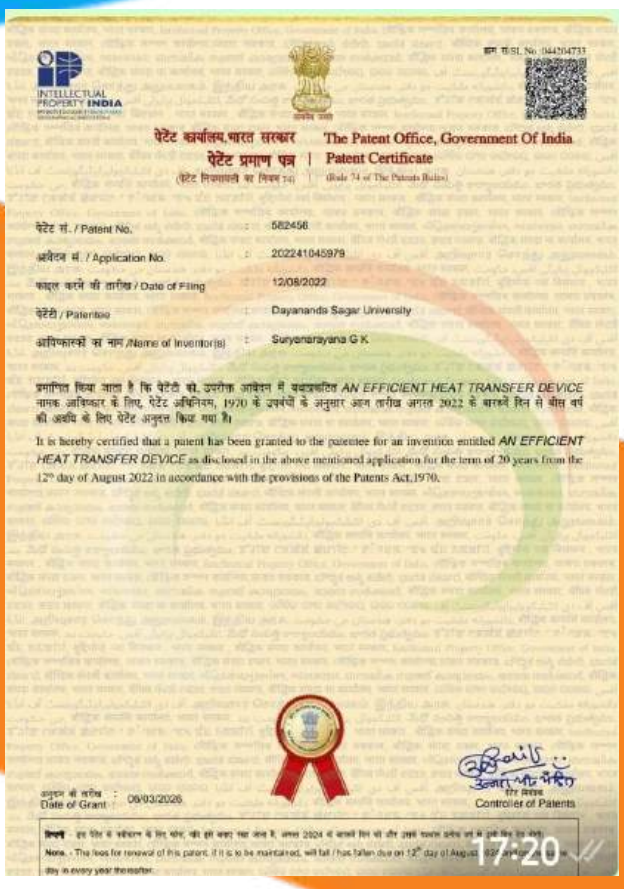
IEEE COMPUTER SOCIETY

Dr. G K Suryanarayana
Professor
Department of Aerospace Engineering

A Patent Grant Certificate (No. 582456) titled “An Efficient Heat Transfer Device” has been awarded to Dayananda Sagar University by the Patents Office, Government of India. The inventor is Dr. G. K. Suryanarayana, Department of Aerospace Engineering.

Another invention titled “System and Method for Multi-Modal Physiological Digital Twin Generation Using AI Enabled Stethoscope and Adaptive Signal Fusion,” by Prof. G. K. Suryanarayana (AE), Prof. S. Bahubali (AIML), and Dr. Gilbert Joseph (Former Cardiothoracic Surgeon, CDSIMER), has been found patentable and is in the process of patent filing.

Additionally, Dr. G. K. Suryanarayana published a research paper titled “An Improved Nonlinear Damping Model for Supersonic Air-Intake Buzz and Control Using Surrogate-Model Concept” in the Defence Science Journal.



INTELLECTUAL PROPERTY INDIA

पेटेंट कार्यालय,भारत सरकार
पेटेंट प्रमाण पत्र | (पेटेंट नियमावली का नियम 74)

The Patent Office, Government Of India
Patent Certificate | (Rule 74 of The Patents Rules)

पेटेंट सं. / Patent No.	:	582456
आवेदन सं. / Application No.	:	202241045979
फाइल करने की तारीख / Date of Filing	:	12/08/2022
पेटेंटी / Patentee	:	Dayananda Sagar University
आविष्कार का नाम /Name of Invention	:	Suryanarayana G K

प्रमाणित किया जाता है कि पेटेंटी को, उपरोक्त आवेदन में यथाप्रकटित AN EFFICIENT HEAT TRANSFER DEVICE नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख अगस्त 2022 के बारहवें दिन से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled AN EFFICIENT HEAT TRANSFER DEVICE as disclosed in the above mentioned application for the term of 20 years from the 12th day of August 2022 in accordance with the provisions of the Patents Act,1970.

अनुदान की तारीख : 09/03/2026
Date of Grant

Controller of Patents

Note. - The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 12th day of August ... day in every year thereafter.

Defence Science Journal, Vol. 76, No. 3, May 2026, pp. 337-342, DOI : 10.14429/dsj.20972

An Improved Nonlinear Damping Model for Supersonic Air-Intake Buzz and Control Using Surrogate-Model Concept

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ABSTRACT

Development of a machine-learning based surrogate model which reproduces the shock oscillations during buzz of an air-intake model at a Mach number of 3.0 is presented. The developed equations very closely reproduce the phenomena of Limit Cycle Oscillations observed earlier, based on image-processing. It is shown that the phenomena can be modeled as an unforced Van Der Pol equation. It is demonstrated through simulations, that by introducing a forcing function in the equation, with a 45° phase shift in the analog model, or a 1 ms time delay in the digital model, the phenomena of buzz can be suppressed. However, the simulations also show that the asymptotic equilibrium condition reached is unstable, as small disturbances to the control signal tend to destabilize the equilibrium and restore the buzz condition. Thus, the controller must be designed to be robust enough to self-correct itself when small disturbances occur. These studies underscore the need for continuous adjustment of the control signal. Schematic of a micro-acoustic Feed-Forward Controller is proposed for buzz suppression, allowing for preemptive and precise adjustments that can effectively stabilize the system and mitigate LCO even under disturbances.

Keywords: Surrogate model; Limit Cycle Oscillations (LCO); Non-linear damping model of Intake Buzz; Van Der Pol Oscillator; Supersonic air-intake buzz control; Feed-forward controller

NOMENCLATURE

M	: Freestream Mach number
x	: RMS error in the distribution of pixels
$\dot{x}$	: dx/dt
$\ddot{x}$	: d²x/dt²
μ	: Damping parameter

1. INTRODUCTION

Supersonic air-intake buzz is one of the critical problems encountered during the operation of air-breathing engines such as ramjets and scramjets. When the back-pressure downstream of a ramjet intake is gradually increased, the internal flow behaves in various modes, categorised under (a) supercritical (b) critical and (c) subcritical range of operation. In (a), the oblique shock generated at the ramp enters the cowl at a short distance downstream of the cowl lip, experiences multiple shock-reflections inside the air-intake, ultimately resulting in a terminal (normal) shock and subsonic downstream flow with a certain total pressure recovery in the combustion region. In (b), as the back-pressure is increased (due to combustion and heat addition in the combustion chamber), the terminal shock starts moving upstream, towards the intake throat, along with the ramp shock moving upstream towards the cowl lip. When the terminal shock is at the intake throat, the mass flow rate through the intake is choked (maximum mass flow rate) and the total pressure recovery in the diffuser (combustion region) is maximum. When the back pressure is further increased, (c) occurs and the terminal shock is ejected out of the intake throat, resulting in an unsteady bow-wave around the cowl lip, subsonic spillage of the ingested mass flow, highly unsteady flow in the intake coupled with severe shock oscillations at the cowl lip: the phenomenon is known as “Supersonic air-intake buzz”. Intake buzz can result in (i) flame-out in the combustor due to reverse flow (ii) excitation of structural modes by the oscillating shocks due to Fluid-Structure Interaction (FSI) leading to structural failure. It is the objective of any mission involving ramjets and scramjets, to ensure that the buzz phenomenon is avoided, by operating the intake in the supercritical but close to critical range, so that the intake performance in terms of both the total pressure recovery and mass flow rate are optimized.

Extensive literature exists on the phenomenon of supersonic air intake buzz, based on experimental as well as computational studies[1]. However, only few papers are reported on control or postponement of buzz using any technique[2-4]. In fact, one of the research gaps is the lack of availability of a proper damping model, which hinders the development of a mathematical model for intake buzz[4]. The first effort to bridge

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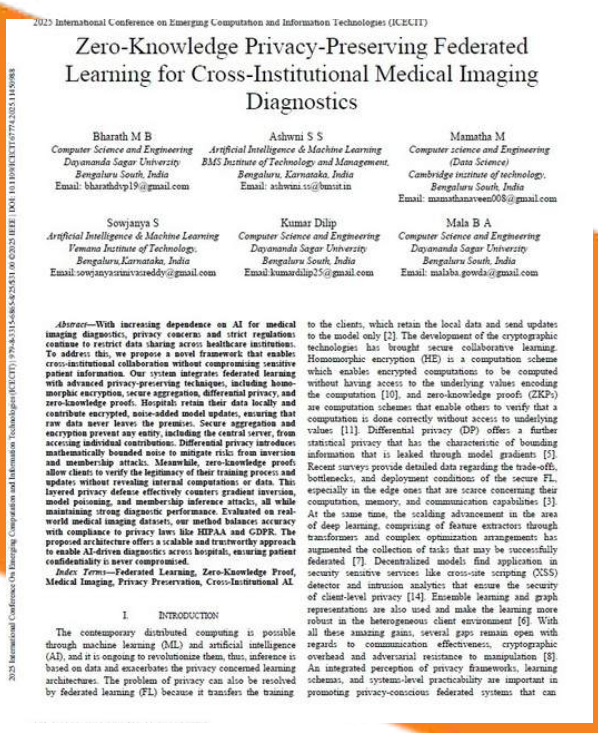
Prof. Bharath M. B. and Prof. Mala B. A. (Assistant Professors), along with Dr. Kumar Dilip (Associate Professor), Department of Computer Science and Engineering, Dayananda Sagar University, published a research paper titled "Zero-Knowledge Privacy-Preserving Federated Learning for Cross-Institutional Medical Imaging Diagnostics" in IEEE on 30th March 2026. The paper was presented at the 3rd International Conference on Emerging Computation and Information Technologies (ICECIT–2025), organized by Siddaganga Institute of Technology, Tumakuru.

Prof. Bharath M. B., Prof. Mala B. A., and Prof. Pooja Shree H. R. (Assistant Professors), Department of Computer Science and Engineering, also published another IEEE paper titled "Trust-Enhanced Blockchain–Cloud Integration Framework for Secure and Scalable Data Management" on 31st March 2026. This work was presented at the 1st International Conference on Advancement in Futuristic Technologies (ICAFT), focusing on secure and scalable data management using blockchain–cloud integration.



2025 International Conference on Emerging Computation and Information Technologies (ICECIT)

Zero-Knowledge Privacy-Preserving Federated Learning for Cross-Institutional Medical Imaging Diagnostics

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***Abstract*—With increasing dependence on AI for medical imaging diagnostics, privacy concerns and strict regulations continue to restrict data sharing across healthcare institutions. To address this, we propose a novel framework that enables cross-institutional collaboration without compromising sensitive patient information. Our system integrates federated learning with advanced privacy-preserving techniques, including homomorphic encryption, secure aggregation, differential privacy, and zero-knowledge proofs. Hospitals retain their data locally and contribute encrypted, noise-added model updates, ensuring that raw data never leaves the premises. Secure aggregation and encryption prevent any entity, including the central server, from accessing individual contributions. Differential privacy introduces mathematically bounded noise to mitigate risks from inversion and membership attacks. Meanwhile, zero-knowledge proofs allow clients to verify the legitimacy of their training process and updates without revealing internal computations or data. This layered privacy defense effectively counters gradient inversion, model poisoning, and membership inference attacks, all while maintaining strong diagnostic performance. Evaluated on real-world medical imaging datasets, our method balances accuracy with compliance to privacy laws like HIPAA and GDPR. The proposed architecture offers a scalable and trustworthy approach to enable AI-driven diagnostics across hospitals, ensuring patient confidentiality is never compromised.**

***Index Terms*—Federated Learning, Zero-Knowledge Proof, Medical Imaging, Privacy Preservation, Cross-Institutional AI.**

I. Introduction

The contemporary distributed computing is possible through machine learning (ML) and artificial intelligence (AI), and it is ongoing to revolutionize them, thus, inference is based on data and exacerbates the privacy concerned learning architectures. The problem of privacy can also be resolved by federated learning (FL) because it transfers the training to the clients, which retain the local data and send updates to the model only [2]. The development of the cryptographic technologies has brought secure collaborative learning. Homomorphic encryption (HE) is a computation scheme which enables encrypted computations to be computed without having access to the underlying values encoding the computation [10], and zero-knowledge proofs (ZKPs) are computation schemes that enable others to verify that a computation is done correctly without access to underlying values [11]. Differential privacy (DP) offers a further statistical privacy that has the characteristic of bounding information that is leaked through model gradients [5]. Recent surveys provide detailed data regarding the trade-offs, bottlenecks, and deployment conditions of the secure FL, especially in the edge ones that are scarce concerning their computation, memory, and communication capabilities [3]. At the same time, the scaling advancement in the area of deep learning, comprising of feature extractors through transformers and complex optimization arrangements has augmented the collection of tasks that may be successfully federated [7]. Decentralized models find application in security sensitive services like cross-site scripting (XSS) detector and intrusion analytics that ensure the security of client-level privacy [14]. Ensemble learning and graph representations are also used and make the learning more robust in the heterogeneous client environment [6]. With all these amazing gains, several gaps remain open with regards to communication effectiveness, cryptographic overhead and adversarial resistance to manipulation [8]. An integrated perception of privacy frameworks, learning schemas, and systems-level practicability are important in promoting privacy-conscious federated systems that can

Trust-Enhanced Blockchain-Cloud Integration Framework for Secure and Scalable Data Management

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***Abstract*—Blockchain integrated with cloud computing has become an important area for secure and transparent data management. Yet, existing consensus mechanisms such as PBFT and PoS often suffer from slow processing, scalability issues, and limited trust handling when the number of nodes grows. To overcome these constraints, this paper introduces a Lightweight Trust-Based Consensus (LTBC) framework designed to enhance dependability and resource efficiency in blockchain–cloud environments. The proposed system assigns dynamic trust ratings to every node after each consensus round and applies compact hashing with localized message exchange to cut down network delay and computation cost. Experimental studies reveal that LTBC achieves around 91% trust accuracy, improves scalability by nearly 30%, and reduces average transaction energy and CPU usage by about 28%. It also lowers the probability of security breaches to under 3% and minimizes storage load by nearly 18%. Hence, the LTBC framework provides a secure, energy-aware, and scalable approach suitable for real-time cloud–blockchain applications.**

***Index Terms*—Blockchain, Cloud Computing, Trust Evaluation, Consensus Optimization, Security.**

I. Introduction

In the world of modern technology, data literally has become a life savior of the al- most every organization. Cloud computing provides the convenient solution. how to store and work with this giant data, nevertheless, it also brings in the issues of trust and security [2]. Many To manage cloud systems, still requires central authorities. operations and authority, and occasionally results in information. misuse or single point failure [1]. In such cases, blockchain is another new and powerful remedy providing decentralization, transparency [9], immutability, and transparency. Blockchain can be combined with cloud to unite the. best of both- cloud-based storage, and cloud-based computing and security. and trust from blockchain [11]. However, this combination is not always smooth. The biggest challenge is to handle trust. between several nodes and in order to ensure good performance. as well as to make sure that no one interferes with the data [13], [15]. Traditional in most occasions, as a growing number of nodes are involved, the number of nodes increases. Consensus mechanisms (PBFT or PoS etc) begin to experience heavy loads. load and latency of communication [12]. Recent papers indicate that cloud systems featuring blockchain-based technologies. are rapidly expanding in usage such as data exchange, health mon- Smart city management, city storing, and smart city management [17], [18]. Yet, the current models continue to have high energy consumption, poor scaling and weak scaling. malicious nodes need bad handling [16], [20]. For example, if a small number of nodes begin sending bum blocks or slackening transactions, the whole network is slowed down. This makes the trust value of honest nodes are brought down, and that impairs the reliability of the full system [14]. Therefore, it requires a process that has the capability. evaluate incessantly the behavior of all the nodes and modify trust. dynamically. Besides, energy and computer expense is grave too. when implementing blockchain in the cloud infrastructure. A lot of models of consensus use a lot of gas or CPU. time, they are not applicable to practice [13]. The hybrid solutions involving smart con- have been proposed by the researchers. encryption of the data and lightweight encryption to enhance efficiency [10], [16]. Nevertheless, there is a reasonable equilibrium between the accuracy of trust, the cost, scalability, and security, is yet to be provided [19]. In order to fill these gaps, this paper is proposed to provide a Lightweight. Trust with Blockchain-Cloud (LTBC) architecture. The model aims at ensuring persistent trust analysis. to each node, and selective consensus to

Dr. Vengatesan Krishnasamy
Professor
Department of Computer Science and Engineering

Dr. Vengatesan K, Professor, Department of CSE served as a jury member for the Project Expo held on 28.03.2026 at Panimalar Engineering College, Chennai

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PECTEAM 2K26

CERTIFICATE

OF APPRECIATION

This Certificate is Proudly Presented to

DR. K. VENGATESAN

acted as Jury Member for Project Expo in the International Conference for Phoenixes on Emerging Current Trends in Engineering and Management (PECTEAM) held on 27th and 28th March 2026.

CONVENOR
Dr. S. MALATHI
DEAN (RESEARCH)

CO - PATRON
DR. S. PRASANNA DEVI
CHIEF ACADEMIC OFFICER

CO - PATRON
Dr. K. MANI
PRINCIPAL

Dr. Vengatesan Krishnasamy
Professor
Department of Computer Science and Engineering

Dr. Vengatesan K, Professor, Department of CSE delivered a session on “Emerging Trends in Data Science and Agentic AI for Healthcare" during the FDP conducted by the Department of Artificial Intelligence & Data Science, E.G.S. Pillay Engineering College (Autonomous), Nagapattinam on 24th March 2026.

Dr. Vengatesan k, Professor, Department of CSE has successfully served as a Session Chair at the International Conference on Networking and Computing Technologies (iCONNECT 2026), held at Mizoram University, Aizawl, Mizoram, India, from April 22–24, 2026, in recognition of his dedication, leadership, and valuable contribution in managing and guiding the conference sessions.

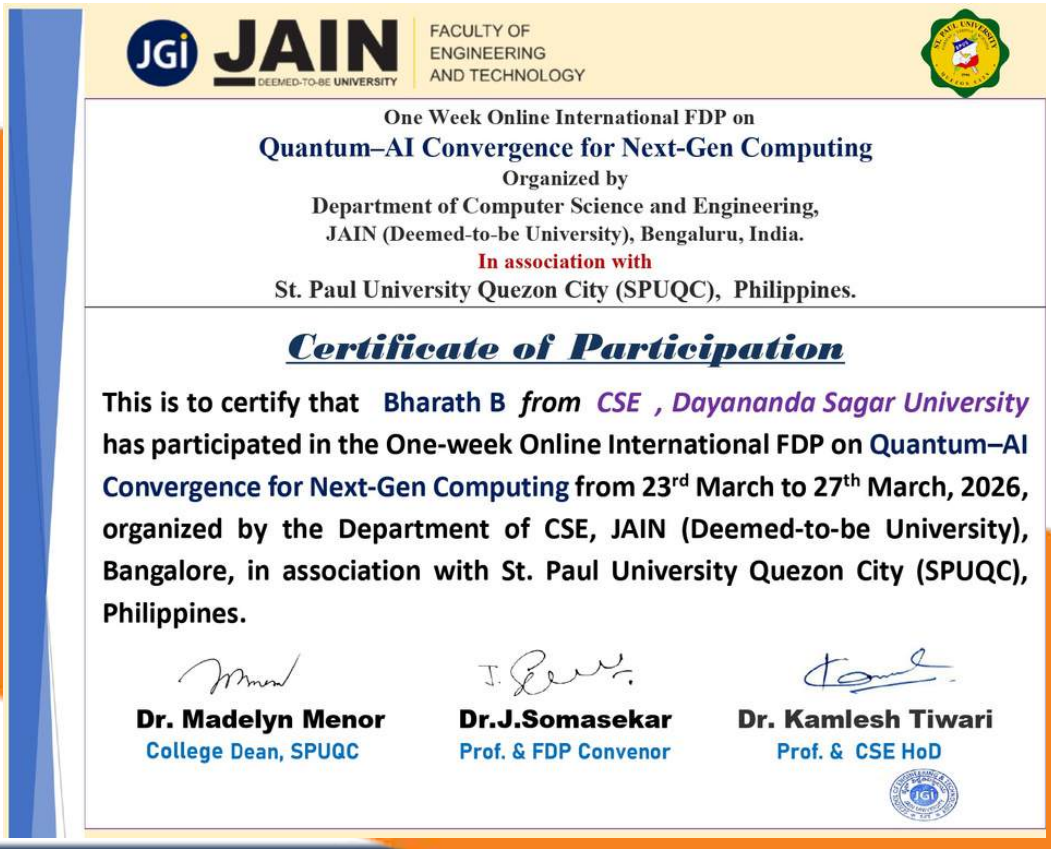
Bharath B
Assistant Professor
Department of Computer Science and Engineering

Mr. Manish Nandy
Assistant Professor
Department of Computer Science and Engineering

1)Prof. Bharath B, Assistant Professor, Department of CSE has participated in the One-week Online International FDP on Quantum–AI Convergence for Next-Gen Computing from 23rd March to 27th March, 2026 organized by the Department of CSE, JAIN (Deemed-to-be University), Bangalore, in association with St. Paul University Quezon City (SPUQC), Philippines.

2)Prof. Bharath B., Assistant Professor, Department of Computer Science and Engineering, Dayananda Sagar University, successfully completed a five-day virtual Faculty Development Program (FDP) on "Research & Publication Ethics" organized by SJC Institute of Technology, Chikkaballapur, from 16th to 20th April 2026.

3)Additionally, Prof. Bharath B. and Prof. Manish Nandy (Assistant Professors, CSE) completed an FDP on "Advanced Pedagogy for Effective Teaching, Learning & Assessment" from 9th March to 21st March 2026, conducted by EICT Academies including IIT Kanpur, IIT Guwahati, IIT Roorkee, MNIT Jaipur, IIITDM Jabalpur, NIT Patna, and NIT Warangal.



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Department of Computer Science and Engineering,
JAIN (Deemed-to-be University), Bengaluru, India.
In association with
St. Paul University Quezon City (SPUQC), Philippines.

Certificate of Participation

This is to certify that **Bharath B** *from* *CSE , Dayananda Sagar University* has participated in the One-week Online International FDP on Quantum–AI Convergence for Next-Gen Computing from 23rd March to 27th March, 2026, organized by the Department of CSE, JAIN (Deemed-to-be University), Bangalore, in association with St. Paul University Quezon City (SPUQC), Philippines.

Dr. Madelyn Menor	Dr.J.Somasekar	Dr. Kamlesh Tiwari
College Dean, SPUQC	Prof. & FDP Convenor	Prof. & CSE HoD

|| Jai Sri Gurudev ||
Sri Adichunchanagiri Shikshana Trust (R.)

SJC Institute of Technology
(An Autonomous Institution under VTU)
Department of MBA & Research Center

CERTIFICATE OF PARTICIPATION

Presented to

BHARATH B

DAYANANDA SAGAR UNIVERSITY

has successfully completed five days virtual Faculty Development Program (FDP) on "Research & Publication Ethics" organized by Department of MBA & Research Center, SJC Institute of Technology, Chikkaballapur from 16/04/2026 to 20/04/2026.

Dr. I G Srikanth
HoD - MBA Dept.

Dr. Manjunath Kumar B H
Dean Academics

Dr. G T Raju
Principal

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has completed the **Faculty Development Program** on
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from 09-03-2026 to 21-03-2026

Date of Issue: 27-04-2026

Prof B. V. Phani
Chief Investigator, E&ICT Academy, IIT Kanpur

EICT Academies: IIT Kanpur, IIT Guwahati, IIT Roorkee, MNIT Jaipur, IIITDM Jabalpur, NIT Patna, NIT Warangal

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EICTA Consortium
(A Joint Initiative of MeitY and IITs, NITs and IIITs)

Certificate

This is to certify that
Dr. / Mr. / Ms. **Manish Nandy** of
Dayananda Sagar University Karnataka
has completed the **Faculty Development Program** on
Advanced Pedagogy for Effective Teaching, Learning & Assessment
from 09-03-2026 to 21-03-2026

Date of Issue: 27-04-2026

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Chief Investigator, E&ICT Academy, IIT Kanpur

EICT Academies: IIT Kanpur, IIT Guwahati, IIT Roorkee, MNIT Jaipur, IIITDM Jabalpur, NIT Patna, NIT Warangal

Dr. C. Gowdham
Assistant Professor
Department of Computer Science and Engineering

Dr. C. Gowdham, Associate Professor, Department of CSE delivered a session as a Resource Person for the National Level Five-Day Faculty Development Programme conducted by J.K.K. Munirajah College of Technology (Autonomous), affiliated to Anna University, Chennai.

Resource Person's

Day 1: Research Fundamentals & Journal Selection

Dr.A.G.Karthikeyan
Assistant Professor, School of Mechanical Engineering, REVA University, Bengaluru.

Day 2: Research Paper Writing Techniques & Formatting Tools

Mr.B.Akoramurthy
Full Time-Research, Scholar, Department of CSE, National Institute of Technology, Puducherry.

Day 3: Publication Strategy & Hands-on Submission

Dr.C.Gowdham
Department of CSE, Assistant Professor, School of Engineering, Dayananda Sagar University, Bengaluru-

Day 4: Patent Drafting & Filing Process

Dr.N.Thillaiarasu
Associate Professor, School of CSE, REVA UNIVERSITY, Bengaluru.

Day 5: Project Proposal Writing and Submission Techniques for Research Funding

Dr.P.Balamuruqan
Associate Professor, Department of Networking and Communications, SRM Institute of Science and Technology, Kattankulathur, Chennai.

Scope of FDP:

- Enhances participants' understanding of research fundamentals, problem identification, and effective journal selection strategies.
- Develops skills in structured research paper writing using modern formatting and reference management tools.
- Guides participants on publication strategies, ethical submission practices, and hands-on manuscript submission.
- Provides practical exposure to patent drafting, intellectual property rights, and the filing process
- Strengthens competencies in writing impactful project proposals for securing research funding from various agencies.

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Internal Faculty: Rs.100

Note: All the Participations will get the Participant Certificate at the end of the day. (Five days Attendance is mandatory)

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Muthu Bala N
Assistant Professor
Department of Computer Science and Engineering

Prof. Muthu Bala N, Assistant Professor, Department of CSE awarded for outstanding contribution and Certificate of Excellence in Reviewing the article at the Journal of Engineering Research and Reports during April 2026.

Certificate No: PRJERR156237MUT
Academic Year: 2026-2027
Month: April - 2026

Journal of Engineering Research and Reports

Certificate of Excellence in Reviewing

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Dr. Natarajan Venkateswaran
Professor of Practice
Department of Computer Science and Engineering

Dr. Natarajan Venkateswaran, Professor of Practice, Department of CSE delivered an invited talk to the ACE Designers team at the IIM Bengaluru Campus with the title "The AI Shift Reshaping the World and Manufacturing", during 10th April 2026. The talk was very well appreciated by the participants that included the CIO of ACE.

Dr. Gayathri T
Assistant Professor
Department of Computer Science and Engineering

Dr. T Gayathri, Assistant Professor, Dr. Bondu Venkateshwarlu, Professor, Department of CSE published a paper titled “QuantumNeuroXAI: a quantum-inspired deep learning framework with explainability for brain signal analysis and neurological disorder detection” in Q1 Journal Scientific Reports during 10th April 2026.

QuantumNeuroXAI: A Quantum-Inspired Deep Learning Framework with Explainability for Brain Signal Analysis and Neurological Disorder Detection

Dr. T Gayathri[1*], Dr G Manjula[2], Dr Harish H Kenchannavar[3], Dr. Danthuluri Sudha[4], Dr. Santosh Kumar Jankatti[5], Dr. Ramandeep Kaur[6], Dr. Bondu Venkateswarlu[7]

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Abstract

Electroencephalography (EEG) is a non-invasive, high-temporal-resolution method for diagnosing and monitoring neurological disorders. Deep learning has recently substantially enhanced the state of the art for automated EEG analysis. However, many of the currently applied paradigms are still challenged by limited generalisation across datasets, vulnerability to noise or preprocessing changes, and the absence of interpretable decision rules. Additionally, many deep learning models operate like black boxes, which limits their use in clinical settings where interpretability and trust are key. Although the potential of quantum-inspired learning has recently been demonstrated through improved feature separability in high-dimensional signal spaces, its scope of applicability does not yet extend to deep temporal modelling and explainable artificial intelligence applications. We address these limitations by introducing QuantumNeuroXAI, a quantum-inspired deep learning framework implemented on

Dr. George Fernandez I
Associate Professor
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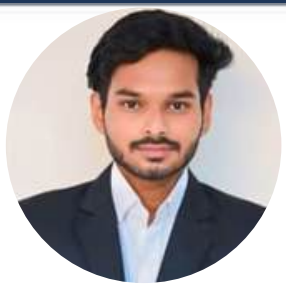
Dr. George Fernandez I, Associate Professor, Department of CSE presented a paper titled “Cloud-Native Deep Learning System for Rapid and Accessible Thoracic Disease Screening” in the Third International IEEE Conference on Trends in Quantum Computing and Emerging Business Technologies – TQCEBT’26 organized by CHRIST (Deemed to be University), Pune Lavasa Campus in collaboration with IEEE Pune Section and IEEE-TEMS Pune Chapter from 9th to 11th April 2026.



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Prof. Manas Singha, Prof. Chandan Maji, Prof. Praveen Gopal Gaonkar, Assistant Professors, Dr. Rupam Bhagawati, Associate Professor, Dr. Vengatesan K, Professor, and Mr. Likith Gowda BH Student(ENG24CS0108), 2nd year CSE student presented paper titled “Explainable Multimodal Deep Learning for Trustworthy Human–AI Collaboration” at ICONIC 2026 (International Conference On Intelligent Computing) held at Panimalar Engineering College, Chennai on 27th & 28th March 2026.

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This is to certify that Dr./Mr./Ms. Manas Singha

from DayanandaSagar University has presented paper

titled Explainable Multimodal Deep Learning for Trustworthy Human–AI Collaboration

in 2026 International Conference on Intelligent Computing (IConIC)

held on 27th & 28th March, 2026.

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titled Explainable Multimodal Deep Learning for Trustworthy Human–AI Collaboration

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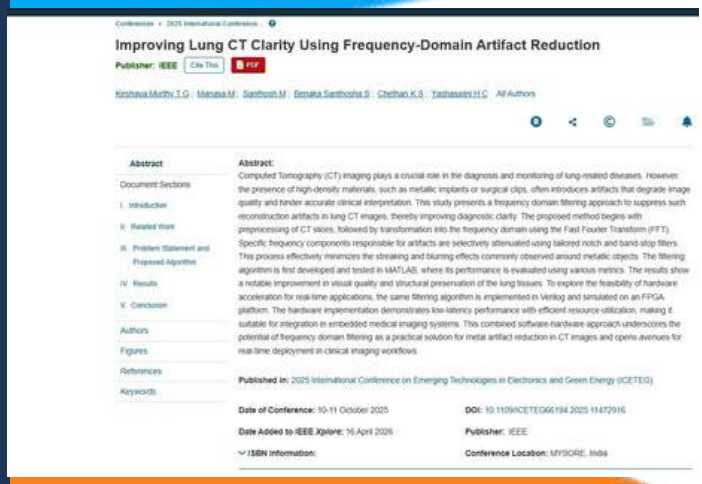
Prof. Benaka Santhosha S, Prof. Santhosh M, Prof. Chethan K S and Prof. yashaswini H C, Assistant Professors, Department of CSE, published a research paper titled “Improving Lung CT clarity Using Frequency - Domain Artifact Reduction” during 16th April 2026, which was presented at the International Conference on Emerging Technologies in Electronics and Green Energy (ICETEG 2025) held at JSS Science and Technology University, Mysuru.

https://ieeexplore.ieee.org/document/11472916



Improving Lung CT Clarity Using Frequency-Domain Artifact Reduction

Publisher: IEEE

Abstract

Document Sections

I. Introduction

II. Related Work

III. Problem Statement and Proposed Algorithm

IV. Results

V. Conclusion

Authors

Figures

References

Keywords

Abstract:
Computed Tomography (CT) imaging plays a crucial role in the diagnosis and monitoring of lung-related diseases. However, the presence of high-density materials, such as metallic implants or surgical clips, often introduces artifacts that degrade image quality and hinder accurate clinical interpretation. This study presents a frequency domain filtering approach to suppress such reconstruction artifacts in lung CT images, thereby improving diagnostic clarity. The proposed method begins with preprocessing of CT slices, followed by transformation into the frequency domain using the Fast Fourier Transform (FFT). Specific frequency components responsible for artifacts are selectively attenuated using tailored notch and band-stop filters. This process effectively minimizes the streaking and blurring effects commonly observed around metallic objects. The filtering algorithm is first developed and tested in MATLAB, where its performance is evaluated using various metrics. The results show a notable improvement in visual quality and structural preservation of the lung tissues. To explore the feasibility of hardware acceleration for real-time applications, the same filtering algorithm is implemented in Verilog and simulated on an FPGA platform. The hardware implementation demonstrates low-latency performance with efficient resource utilization, making it suitable for integration in embedded medical imaging systems. This combined software-hardware approach underscores the potential of frequency domain filtering as a practical solution for metal artifact reduction in CT images and opens avenues for real-time deployment in clinical imaging workflows.

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2025 International Conference on Emerging Technologies in Electronics and Green Energy (ICETEG)

Improving Lung CT Clarity Using Frequency-Domain Artifact Reduction

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Abstract*— Computed Tomography (CT) imaging plays a crucial role in the diagnosis and monitoring of lung-related diseases. However, the presence of high-density materials, such as metallic implants or surgical clips, often introduces artifacts that degrade image quality and hinder accurate clinical interpretation. This study presents a frequency domain filtering approach to suppress such reconstruction artifacts in lung CT images, thereby improving diagnostic clarity. The proposed method begins with preprocessing of CT slices, followed by transformation into the frequency domain using the Fast Fourier Transform (FFT). Specific frequency components responsible for artifacts are selectively attenuated using tailored notch and band-stop filters. This process effectively minimizes the streaking and blurring effects commonly observed around metallic objects. The filtering algorithm is first developed and tested in MATLAB, where its performance is evaluated using various metrics. The results show a notable improvement in visual quality and structural preservation of the lung tissues. To explore the feasibility of hardware acceleration for real-time applications, the same filtering algorithm is implemented in Verilog and simulated on an FPGA platform. The hardware implementation demonstrates low-latency performance with efficient resource utilization, making it suitable for integration in embedded medical imaging systems. This combined software-hardware approach underscores the potential of frequency domain filtering as a practical solution for metal artifact reduction in CT images and opens avenues for real-time deployment in clinical imaging workflows.

***Keywords*— CT artifacts, FPGA implementation, Lung imaging, MATLAB, Verilog Machine Learning**

I. Introduction

Computed Tomography (CT) has emerged as a pivotal imaging modality in the diagnosis, assessment, and management of thoracic diseases, especially those related to the lungs. With its ability to provide cross-sectional anatomical details with high spatial resolution, CT imaging is widely used for screening and evaluating conditions such as lung cancer, chronic obstructive pulmonary disease (COPD), infections, and interstitial lung diseases. However, despite its diagnostic utility, CT imaging is not immune to limitations—one of the most prominent being the presence of artifacts that compromise image quality and, consequently, diagnostic accuracy. Among the various artifacts encountered in CT imaging, those arising from high-density metallic objects—such as dental fillings, orthopedic implants, or surgical clips—are particularly problematic. These metallic elements cause inconsistencies during X-ray attenuation measurement and reconstruction, resulting in streaking, shading, or starburst artifacts in the reconstructed images. In lung CT scans, such artifacts may obscure vital pulmonary structures, leading to misinterpretation or missed pathological findings. The need to reduce or eliminate these artifacts has therefore become an active area of research within the medical imaging community. Traditional techniques for metal artifact reduction (MAR) include interpolation-based correction, iterative reconstruction methods, and dual-energy CT acquisition. While effective in certain contexts, these methods often come with increased computational complexity, dependency on raw projection data, or the requirement for additional radiation exposure. Furthermore, they may be limited by compatibility with existing CT systems or may not offer real- time processing capabilities. As an alternative, frequency domain filtering techniques offer a more computationally efficient and modular solution for post-reconstruction artifact suppression [1].

The frequency domain provides a distinct perspective for analyzing and processing images. By transforming CT images from the spatial to the frequency domain using the Fast Fourier Transform (FFT), it becomes possible to isolate and manipulate frequency components that are primarily responsible for artifacts. Metallic artifacts tend to manifest as high-frequency noise or specific directional streaks, which are distinguishable in the frequency spectrum. Through the design and application of targeted filters—such as notch filters, Gaussian masks, or

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Epilepsy Simulation With AI-Driven Insights & Detection - *EpiSimAiD*

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2026 International Conference on Visual Analytics and Data Visualization (ICVADV) | 979-8-3315-9237-0/26/$31.00 ©2026 IEEE | DOI: 10.1109/ICVADV67766.2026.11470398

***Abstract*— Advanced Brain Wave Monitoring for Epilepsy aims to leverage cutting-edge EEG simulation and AI-based detection techniques to address critical health and safety concerns associated with seizure disorders. *EpiSimAiD: Epilepsy Simulation with AI-Driven Insights & Detection* aims to advance brainwave monitoring for epilepsy through EEG-based simulation and intelligent seizure detection. The system integrates real-time EEG analysis, AI-driven alert mechanisms, and confidence-based diagnostics to enable early seizure prediction and enhance patient safety. By combining healthcare collaboration, therapy engagement, and self-care awareness, the project promotes holistic epilepsy management. Extensive simulations demonstrate the system's potential to provide timely alerts, improving response to critical conditions. Beyond its technical innovation, *EpiSimAiD* reflects a human-centered commitment to leveraging technology for improved well-being and healthcare outcomes.**

***Keywords* — EEG Signals, Epilepsy Simulation, Seizure Detection, AI-Driven Insights, Real-Time Alerts, Patient Safety, Healthcare Innovation, Human-Centered Design.**

I. Introduction

A. Holistic Health Management & Multidisciplinary Care

Epilepsy Simulation with AI-Driven Insights and Detection (*EpiSimAiD*) is a brainwave monitoring and alert system designed to support health and safety through advanced EEG-based analysis. The system focuses on focal epilepsy, providing real-time monitoring and timely alerts at critical junctures, thereby contributing to holistic health management and preventive care.

The development of such systems requires a multidisciplinary effort. Engineering disciplines—including Electronics, Computer Science, and Biomedical Engineering—contribute to hardware, software, and system integration. Complementing this, medical expertise spanning Neurology, Psychiatry, Cardiology, Emergency Medicine, Gerontology, Clinical Research, and Public Health ensures that the solution remains clinically relevant, ethically sound, and patient-centered. Such cross-disciplinary integration between engineering and neuroscience is also emphasized in recent EEG and brain–computer interface research [8].

B. Brainwaves and Electroencephalography (EEG)

Brainwaves are rhythmic electrical oscillations generated by neurons and recorded non-invasively using Electroencephalography (*EEG*). Each frequency band is associated with distinct physiological or cognitive states:

Beta:	*wakefulness and active concentration*
Alpha:	*relaxation and calmness*
Theta:	*creativity and light sleep*
Delta:	*deep, restorative sleep*
Gamma:	*higher cognition and problem-solving*

Frequency analysis decomposes EEG signals into these characteristic bands, enabling the detection of abnormalities such as epileptic seizures. EEG is widely applied in clinical diagnosis and monitoring of epilepsy, sleep disorders, and brain injuries, as well as in cognitive neuroscience research [3]–[5], [7]–[9]. Fig. 1 illustrates the decomposition of an EEG signal into its constituent frequency bands.

Fig. 1: EEG Brainwave Signal – Different Frequency Bands

C. Highlights of EpiSimAiD

- Provides ***timely alerts*** at critical moments using advanced brainwave monitoring.
- Enhances ***awareness and holistic health management*** for individuals with epilepsy.
- Integrates ***engineering and medical expertise*** in a unified, multidisciplinary approach.
- Aims to ***empower users*** through proactive, technology-driven health support.

Dr. Vengatesan Krishnasamy
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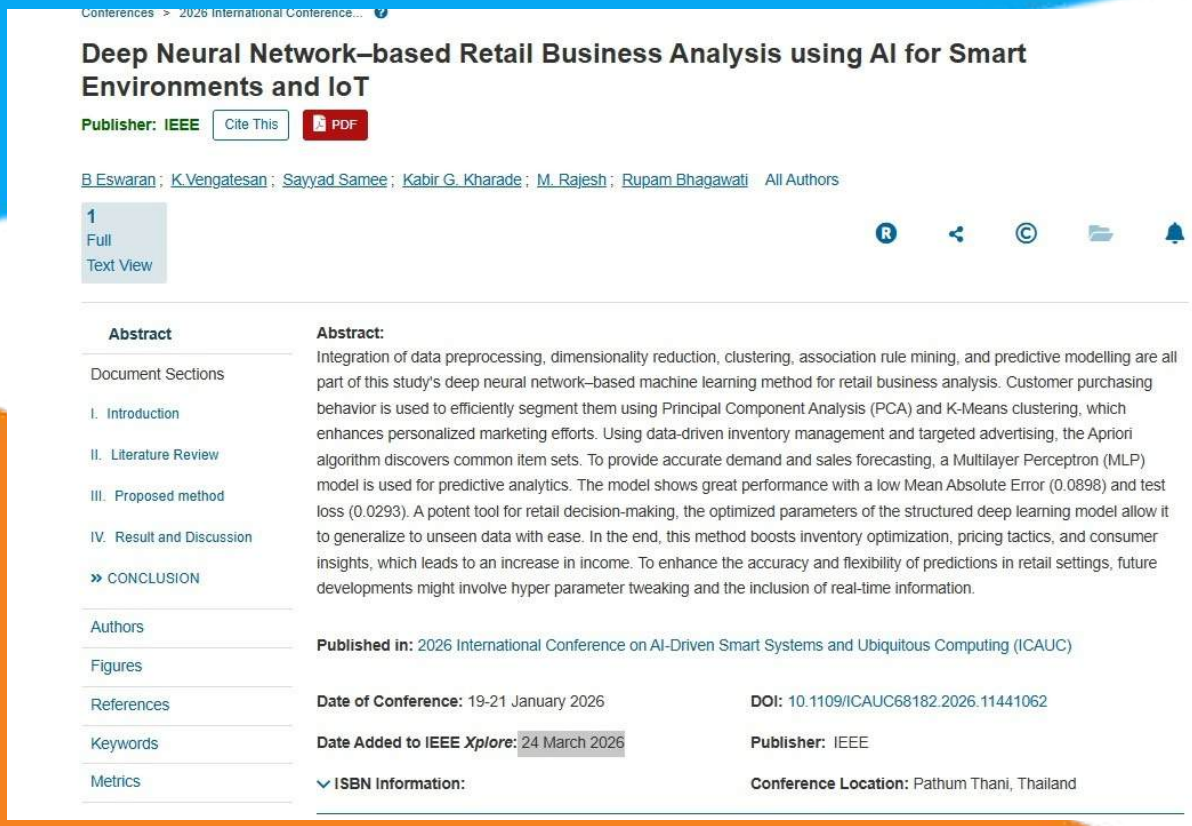
Dr. K. Vengatesan (Professor) and Dr. Rupam Bhagawati (Associate Professor), Department of Computer Science and Engineering, Dayananda Sagar University, published an IEEE research paper titled “Deep Neural Network-Based Retail Business Analysis Using AI for Smart Environments and IoT” on 24th March 2026.



Conferences > 2026 International Conference...

Deep Neural Network–based Retail Business Analysis using AI for Smart Environments and IoT

Publisher: IEEE | Cite This | PDF

B Eswaran ; K.Vengatesan ; Sayyad Samee ; Kabir G. Kharade ; M. Rajesh ; Rupam Bhagawati All Authors

1 Full Text View

Abstract

Document Sections

I. Introduction

II. Literature Review

III. Proposed method

IV. Result and Discussion

» CONCLUSION

Authors

Figures

References

Keywords

Metrics

Abstract:
Integration of data preprocessing, dimensionality reduction, clustering, association rule mining, and predictive modelling are all part of this study's deep neural network–based machine learning method for retail business analysis. Customer purchasing behavior is used to efficiently segment them using Principal Component Analysis (PCA) and K-Means clustering, which enhances personalized marketing efforts. Using data-driven inventory management and targeted advertising, the Apriori algorithm discovers common item sets. To provide accurate demand and sales forecasting, a Multilayer Perceptron (MLP) model is used for predictive analytics. The model shows great performance with a low Mean Absolute Error (0.0898) and test loss (0.0293). A potent tool for retail decision-making, the optimized parameters of the structured deep learning model allow it to generalize to unseen data with ease. In the end, this method boosts inventory optimization, pricing tactics, and consumer insights, which leads to an increase in income. To enhance the accuracy and flexibility of predictions in retail settings, future developments might involve hyper parameter tweaking and the inclusion of real-time information.

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DOI: 10.1109/ICAUC68182.2026.11441062

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Conference Location: Pathum Thani, Thailand

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Prof. Rupam Sah, Prof. Praveen Gopal Gaonkar, Prof. Manas Singha, Prof. Aman Aditya, Assistant Professors, Dr. Rupam Bhagawati, Associate Professor, and Dr. Vengatesan. K, Professor, Department of CSE has published an IEEE paper titled “A Self-Supervised Learning Framework for LowResource Computer Vision Applications” during 23rd March 2026,

A Self-Supervised Learning Framework for Low-Resource Computer Vision Applications

Publisher: IEEE | Cite This | PDF

Rupam Sah ; Praveen Gopal Gaonkar ; Manas Singha ; Rupam Bhagawati ; Vengatesan.K ; Aman Aditya All Authors

2 Full Text Views

Abstract

Document Sections

I. Introduction

II. Related Work

III. Proposed Self-Supervised Learning Framework

IV. Experimental Results

V. Conclusion

Authors

Figures

References

Keywords

Abstract:
The application of deep learning has resulted in significant advancements in computer vision systems; nonetheless, extensive labelled datasets and processing resources are required. In a lot of different domains, particularly emerging countries and edge-based deployments, there is a lack of labelled data, annotation is expensive, and computational resources is limited. An innovative Self-Supervised Learning (SSL) architecture has been developed as a result of this research. It is designed for low-resource computer vision applications that have limited labelled data and computational resources. Using unlabelled data, pretext tasks, representation consistency learning, and lightweight feature encoders, the proposed method is able to learn strong visual representations without the need for manual annotation. Under low-label regimes, the suggested method achieves better results than the usual supervised and transfer learning baselines when applied to benchmark datasets. The use of self-supervised learning makes it possible to create reliable computer vision systems in situations where resources are limited, and it is also scalable.

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Date Added to IEEE *Xplore*: 23 March 2026

Publisher: IEEE

ISBN Information:

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Prof. Praveen Gopal Gaonkar, Prof. Manas Singha, Prof. Rupam Sah, Prof. Bikramjit Saha, Assistant Professors, Dr. Rupam Bhagawati, Associate Professor, and Dr. Vengatesan. K, Professor, Department of CSE has published an IEEE paper titled “Graph Neural Networks for Real-Time Misinformation Detection in Social IoT” during 23rd March 2026,

Graph Neural Networks for Real-Time Misinformation Detection in Social IoT

Publisher: IEEE | Cite This | PDF

Praveen Gopal Gaonkar ; Manas Singha ; Rupam Sah ; Rupam Bhagawati ; Vengatesan.K ; Bikramjit Saha All Authors

1 Full Text View

Abstract
Document Sections
I. Introduction
II. Related Work
III. Proposed Explainable Multimodal Framework
IV. Experimental Results
V. Conclusion
Authors
Figures
References
Keywords
Metrics

Abstract:
A convergence of social networks and Internet of Things ecosystems, the idea of the Social Internet of Things (Social IoT) has arisen. One defining feature of this idea is the social interaction-based autonomous interaction of smart devices, users, and services. This paradigm improves knowledge sharing and intelligent collaboration but propagates misinformation at unparalleled speed and scale. Social IoT environments are dynamic, relational, and heterogeneous, therefore content analysis and static network features fail to detect misleading. This study introduces a GNN-based framework for real-time disinformation detection in Social IoT systems. The suggested technique learns structural, temporal, and semantic patterns of misinformation dissemination by modelling users, IoT devices, content, and interactions as a dynamic heterogeneous graph. Experimental results show that the suggested technique has high detection accuracy, low latency, and robust performance under changing network conditions. The results show that graph-based learning protects trust and dependability in next-generation Social IoT platforms.

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Conference Location: Dhulikhel, Nepal

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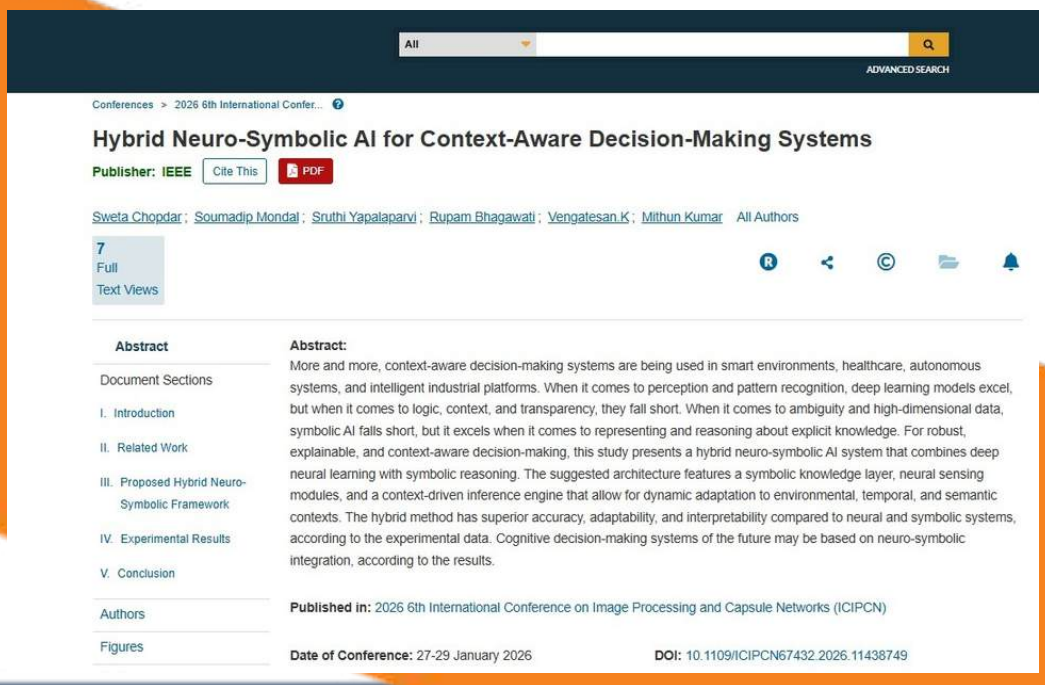
Prof. Sweta Chopdar, Prof. Soumadip Mondal, and Prof. Sruthi Yapalaparvi (Assistant Professors), along with Dr. Rupam Bhagawati (Associate Professor) and Dr. K. Vengatesan (Professor), Department of Computer Science and Engineering, Dayananda Sagar University, published an IEEE research paper titled “Hybrid Neuro-Symbolic AI for Context-Aware Decision-Making Systems” on 23rd March 2026.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Hybrid Neuro-Symbolic AI for Context-Aware Decision-Making Systems

Publisher: IEEE Cite This PDF

Sweta Chopdar ; Soumadip Mondal ; Sruthi Yapalaparvi ; Rupam Bhagawati ; Vengatesan K ; Mithun Kumar All Authors

7 Full Text Views

Abstract

Document Sections

I. Introduction

II. Related Work

III. Proposed Hybrid Neuro-Symbolic Framework

IV. Experimental Results

V. Conclusion

Authors

Figures

Abstract:

More and more, context-aware decision-making systems are being used in smart environments, healthcare, autonomous systems, and intelligent industrial platforms. When it comes to perception and pattern recognition, deep learning models excel, but when it comes to logic, context, and transparency, they fall short. When it comes to ambiguity and high-dimensional data, symbolic AI falls short, but it excels when it comes to representing and reasoning about explicit knowledge. For robust, explainable, and context-aware decision-making, this study presents a hybrid neuro-symbolic AI system that combines deep neural learning with symbolic reasoning. The suggested architecture features a symbolic knowledge layer, neural sensing modules, and a context-driven inference engine that allow for dynamic adaptation to environmental, temporal, and semantic contexts. The hybrid method has superior accuracy, adaptability, and interpretability compared to neural and symbolic systems, according to the experimental data. Cognitive decision-making systems of the future may be based on neuro-symbolic integration, according to the results.

Published in: 2026 6th International Conference on Image Processing and Capsule Networks (ICIPCN)

Date of Conference: 27-29 January 2026 **DOI:** 10.1109/ICIPCN67432.2026.11438749

Bharath M B
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Prof. Bharath M. B, Assistant Professor, Department of CSE has successfully presented the research paper titled “TAS-SD: Topology-Aware Self-Supervised Learning for Network Intrusion Detection” at the International conference on advance in Multidisciplinary Engineering (ICRAME 2026) held on 01-02 April 2026 at Maharishi University of Information Technology, Lucknow campus, India.

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CERTIFICATE No.: ICRAME 2026/CP186 *DATE:* 01-02 April 2026

CERTIFICATE OF PRESENTATION

This is to certify that

- **Presented Author: Sharanabasappa Tadkal**
- **Co- Author(s): Dilip Kumar Jang Bahadur Saini, Laxmikant Eshwarappa, Bharath M. B. & Neha Divekar**

has successfully presented the research paper titled

“TAS-SD: Topology-Aware Self-Supervised Learning for Network Intrusion Detection”

at the **International conference on advance in Multidisciplinary Engineering (ICRAME 2026)** held on **01-02 April 2026** at **Maharishi University of Information Technology, Lucknow campus, India.** The valuable contribution and presentation are sincerely appreciated.

CONVENOR **CONFERENCE CHAIR** **DEAN ACADEMICS** **VICE CHANCELLOR**

Dr M Shahina Parveen
Professor and Chairperson
Department of Computer Science & Technology

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Dr.Sudha D
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Dr. Santosh Kumar Jankatti, Danthuluri Sudha & Dr. M Shahina Parveen has published a Q2- Journal Paper Published and Indexed in scopus: NN-SVM: a hybrid neural network–support vector machine framework for accurate pneumonia detection from chest X-rays ,IAES International Journal of Artificial Intelligence

NN-SVM: a hybrid neural network–support vector machine framework for accurate pneumonia detection from chest X-rays

IAES International Journal of Artificial Intelligence • Article • Open Access • 2026 • DOI: 10.11591/ijai.v15.i2.pp1349-1361

Jankatti, Santosh Kumar [a] ✉ ; Srinivasaiah, Raghavendra [b] ✉ ; Parveen, Mohammad Shahina [c] ✉ ; Kenchannavar, Harish H. [c] ✉ ; Sudha, Danthuluri [c] ✉ ; +2 authors

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Abstract

We present neural network (NN)-support vector machine (SVM), hybrid NN-SVM framework for three-class pneumonia detection (normal, bacterial, and viral) from chest X-rays (CXRs). Pretrained NN backbone is fine-tuned for radiographic textures; global average pooling (GAP) yields embeddings that feed calibrated radial basis function (RBF)-SVM. Standardized preprocessing (resize, normalization) and class-aware augmentation are applied. We report accuracy, precision, recall, F1-score, area under the curve (AUC), confusion matrices, and per-class receiver operating characteristic (ROC). Statistical significance is assessed via DeLong (AUC), McNemar (accuracy), and paired bootstrap (F1-score). Gradient-weighted class activation mapping (grad-CAM) supports interpretability; external validation and domain adaptation (batch normalization re-estimation and temperature scaling) assess robustness. NN-SVM attains 97.46% accuracy with strong macro-F1 and AUC. Compared with SoftMax head, SVM improves margin separation and calibration. We present NN-SVM, hybrid deep learning approach that combines transfer-learned convolutional

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A paper authored by Danthuluri Sudha, Santosh Kumar J, Ramandeep Kaur, Vinayaka V M titled “Deep Learning-Based Deblurring of Astronomical Images for Enhanced Celestial Observation” is published in IEEE.

2026 2nd International Conference on Cognitive Computing in Engineering, Communications, Sciences and Biomedical Health Informatics (IC3ECSBHI)

Deep Learning-Based Deblurring of Astronomical Images for Enhanced Celestial Observation

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2nd International Conference on Cognitive Computing in Engineering, Communications, Sciences and Biomedical Health Informatics (IC3ECSBHI) | 979-8-3315-5693-4/26/$31.00 ©2026 IEEE | DOI: 10.1109/IC3ECSBHI67894.2026.11468999

Abstract: The Earth's atmosphere and hardware problems frequently cause images taken by ground telescopes to appear fuzzy. We evaluated the Richardson-Lucy (RL) deconvolution technique [7, 25] on astronomical images with speckle noise and motion blur between 0 and 30 pixels. The APOD website of NASA provided the test images. When noise levels were high, RL provided 8–12 dB better PSNR than Wiener filtering. After processing, SSIM increased from 0.51 to 0.84 for medium blur (15 pixels). We found that running more than 30 iterations did not help much. The blur direction (0°, 90°, etc.) made almost no difference to results. Heavy blur (30 pixels) destroyed too much data to recover properly. Our work gives astronomers practical numbers for setting up image restoration on tracking-affected telescope data.

Keywords— Astronomical image processing, Richardson-Lucy deconvolution, Motion blur correction, Image restoration

I. Introduction

Telescopes on Earth have always struggled with blurry pictures. The air above us keeps moving and bending starlight in random ways [9]. Faint objects like distant galaxies make things harder because there are so few photons hitting the camera sensor [5]. Long exposures help collect more light but also collect more blur from atmospheric wobble. Computer algorithms can partially fix these problems after the fact. The basic idea goes like this: if we know exactly how our telescope system smears out point sources of light (this smearing pattern is called the point spread function or PSF), we can use math to work backwards and guess what the original sharp image probably looked like.

Richardson came up with one such method back in 1972 [7]. Lucy used different math to figure out the same formula two years later [25]. These days, we refer to it as the Richardson-Lucy algorithm, or simply RL. Rather than attempting to completely eliminate the blur, which is mathematically impossible in the presence of noise, RL repeatedly makes guesses that gradually approach a correct response. We refer to each guessing round as an iteration. Although RL is now widely used in astronomy, there are issues with it. Instead of decreasing noise, running too many iterations increases it. Ringing artifacts can occasionally form around bright stars [17]. Distortions can also be seen in image boundaries [10]. Numerous researchers tackled these problems.

Prato et al. improved computational speeds in reference [11]. Sakai et al. worked on spatially varying blur in reference [12]. We did experiments to assess RL's performance under various conditions. NASA space photographs were our sources. Degradation, RL restoration, and comparison with originals were done. Blur ranges were from 0 to 30 pixels. Five angles were tested. Iteration numbers ranged from 10 to 50. We aimed to produce useful results rather than contribute theory.

II. Literature Review

Richardson wrote his 1972 paper [7] on a probability problem: given a blurry noisy image and knowledge of the blurring process, what was the original image most likely to be? Lucy approached the same problem from the other direction in 1974 [25] and arrived at the same answer using different mathematics. He and Richardson both saw that trying to reverse the blurring process is a failure for images with noise. However, many refined guesses can help. Many improvements followed. Bertero and Boccacci [10] corrected the edge artifact problem by adding pixels to the edges of the image before running RL. With camera sensor sizes increasing and more megapixels, speed became a problem.

Prato et al. [11] invented faster calculation methods that yield the same results but take less time to do so. In most real-world telescope systems, there is blur that is image-variable. Stars on the edge look different from those in the middle. Sakai et al.[12] demonstrated how RL can be modified for such cases using data from the Chandra X-ray space telescope. The H.E.S.S. gamma ray group[13] used similar ideas for their ground-based Cherenkov telescopes. In all cases, RL was found to perform better than other algorithms. Deshpande and Patnaik[1] tested several algorithms on motion-blurred images and RL emerged the sharpest, provided the iteration count was set correctly. Wiener filtering is faster because it only involves one calculation step, but it requires accurate estimates of the noise and over-smooths details[5].

Recently, machine learning was introduced in this area. Neural networks can be trained to transform blurry images into sharp images without prior knowledge of the PSF [15, 24]. The drawback is that it may create artificial features that actually did not exist in the first place. For science, where precision is of vital importance, artificial features can be problematic[4]. Zhang et al. [16] introduced hybrid techniques

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1)Dr. Santosh Kumar Jankatti has published a Q2- Journal Paper Published and Indexed in scopus: Attribute optimization to improve breast cancer prediction using machine learning techniques,IAES International Journal of Artificial Intelligence

2)Dr. Santosh Kumar J and his team, in collaboration with DSATM and DSCE, have published a Q2 journal paper, which has been successfully indexed in Scopus : Edge AI-Driven Embedded Computer Vision and Mechatronic Hardware System for Real-Time Classification and Autonomous Segregation of Solid Waste Using Deep Neural Networks

Attribute optimization to improve breast cancer prediction using machine learning techniques

IAES International Journal of Artificial Intelligence • Article • Open Access • 2026 • DOI: 10.11591/ijai.v15.i2.pp1327-1338

Srinivasaiah, Raghavendra [a] ; Jankatti, Santosh Kumar [b] ; Jinachandra, Niranjana Shravanabelagola [c] ; Lamani, Manjunath Ramanna [d] ; Lakshmi, Bellam Vijaya [e] ; +1 author

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Abstract

Breast cancer (BC) arises when cells grow out of control. It affects women more than men. Seeking cancer treatment can be both costly and time-consuming, with test results spanning from a few hours to several weeks. The duration of these tests depends on the number of attributes within the dataset. This research paper endeavors to optimize the dataset attributes and find the accuracy of the optimized dataset. The primary goal is to reduce features using recursive feature elimination to minimize the time taken for the test result. This work discusses the machine learning technique and the random forest (RF) algorithm, which helps determine the parameter accuracy on the Wisconsin BC diagnostic dataset. The method achieves an accuracy of 96.49% with only eighteen attributes. It has aided the healthcare industry in finding BC in less time and improving the treatment. Copyright (c) 2026

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :31/03/2026

(21) Application No.202641041475 A
(43) Publication Date : 10/04/2026

(54) Title of the invention : Edge AI-Driven Embedded Computer Vision and Mechatronic Hardware System for Real-Time Classification and Autonomous Segregation of Solid Waste Using Deep Neural Networks

(51) International classification	:G06N 3/04, B07C 5/342, G06N 3/08, G06V 10/764, B07C 5/36	(71)Name of Applicant : 1)Davananda Sagar University Address of Applicant :Faculty of Department of Computer Science and Engineering (DATA SCIENCE), Davanagere Sagar University, Devarakagganahalli Bengaluru Karnataka India 562112 Bengaluru South Karnataka India
(31) Priority Document No	:NA	(72)Name of Inventor : 1)Shivamma D
(32) Priority Date	:NA	2)Dr. Shaila S G
(33) Name of priority country	:NA	3)Dr. Navya .R
(86) International Application No	:	4)Dr. Santhosh Kumar G
Filing Date	:01/01/1900	5)U. Pavan Kumar
(87) International Publication No	: NA	6)Tiruveedula Gopi Krishna
(61) Patent of Addition to Application Number	:NA	7)Sridhar S K
Filing Date	:NA	8)Santhosh Kumar R
(62) Divisional to Application Number	:NA	9)Puneeth N
Filing Date	:NA	10)Dr.Santosh Kumar J
		11)Elicherla. Sivananda Lahari Reddy

(57) Abstract :

The present invention describes an Edge AI-driven embedded computer vision and mechatronic hardware system designed for real-time classification and autonomous segregation of solid waste using deep neural networks (DNNs). The proposed system integrates an embedded vision module, edge computing processor, and sensor-assisted mechatronic sorting mechanism to automatically identify and separate waste materials into predefined categories such as biodegradable, recyclable, and non-recyclable waste. The hardware architecture consists of a high-resolution camera module, proximity sensors, and an Edge AI processing unit configured to execute optimized deep learning models such as Convolutional Neural Networks (CNNs) for feature extraction and material classification. The trained model performs low-latency inference directly on the embedded processor, eliminating dependence on cloud-based computation and enabling real-time decision-making. Based on classification results, a microcontroller-driven actuation system, including servo motors and mechanical diverters, directs waste into appropriate collection compartments. The system further incorporates IoT communication interfaces for monitoring waste statistics, predictive maintenance, and sustainability analytics. The proposed hardware device improves waste management efficiency, reduces manual sorting effort, enhances recycling accuracy, and supports environmentally sustainable practices in smart cities, institutions, industries, and residential environments. The integration of edge intelligence, computer vision, and mechatronic automation ensures scalable, energy-efficient, and reliable solid waste segregation, contributing to circular economy initiatives and smart environmental infrastructure.

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Dr. Aruna Kumara B
Assistant Professor
Department of Computer Science & Technology

Dr. Santosh Kumar J and his team Published a Patent titled: Smart Vehicle Ignition Control System Using Multi-Factor Authentication with Age, Driving License, and Aadhaar-Based Biometric Verification . Patent Number:202641043368

Dr. Santosh Kumar J,Dr. Santosh Reddy P,Dr. Hemachandra Reddy K,Dr. Aruna Kumara B and his team Published a Patent titled: Smart Sensor-Based Automated Land Cover System for Crop Protection and Yield Enhancement under Extreme Weather Conditions . Patent Number:202641033655

Dr. Santosh Kumar J, represented the School of Engineering, DSU at the Public TV's Vidhyapeeta Education Expo 2026, held on April 25–26 at Gayatri Vihar, Palace Grounds, Bengaluru.

Application Details	
APPLICATION NUMBER	202641043368
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	05/04/2026
APPLICANT NAME	1 . Atharv Jankatti 2 . Dr.Santosh Kumar J 3 . Meenakshi
TITLE OF INVENTION	Smart Vehicle Ignition Control System Using Multi-Factor Authentication with Age, Driving License, and Aadhaar-Based Biometric Verification
FIELD OF INVENTION	MECHANICAL ENGINEERING
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ADDITIONAL-EMAIL (As Per Record)	sjankatti@gmail.com
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	17/04/2026

Application Status	
APPLICATION STATUS	Awaiting Request for Examination

Dr. Santosh Reddy P
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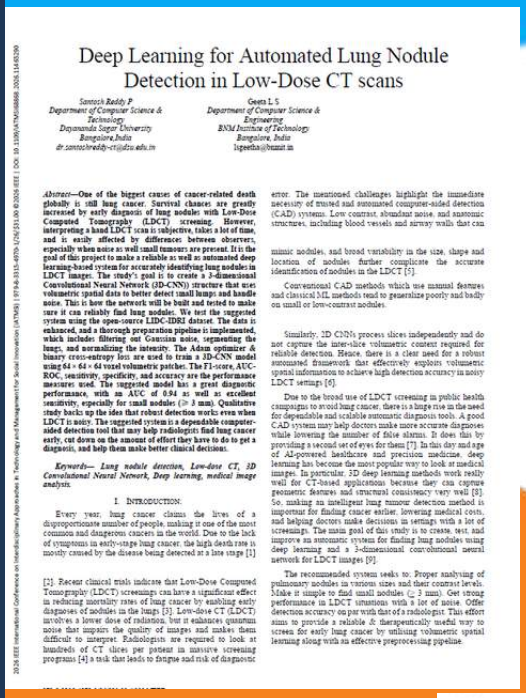
Department of Computer Science & Technology

Dr. Santosh Reddy P., Department of Computer Science and Engineering, Dayananda Sagar University, organized a special session on “Integrating Machine Learning with DevOps: Harmonizing Agility and Unleashing Synergy” at the International Conference on Secure Data Science and Applications (ICSDSA-26) held on 27–28 March 2026 at Dayananda Sagar Academy of Technology and Management, Bengaluru.

He also presented two research papers at the 2026 IEEE International Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation (IATMSI) held at IIIT Gwalior (10–13 March 2026), titled “Performance Evaluation of Pre-Trained Networks in Face Recognition” and “Deep Learning for Automated Lung Nodule Detection in Low-Dose CT Scans.”



Deep Learning for Automated Lung Nodule Detection in Low-Dose CT scans

Performance Evaluation of Pre-Trained Networks in Face Recognition

Enhanced CNN and Federated Learning Algorithm for Secure and Precise Dermatological Diagnosis

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Dr. Santosh Kumar J
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Ramandeep Kaur
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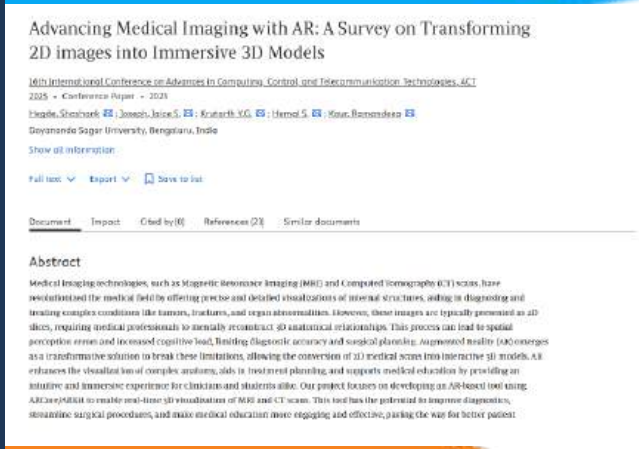
Dr. Danthuluri Sudha, Dr. Santosh Kumar Jankatti, and Dr. Ramandeep Kaur, Department of Computer Science and Engineering, Dayananda Sagar University, published a Q1 journal paper titled “QuantumNeuroXAI: A Quantum-Inspired Deep Learning Framework with Explainability for Brain Signal Analysis and Neurological Disorder Detection” in Scientific Reports (Springer Nature).

Additionally, Dr. Ramandeep Kaur published two Scopus-indexed conference papers at the 16th International Conference on Advances in Computing, Control, and Telecommunication Technologies (ACT 2025) titled “Advancing Medical Imaging with AR: A Survey on Transforming 2D Images into Immersive 3D Models” and “Enhancing Trust and Performance in AI-Driven Healthcare: A Comprehensive Review of Explainable AI Features.”



Advancing Medical Imaging with AR: A Survey on Transforming 2D images into Immersive 3D Models

16th International Conference on Advances in Computing, Control, and Telecommunication Technologies, ACT 2025 • Conference Paper • 2025

Hegde, Shashank ; Joseph, Jaice S. ; Kruthi, V.G. ; Hemal S. ; Kaur, Ramandeep

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Abstract

Medical imaging technologies, such as Magnetic Resonance Imaging (MRI) and Computed Tomography (CT) scans, have revolutionised the medical field by offering precise and detailed visualizations of internal structures, aiding in diagnosing and treating complex conditions like tumors, fractures, and organ abnormalities. However, these images are typically presented as 2D slices, requiring medical professionals to mentally reconstruct 3D anatomical relationships. This process can lead to spatial perception errors and increased cognitive load, limiting diagnostic accuracy and surgical planning. Augmented reality (AR) emerges as a transformative solution to break these limitations, allowing the conversion of 2D medical scans into interactive 3D models. AR enhances the visualization of complex anatomy, aids in treatment planning, and supports medical education by providing an intuitive and immersive experience for clinicians and students alike. Our project focuses on developing an AR-based tool using AR Core/ARKit to enable real-time 3D visualization of MRI and CT scans. This tool has the potential to improve diagnostics, streamline surgical procedures, and make medical education more engaging and effective, paving the way for better patient

Enhancing Trust and Performance in AI-Driven Healthcare: A Comprehensive Review of Explainable AI Features

16th International Conference on Advances in Computing, Control, and Telecommunication Technologies, ACT 2025 • Conference Paper • 2025

Kumar, Raja ; Raj, Aman ; Singh, Ankit ; Kaur, Ramandeep

Dayananda Sagar University, Bangalore, India

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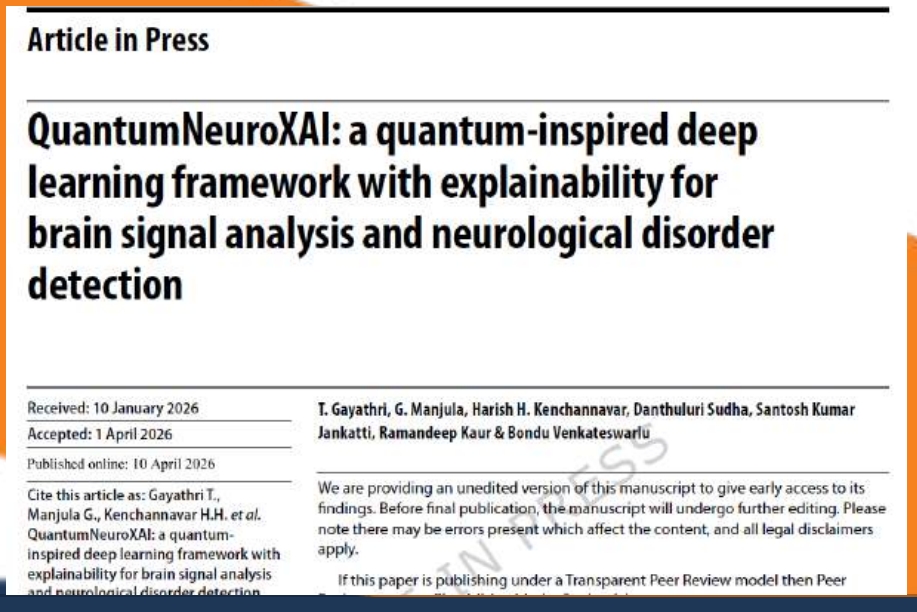
Abstract

It is critical to bridge the gap between innovation and trust as AI continues to transform the healthcare industry. Systems utilizing artificial intelligence (AI) are becoming more complex and are being used in high-risk industries like criminal justice, healthcare, and finance. But a lot of these AI systems are "black boxes"—their inner workings are mysterious and hard for people to comprehend. Users are unwilling to trust and rely on systems they cannot understand, which is a fundamental obstacle in the mainstream adoption of AI. This lack of transparency and interpretability, the developing discipline of explainable AI (XAI) intends to improve the openness and comprehensibility of AI systems. XAI can assist increase user confidence in AI by creating methods for explaining how AI models operate and produce their results. This will also help users better comprehend, control, and govern these systems. We investigate how XAI approaches provide insights into AI decision-making processes by providing solutions to the "black-box" issue. We analyze the toolkit of XAI, highlighting its applications in healthcare areas such as disease diagnosis, medication



Article in Press

QuantumNeuroXAI: a quantum-inspired deep learning framework with explainability for brain signal analysis and neurological disorder detection

Received: 10 January 2026
Accepted: 1 April 2026
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Cite this article as: Gayathri T., Manjula G., Kenchannavar H.H. *et al.* QuantumNeuroXAI: a quantum-inspired deep learning framework with explainability for brain signal analysis and neurological disorder detection

T. Gayathri, G. Manjula, Harish H. Kenchannavar, Danthuluri Sudha, Santosh Kumar Jankatti, Ramandeep Kaur & Bondu Venkateswarlu

We are providing an unedited version of this manuscript to give early access to its findings. Before final publication, the manuscript will undergo further editing. Please note there may be errors present which affect the content, and all legal disclaimers apply.

If this paper is publishing under a Transparent Peer Review model then Peer

Vinayaka V M
Assistant Professor
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Prof. Vinayaka V. M., Assistant Professor, Department of Computer Science and Engineering, Dayananda Sagar University, published a paper titled “Survey of AI-Driven Platforms for Welfare and Emergency Services: Gaps, Architectures, and the Case for Unified Systems” in the Grenze International Journal of Engineering and Technology (GIJET), Volume 11, Issue 2 (June 2025), indexed in Scopus.

He also represented the School of Engineering, Dayananda Sagar University, at the TV9 Education Expo 2026, held from 10th to 12th April 2026 at Tripuravasini Palace Grounds, Bengaluru.

Scopus

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Survey of AI-Driven Platforms for Welfare and Emergency Services: Gaps, Architectures and the Case for Unified Systems

16th International Conference on Advances in Computing, Control, and Telecommunication Technologies, ACT 2025 • Conference Paper • 2025

Sudarshan, Hemant B. ; Ramkumar, Lavanya ; Afsha R. ; Vinayaka V.M.

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Document Impact Cited by (0) References (13) Similar documents

Abstract

The past decade has seen rapid integration of artificial intelligence (AI) in welfare and emergency response domains, enabling novel capabilities in incident detection, situational awareness, and resource optimization. However, existing AI-driven systems remain

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Prof. Yashaswini B. V., Assistant Professor, Department of Computer Science and Engineering, Dayananda Sagar University, along with Dr. Santosh Kumar J., published a Scopus-indexed conference paper titled “Smart Classroom and Timetable Scheduling System using Hybrid Graph Coloring and Cloud Optimization” at the 2025 9th International Conference on Electronics, Communication and Aerospace Technology (ICECA).

She also published a Scopus-indexed conference paper titled “Real-Time Public Transport Tracking for Small Cities: An IoT and AI-based Approach” at the 2025 5th International Conference on Evolutionary Computing and Mobile Sustainable Networks (ICECMSN).

Additionally, Prof. Yashaswini B. V., along with students, published another Scopus-indexed conference paper titled “Enhanced CNN and Federated Learning Algorithm for Secure and Precise Dermatological Diagnosis” at the 16th International Conference on Advances in Computing, Control and Telecommunication Technologies.


Scopus

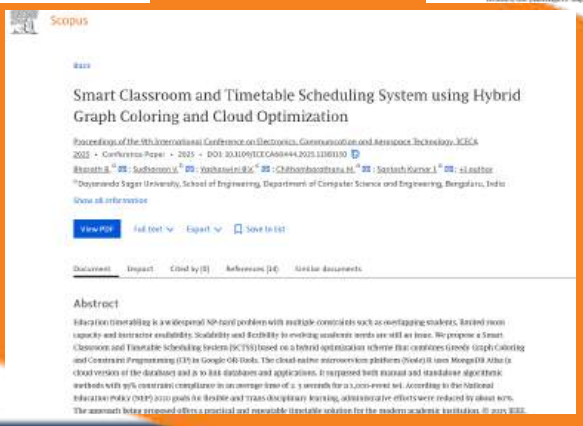
Enhanced CNN and Federated Learning Algorithm for Secure and Precise Dermatological Diagnosis

Abstract


Scopus

Real-Time Public Transport Tracking for Small Cities: An IoT and AI-based Approach

Abstract


Scopus

Smart Classroom and Timetable Scheduling System using Hybrid Graph Coloring and Cloud Optimization

Abstract

Dr. Bahubali Shiragpur
Professor
Department of AI&ML

Dr. Bahubali Shiragapur, Professor, CSE (AI & ML), has published a Q2 research paper in an SCIE-indexed journal, Peer-to-Peer Networking and Applications (Springer Nature). The paper, titled “Dairy Product Quality Evaluation Using Optimization-Based Deep Maxout Network with Blockchain-Driven Internet of Things,” proposes a novel framework for dairy supply chain transparency. The study integrates blockchain with IoT-enabled RFID systems to ensure secure data collection and traceability. The proposed BC_GVOA + DMN model achieves superior performance with 93% TPR, 92.6% TNR, and reduced validation time compared to existing methods.

Peer-to-Peer Networking and Applications (2026) 19:73
https://doi.org/10.1007/s12083-026-02210-0

CORRECTION

Correction to: Dairy product quality evaluation using optimization-based deep maxout network with blockchain-driven internet of things

Maheshwari Biradar[1] · Nandini Sidnal[2] · Rajeshree Rokade[3] · Bahubali Shiragapur[4]

Correction to: Peer-to-Peer Networking and Applications (2025) 18:124
https://doi.org/10.1007/s12083-025-01922-z

The original version of this article unfortunately contained a mistake in the affiliation of Bahubali Shiragapur.

The correct affiliation should be "Department of Computer Science and Engineering (AI & ML) Dayananda Sagar University, Bengaluru" from "School of Computer Science, Engineering & Applications, Akurdi Pune, D Y Patil International University, Sector 29, NigdiPradhikaran, Akurdi, Pune 411044, India".

The original article has been corrected.

The original article can be found online at https://doi.org/10.1007/s12083-025-01922-z.

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Published online: 30 March 2026

Springer

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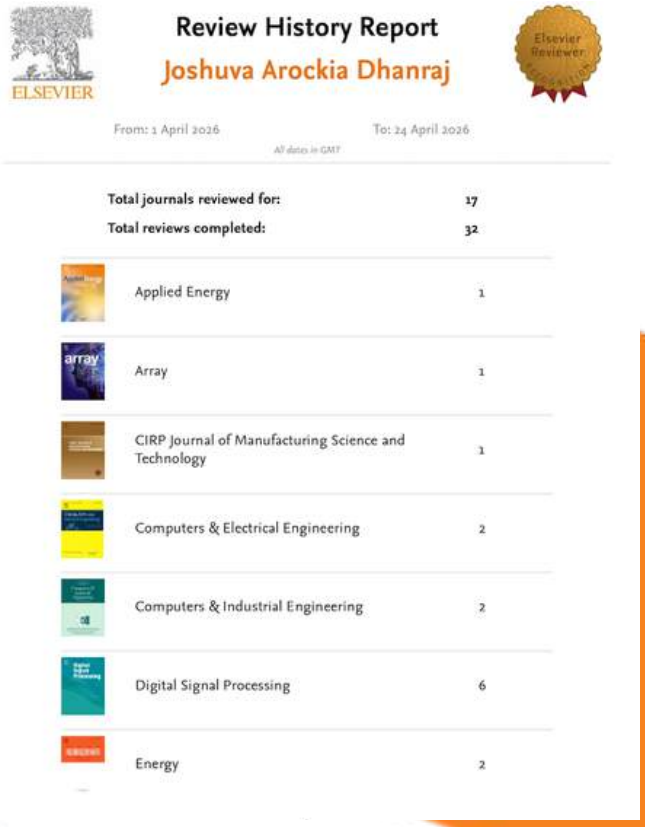
1) Dr. Joshuva Arockia Dhanraj, Professor, CSE (AI & ML), made a significant scholarly impact through his peer-review contributions between April 1 and April 24, 2026, completing 32 manuscript reviews across 17 reputed international journals in domains such as artificial intelligence, energy, signal processing, manufacturing, and sustainability, with notable contributions to Information Sciences and Digital Signal Processing, where he completed six reviews each, covering emerging areas including federated learning, digital twins, AI-driven fault diagnosis, renewable energy systems, and advanced robotics, thereby upholding research quality and contributing to the global scientific community.

2) Dr. Joshuva Arockia Dhanraj, Professor, CSE (AI & ML), successfully participated in an AICTE-recognized Faculty Development Program on "Sustainable Power and Renewable Energy Credits," conducted by the Electrical Engineering Department at NITTTR, Chandigarh, from April 6 to April 10, 2026, focusing on emerging trends in sustainable energy systems, renewable power integration, and credit mechanisms supporting clean energy transitions, thereby enhancing both practical and theoretical understanding of energy sustainability and strengthening his interdisciplinary expertise in integrating AI-driven methodologies with renewable energy systems for academic and industry applications.



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Review History Report

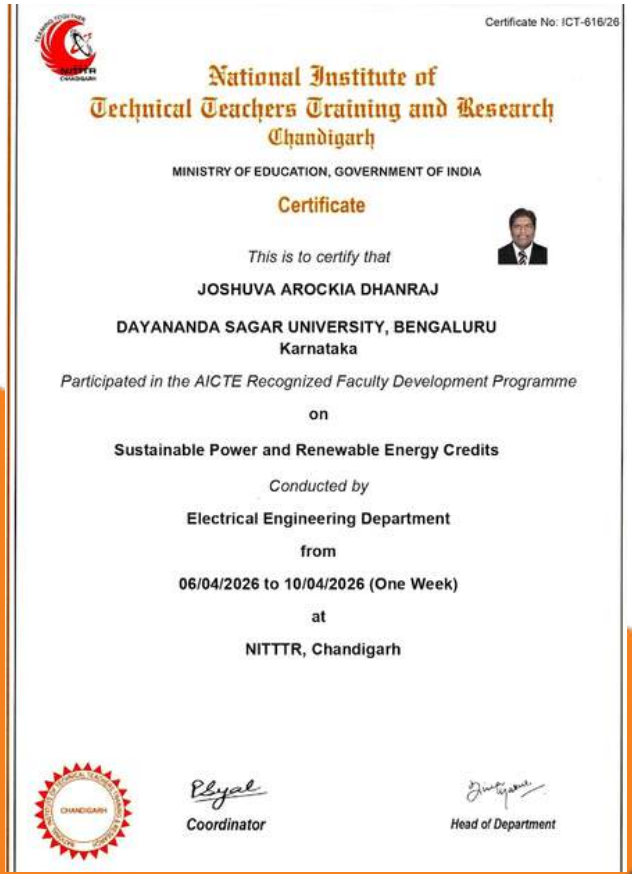
Joshuva Arockia Dhanraj

Elsevier Reviewer

From: 1 April 2026 To: 24 April 2026

All dates in GMT

Total journals reviewed for:	**17**
Total reviews completed:	**32**
Applied Energy	1
Array	1
CIRP Journal of Manufacturing Science and Technology	1
Computers & Electrical Engineering	2
Computers & Industrial Engineering	2
Digital Signal Processing	6
Energy	2



Certificate No: ICT-616/26

National Institute of Technical Teachers Training and Research
Chandigarh

MINISTRY OF EDUCATION, GOVERNMENT OF INDIA

Certificate

This is to certify that

JOSHUVA AROCKIA DHANRAJ

DAYANANDA SAGAR UNIVERSITY, BENGALURU
Karnataka

Participated in the AICTE Recognized Faculty Development Programme

on

Sustainable Power and Renewable Energy Credits

Conducted by

Electrical Engineering Department

from

06/04/2026 to 10/04/2026 (One Week)

at

NITTTR, Chandigarh

Coordinator *Head of Department*

Dr. Joshuva Arockia Dhanraj
Professor
Department of AI&ML

3) Dr. Joshuva Arockia Dhanraj, Professor, CSE (AI & ML), presented his research at the IEEE International Conference on Emerging Trends in Advancements and Applications of Computational Intelligence Techniques (ETAACT 2026), held on April 10–11, 2026, where his paper titled "SESAN: A Self-Evolving Sparse Attention Network for High-Precision Human Activity Recognition" introduced an advanced AI architecture aimed at enhancing accuracy and adaptability in activity recognition systems, highlighting his continued contributions to deep learning, attention mechanisms, and intelligent systems while reinforcing his role in advancing next-generation AI solutions for real-world applications.

4) Dr. Joshuva Arockia Dhanraj, Professor, CSE (AI & ML), presented his research titled "Empirical Analysis of Multi-Agent AI Systems: Cooperation, Competition, and Policy Emergence" at the 2026 International Conference on NextGen Data Science and Analytics (ICNDSA 2026), where the study examined the dynamics of multi-agent systems by analyzing how cooperation and competition drive policy emergence in AI environments, thereby contributing to advancements in distributed intelligence, autonomous systems, and AI-driven decision-making frameworks while highlighting his active involvement in cutting-edge research shaping the future of intelligent and adaptive systems.


IEEE UP SECTION (INDIA)

CHRIST

2026 INTERNATIONAL CONFERENCE ON NEXTGEN DATA SCIENCE AND ANALYTICS (ICNDSA-2026)

Certificate of Appreciation

This is to certify that Prof./Dr./Mr./Ms./Mrs. Joshuva Arockia Dhanraj for presenting the paper titled

Empirical Analysis of Multi-Agent AI Systems: Cooperation, Competition, and Policy Emergence

during the "2026 International Conference On NextGen Data Science and Analytics" organized by the School of Sciences, CHRIST (Deemed to be University), Delhi NCR Campus held on 10-11 April, 2026.

Dr. Ramesh C. Poonia, Organizing Chair | Dr. Manjula Shanbhog, Organizing Coordinator | Dr. Bosco Paul Alapatt, Associate Dean | Rev. Fr. Vinod Michael, Director


ETAACT | IEEE | IEEE BHUBANESWAR SECTION | IEEE CTSoc CONSUMER TECHNOLOGY SOCIETY

International Conference on Emerging Trends in Advancements and Applications of Computational Intelligence Techniques (ETAACT 2026)

Certificate of Presentation

This is to certify that Joshuva Arockia Dhanraj has successfully presented the paper entitled SESAN: A Self-Evolving Sparse Attention Network for High-Precision Human Activity Recognition in the IEEE International Conference on Emerging Trends in Advancements and Applications of Computational Intelligence Techniques (ETAACT 2026), organised by Department of Computer Science & Engineering, Institute of Technical Education & Research, Siksha 'O' Anusandhan Deemed to be University, Bhubaneswar, Odisha, India during 10th -11th April, 2026.

Prof. Debahuti Mishra, General Chair | Dr. Rasmita Dash, Program Chair | Dr. Rasmita Rautray, Organizing Chair

Dr. Joshuva Arockia Dhanraj
Professor
Department of AI&ML

5) Dr. Joshuva Arockia Dhanraj, Professor, CSE (AI & ML), presented a research paper titled “Blockchain-Augmented Federated Learning for Secure Healthcare Diagnosis from Distributed Electronic Health Records” at ETAACT 2026, addressing key challenges in healthcare data privacy and interoperability by integrating blockchain with federated learning to enable secure, decentralized, and privacy-preserving medical data analysis, thereby highlighting his strong research focus on AI in healthcare, secure data sharing, and next-generation intelligent systems aligned with global digital health innovations.

ETAACT IEEE IEEE BHUBANESWAR SECTION IEEE CTSoc CONSUMER TECHNOLOGY SOCIETY

International Conference on Emerging Trends in Advancements and Applications of Computational Intelligence Techniques (ETAACT 2026)

Certificate of Presentation

This is to certify that

Joshuva Arockia Dhanraj

has successfully presented the paper entitled

Blockchain-Augmented Federated Learning for Secure and Healthcare Diagnosis from Distributed Electronic Health Records

in the IEEE International Conference on **Emerging Trends in Advancements and Applications of Computational Intelligence Techniques (ETAACT 2026)**, organised by Department of Computer Science & Engineering, Institute of Technical Education & Research, Siksha ‘O’ Anusandhan Deemed to be University, Bhubaneswar, Odisha, India during 10th -11th April, 2026.

Prof. Debahuti Mishra	Dr. Rasmita Dash	Dr. Rasmita Rautray
General Chair	Program Chair	Organizing Chair

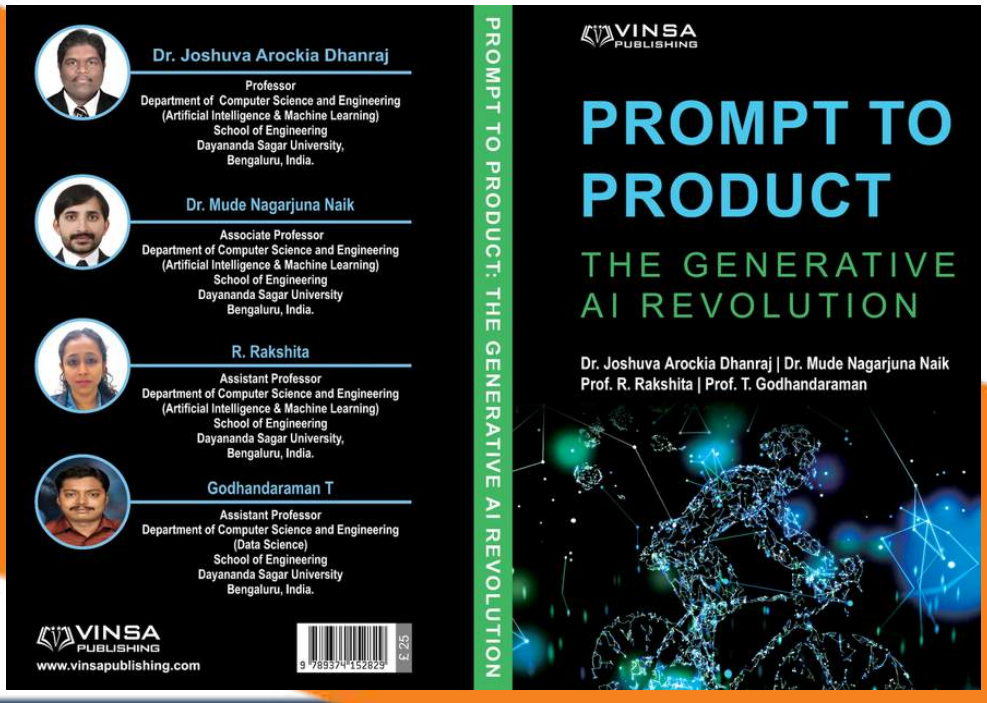
Dr. Joshuva Arockia Dhanraj
Professor
Department of AI&ML

Dr. Mude Nagarjuna Naik
Associate Professor
Department of AI&ML

Prof. R. Rakshita
Assistant Professor
Department of AI&ML

Prof. T. Godhandaraman
Assistant Professor
Department of CSE (Data Science)

Dr. Joshuva Arockia Dhanraj, Professor, CSE (AI&ML), Dr. Mude Nagarjuna Naik, Associate Professor, CSE (AI&ML), Prof. R. Rakshita, Assistant Professor, CSE (AI&ML), and Prof. T. Godhandaraman, Assistant Professor, CSE (Data Science), from the School of Engineering, Dayananda Sagar University, Bengaluru, have collaboratively authored the book titled "Prompt to Product: The Generative AI Revolution." This publication reflects a strong interdepartmental collaboration between AI & ML and data science domains, integrating theoretical foundations with real-world generative AI applications. The work provides insights into transforming AI prompts into deployable solutions, addressing modern challenges in intelligent systems. The book stands as a testament to collaborative research, innovation, and academic excellence, contributing significantly to the evolving landscape of Generative AI and its practical adoption across industries.



Dr. Biswa Mohan Sahoo
Professor
Department of AI&ML

Dr. Biswa Mohan Sahoo, Professor, CSE (AI & ML), has published a research paper in the SCIE-indexed Q1 journal Journal of Cloud Computing (Springer Nature), titled "Energy-and-Deadline-Aware Optimal Resource Management and Task Consolidation Using a Hybrid Adaptive Neuro-Fuzzy Inference System with Binary Chaotic Jaya Optimization for Cloud-Based Systems," which proposes a novel hybrid task consolidation approach by integrating an Adaptive Neuro-Fuzzy Inference System (ANFIS) with Binary Chaotic Jaya Optimization (BCJO) to address key challenges in cloud computing, optimizing control parameters and incorporating load balancing to ensure efficient workload distribution across Virtual Machines (VMs) and enhance overall resource utilization.

Journal of Cloud Computing https://doi.org/10.1186/s13677-026-00873-x
Article in Press

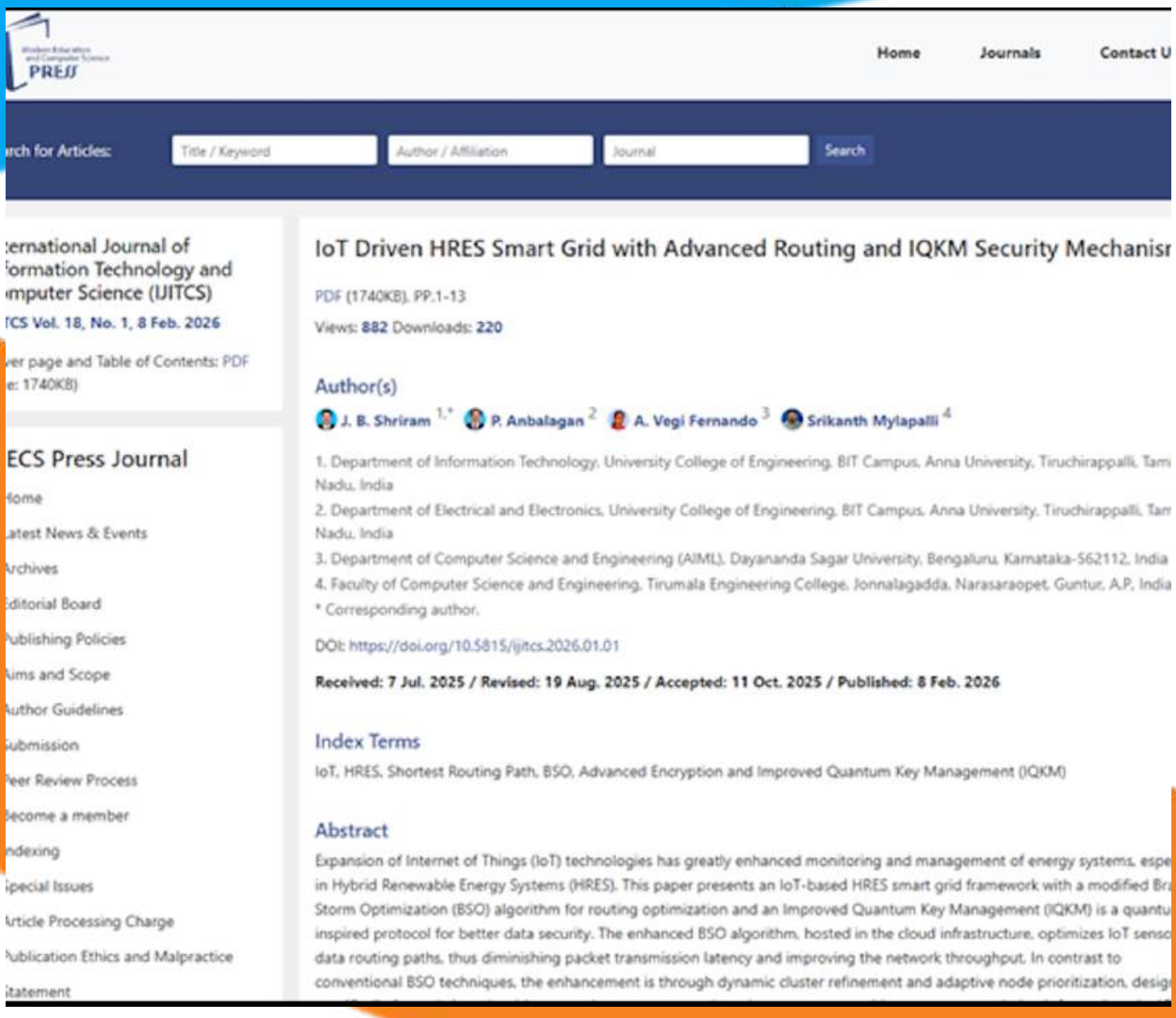
Energy-and-deadline-aware optimal resource management and task consolidation using a hybrid Adaptive Neuro-Fuzzy Inference System with binary Chaotic Jaya optimization for cloud-based systems

Received: 10 July 2025
Accepted: 16 February 2026
Published online: 06 April 2026
Cite this article as: Naik K.D., Panigrahi R., Sahoo R.R. *et al.* Energy-and-deadline-aware optimal resource management and task consolidation using a hybrid Adaptive Neuro-Fuzzy Inference System with binary Chaotic Jaya optimization for cloud-based systems. *J Cloud Comp* (2026). https://doi.org/10.1186/s13677-026-00873-x

Kodanda Dhar Naik, Rasmita Panigrahi, Rashmi Ranjan Sahoo, Kaushik Mishra, Biswa Mohan Sahoo & Arvind Dhaka

Dr. A Vegi Fernando
Associate Professor
Department of AI&ML

Dr. A Vegi Fernando, Associate Professor, CSE (AI & ML), has successfully published a research article titled “IoT Driven HRES Smart Grid with Advanced Routing and IQKM Security Mechanism” in the International Journal of Information Technology and Computer Science (IJITCS), Q3 Journal, Volume 18, Issue 1, dated February 8, 2026, by MECS Press. The journal is indexed and categorized as a publication. This work highlights advancements in IoT-driven smart grid systems, incorporating advanced routing techniques and enhanced security mechanisms, contributing to the development of efficient and secure energy management solutions.



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IoT Driven HRES Smart Grid with Advanced Routing and IQKM Security Mechanism

PDF (1740KB), PP.1-13

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Author(s)

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2. Department of Electrical and Electronics, University College of Engineering, BIT Campus, Anna University, Tiruchirappalli, Tamil Nadu, India
3. Department of Computer Science and Engineering (AIML), Dayananda Sagar University, Bengaluru, Karnataka-562112, India
4. Faculty of Computer Science and Engineering, Tirumala Engineering College, Jonnalagadda, Narasaraopet, Guntur, A.P, India
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Index Terms

IoT, HRES, Shortest Routing Path, BSO, Advanced Encryption and Improved Quantum Key Management (IQKM)

Abstract

Expansion of Internet of Things (IoT) technologies has greatly enhanced monitoring and management of energy systems, espe
in Hybrid Renewable Energy Systems (HRES). This paper presents an IoT-based HRES smart grid framework with a modified Bra
Storm Optimization (BSO) algorithm for routing optimization and an Improved Quantum Key Management (IQKM) is a quantu
inspired protocol for better data security. The enhanced BSO algorithm, hosted in the cloud infrastructure, optimizes IoT senso
data routing paths, thus diminishing packet transmission latency and improving the network throughput. In contrast to
conventional BSO techniques, the enhancement is through dynamic cluster refinement and adaptive node prioritization, desig

Dr. Govind Kumar Pandey
Assistant Professor
Department of AI&ML

1) Dr. Govind Kumar Pandey, Assistant Professor, CSE (AI & ML), successfully served as a reviewer for the 1st International Conference on AI, Data Science, Cyber Security, and Smart Manufacturing for Sustainable Development (ICADCS-2026), organized by Vikrant University, Gwalior, Madhya Pradesh, India, held on 23–24 May 2026. This recognition highlights his expertise and active involvement in advancing research in emerging domains such as artificial intelligence, data science, and cybersecurity.

2) Dr. Govind Kumar Pandey, Assistant Professor, CSE (AI&ML), has successfully published a book chapter titled “Quantum Computing in Healthcare” in the book Quantum Computing: Research, Applications, and Advances (Auerbach Publications, 2026). The chapter highlights the transformative potential of quantum computing in the healthcare domain, focusing on key concepts such as superposition and entanglement and their practical applications. This publication reflects the department’s commitment to advancing interdisciplinary research at the intersection of quantum computing, artificial intelligence, and healthcare innovation.


Vikrant University
GWALIOR

IEEE ICADCS

CERTIFICATE
OF APPRECIATION

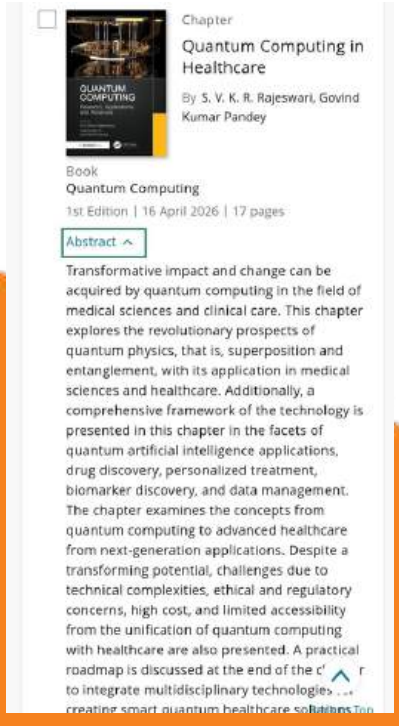
This is to certify that

Govind Kumar Pandey

has served as a reviewer for the *1st International Conference on AI, Data Science, Cyber Security and Smart Manufacturing for Sustainable Development (ICADCS-2026)* organized by the Vikrant University, Gwalior, Madhya Pradesh, India on 23 - 24 May 2026.

Dr. Shashank Swami
Convener, ICADCS 2026

Dr. Richa Verma
Registrar, Vikrant University, Gwalior


Chapter

Quantum Computing in Healthcare

By S. V. K. R. Rajeswari, Govind Kumar Pandey

Book
Quantum Computing
1st Edition | 16 April 2026 | 17 pages

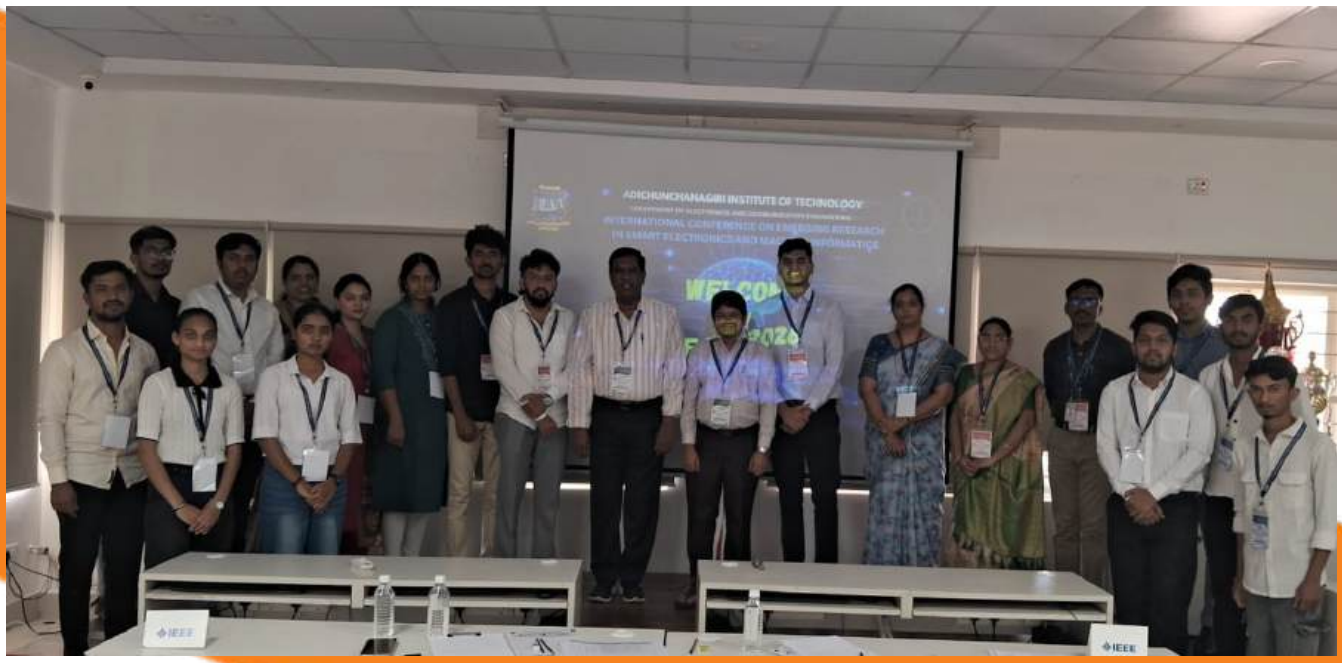
Abstract

Transformative impact and change can be acquired by quantum computing in the field of medical sciences and clinical care. This chapter explores the revolutionary prospects of quantum physics, that is, superposition and entanglement, with its application in medical sciences and healthcare. Additionally, a comprehensive framework of the technology is presented in this chapter in the facets of quantum artificial intelligence applications, drug discovery, personalized treatment, biomarker discovery, and data management. The chapter examines the concepts from quantum computing to advanced healthcare from next-generation applications. Despite a transforming potential, challenges due to technical complexities, ethical and regulatory concerns, high cost, and limited accessibility from the unification of quantum computing with healthcare are also presented. A practical roadmap is discussed at the end of the c... r to integrate multidisciplinary technologies ... creating smart quantum healthcare so...

The Department of CSE (AI&ML) proudly highlights the remarkable achievement of its faculty and students who presented two research papers at the IEEE International Conference on Emerging Research in Smart Electronics and Machine Informatics (ECMI-26). The conference was organized by the Department of Electronics and Communication Engineering, Adichunchanagiri Institute of Technology, Chikkamagaluru, on Friday, 10th April 2026.

The first paper, titled “Depression Detection from Text Using Transformer Models with Sentiment-Lexicon Augmentation,” explored advanced natural language processing techniques to enhance mental health analysis. The second paper, “NLP-Driven Explainable AI System for Patient-Friendly Heart Disease Risk Reports,” focused on developing interpretable AI solutions for healthcare communication.

Both papers were authored by Prof. Pradeep Kumar K, Nishvika Teja Reddy, Niharika N, Jayashree K.R, Prof. Sriramkumar R, and Prof. Mithaguru. Their active participation and presentation at this prestigious IEEE conference reflect the department’s strong commitment to research excellence and innovation in emerging technologies. The event provided a valuable platform for knowledge exchange, networking, and showcasing cutting-edge research contributions in the domains of AI, NLP, and smart electronics.



Dr. Poongodi T,
Professor and Chairperson,
Department of CSE (AI & DS)

Dr. Poongodi T of Dayananda Sagar University, Bangalore acted as Session Chair during International Conference on Sustainable Management and Advanced Research Technologies (IC-SMART 2026) during March 27-28, 2026, organized by Rajarambapu Institute of Technology, Maharashtra, India.

Prof. Nadavadi Harshith Gowd
Assistant Professor,
Department of CSE (AI & DS)

Prof. Nadavadi Harshith Gowd successfully completed a five-day Faculty Development Program on Artificial Intelligence and Machine Learning Applications held from 6th to 10th April 2026, enhancing his expertise in emerging technologies. The program significantly contributed to strengthening his teaching and research capabilities.

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CERTIFICATE OF COMPLETION

THIS IS TO CERTIFY THAT

Prof.NADAVADI HARSHITH GOWD

DAYANAND SAGAR UNIVERSITY

has successfully participated and completed the Five days Online Faculty Development Program on **"Artificial Intelligence & Machine Learning Applications in Electronics and Communication Engineering"** organized by the Department Of Electronics and Communication Engineering, **Sri Venkateswara Institute of Technology(Autonomous) Ananthapuramu, Andhra Pradesh -515722** in association with **Pantech Solutions India Pvt. Ltd, Bengaluru** from **6th to 10th April 2026.**

Dr. T. VISHNU VARDHAN
PRINCIPAL
SVIT

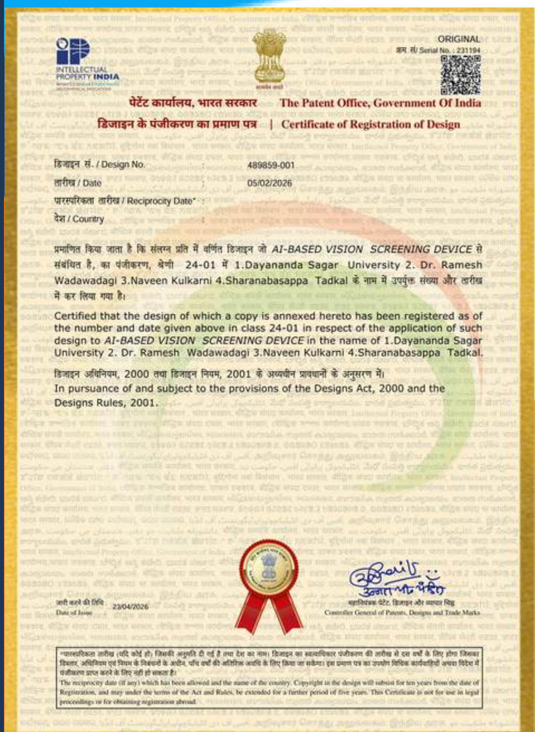
Dr VENKATESWARA REDDY VENNAPUSA
HoD - ECE
SVIT.

MR. SRINIVASAN
DIRECTOR, PANTECH

Dr. Ramesh Wadawadagi,
Associate Professor,
Department of CSE (AI & DS)

1)Dr. Ramesh Wadawadagi, Associate Professor of CSE (AI & DS) Department, along with Prof. Naveen Kulkarni and Prof. Sharanabasappa Tadkal, has registered an Indian Design Patent titled “AI-Based Vision Screening Device

2)Dr. Ramesh Wadawadagi, along with their co-authors Dr. Tej Hiremath and Dr.Shrikant Tiwari, published a research article titled “Federated Deep Learning for Emotion Recognition in Clinical Narratives” in IEEE International Conference on Computing, Communication, Control and Cyber-Physical Systems



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प्रमाणित किया जाता है कि संलग्न प्रति में वर्णित डिजाइन जो *AI-BASED VISION SCREENING DEVICE* से संबंधित है, का पंजीकरण, श्रेणी 24-01 में 1.Dayananda Sagar University 2. Dr. Ramesh Wadawadagi 3.Naveen Kulkarni 4.Sharanabasappa Tadkal के नाम में उपर्युक्त संख्या और तारीख में कर लिया गया है।

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In pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001.

Date of Issue 23/04/2026

Controller General of Patents, Designs and Trade Marks

International Conference on Computing, Communication, Control and Cyber-Physical Systems (I5CPS-2026)

Federated Deep Learning for Emotion Recognition in Clinical Narratives

Ramesh Wadawadagi
Department of Computer Science and Engineering (AI and DS)
Dayananda Sagar University
Bangalore 562112, India
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Tej Hiremath
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***Abstract*—Emotion Recognition in clinical narratives aims to identify the emotional states expressed by patients regarding their health conditions, diagnoses, drug responses, side effects, etc., from conversation transcripts, feedback, medical blogs, and social media posts. However, sharing sensitive health data with a centralized system for training DL models presents significant privacy, authorization, and regulatory concerns. Federated Learning (FL) provides an efficient framework for local devices (edge devices) to train a shared global model cooperatively and collaboratively while enabling users to control their data locally. In this research, we present a Federated Deep Learning (FDL) framework for estimating users' emotions in clinical environments that leverages distributed narrative data stored across multiple sources. More specifically, we employ two DL models, including LSTM and Transformers, to train the edge devices using the proposed FDL framework. Nevertheless, the non-IID trait of the subjective text content when used with the FL framework poses many challenges. To simulate this aspect, we employed an efficient Quantity-Level Dirichlet Allocation strategy for distributing data across various clients. For model aggregation, a robust aggregation strategy known as FedMedian is used, which efficiently handles non-IID data. The efficiency and stability of the proposed FDL framework is assessed using two distinct clinical narrative datasets: the Mental Health Status dataset and the Medical Drugs Sentiment Analysis dataset. The empirical study illustrate that the proposed architecture outperforms centralized learning across both the datasets for Emotion Recognition task. Further, we integrated the proposed FDL framework with a Secure Aggregation environment for enhanced security. The study reports that the model's performance is also consistent with secured aggregation, ensuring data privacy.**

***Index Terms*—Emotion Recognition, Clinical Narratives, Federated Learning, Non-IID Data, Secured Aggregation, and Privacy-Preserving.**

I. Introduction

Emotion recognition in healthcare and medical practices is incredibly valuable, as people often shares information about their health status and experiences through online platforms such as medical blogs and social media [1, 2]. NLP techniques have evolved significantly in recent years due to advancements in AI (ML/DL) techniques and easy accessibility of large domain-specific datasets. Nevertheless, centralized data storage and training AI models for NLP tasks often face issues related to privacy, security, and data authorization. FL renders a pioneering solution to address all these concerns. It provides a practical framework for multiple edge devices (local machines) to collaboratively and cooperatively train a shared global model while allowing users to control their data locally [3]. More technically, a central server sends a model to client devices; client devices then train the model on local private datasets and share only the model gradients with the centralized server. Subsequently, the server performs aggregation of model gradients received from all client devices into a single, unified, and robust global model. This phenomenon not only protects users' data but also decreases the amount of data transferred.

Many researchers have demonstrated their work through the FL for training DL architectures, including CNNs, RNNs, and Transformers. However, training DL models in a federated environment introduces several challenges, including Data heterogeneity, Resource limitations, and Communication overhead [4]. Techniques to improve DL with FL are also available, including Knowledge Distillation, Personalized FL, Adaptive Aggregation, and Efficient Client Selection [4]. Perhaps, DL models combined with the FL framework have achieved good results on Independent and Identically Distributed (IID) data. Nevertheless, in applications with large amounts of data spread across multiple client devices, non-IID data can lead to degradation in performance [5]. Hence, handling non-IID data is a primary concern that must be addressed timely for broader implementation of FL across various real-world and challenging applications. Several architectural frameworks have been studied and presented in the current literature for handling non-IID data [6]. Techniques such as data sharing, robust aggregation, adaptive optimization, and knowledge distillation can mitigate client drift and distributional heterogeneity. Moreover, the implications of data imbalance for NLP tasks need to be studied, as they are critical for selecting the DL model and for employing FL in real practice.

In this research work, a novel framework is proposed based on FDL for emotion recognition in clinical narratives. Particularly, we trained two DL models, LSTM and BERT, using the proposed FDL framework on different clinical narrative datasets. The FDL framework requires model aggregation strategies to combine locally learned models into a global model while maintaining data privacy. The FedAvg is the

979-8-3315-6154-3/26/$31.00 ©2026 IEEE

Dr. M. R. Sundara Kumar,
Assistant Professor,
Department of CSE (AI & DS)

Dr. Sundara Kumar M. R., Assistant Professor, Department of CSE (AI & DS), Dayananda Sagar University, actively participated in and contributed to multiple academic and professional activities. He attended the session “Faculty as Trusted Engine of Innovation, Talent, and Societal Value in the Cognitive Era” on 28th March 2026.

He successfully completed several Faculty Development Programs (FDPs), including Research Paper Writing & Publishing (15–19 March 2026), Introduction to Quantum Computing by NIT Warangal (16–21 March 2026), Emerging Technologies: Research Challenges and Opportunities by UEM Jaipur (23–27 March 2026), and Ethical AI and Responsible Computing by VIT-AP University (31 March–4 April 2026). He also completed an NPTEL workshop on AI-Assisted Micro-Entrepreneurship on 21st March 2026.

Dr. Sundara Kumar M. R. presented research papers at an IEEE International Conference held on 24–25 April 2026 at SJC Institute of Technology and received Best Paper Awards for his work in accident detection and smart transportation systems. He also served as a Resource Person for an FDP on 27th April 2026.

Additionally, he coordinated an Awareness and Motivation Session on Cyber Innovation & Cyber Crime Investigation on 27th April 2026 for 4th semester students, encouraging innovation and research through the achievements of Team Nebula.

VIT-AP UNIVERSITY

Certificate of Participation

This is to certify that **Dr M R Sundara Kumar,** Dayananda Sagar University has participated in the **5-day Faculty Development Program on "Ethical AI and Responsible Computing"** organised by School of Computer Science and Engineering, VIT-AP University, Amaravati from 31st March – 4th April 2026.

Dr.Naresh S, Coordinator, VIT-AP University
Dr.J.Harikiran, Coordinator, VIT-AP University
Dr. Sudhakar Ilango, Dean - SCOPE, VIT-AP University
Dr. P. Arulmozhivarman, Vice Chancellor (I/c), VIT-AP University

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(An Institute of National Importance)

CERTIFICATE OF PARTICIPATION

This is to Certify that
Dr. Sundara Kumar M R
Dayananda Sagar University, Bangalore
participated in the 6-Day Online Faculty Development Program on
"Introduction to Quantum Computing" organized by
the Centre for Teaching and Learning, National Institute of Technology Warangal
in association with Xavier Institute of Engineering Mumbai, during 16 - 21 March, 2026.

Prof. M. Sailaja Kumari, Head, CTL, NITW
Prof. Bidyadhar Subudhi, Director, NITW

University of Engineering & Management, Jaipur
IEM-UEM Group

CERTIFICATE OF PARTICIPATION

THIS CERTIFICATE IS PROUDLY PRESENTED TO

Dr. Sundara Kumar M R

for successfully participating in the
Five-Day Faculty Development Programme on
Emerging Technologies: Research Challenges and Opportunities

Organized by
Department of Computer Applications
University of Engineering & Management, Jaipur
23rd – 27th March 2026

Prof. Poonam Poonia
Prof. Yogesh Kumar Jakhar
Prof. Sayak Pramanik
Prof. (Dr.) Biswajoy Chatterjee

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OF PARTICIPATION

Dr M R SUNDARA KUMAR
AI & DS
Dayananda Sagar University

has actively participated in Five days National Level Faculty Development Programme on "Research paper writing and Publishing in sci/Scopus indexed journal" Organized by Learnix Thrive from 15th March to 19th March, 2026

19th March, 2026
DATE

CEO of Learnix Thrive

NPTEL+ Workshop Certificate

This certificate is awarded to

SUNDARA KUMAR

for successfully completing the online workshop

AI-Assisted Micro- Entrepreneurship

by Prof. Devdip Purkayastha, Professor of Practice,
IIT Bombay

Date : 21st March, 2026

Verify

Prof. Ramkrishna Pasumarthy
NPTEL Coordinator
IIT Madras

Dr. B.Sarada
Assistant Professor,
Department of CSE (AI & DS)

Dr. B. Sarada co-authored the research paper titled “LapGraph-CutFS: A Deep Learning-Based Framework for Multi-Class Classification of Maize Leaf Pests, Diseases, and Healthy States” published in IEEE Access. The work showcases innovative applications of deep learning in agricultural disease detection and classification.

Journals & Magazines > IEEE Access > Volume: 14

LapGraph-CutFS: A Deep Learning-Based Framework for Multi-Class Classification of Maize Leaf Pests, Diseases, and Healthy States

Publisher: IEEE | Cite This | PDF

Kalyani Sunkara ; Sarada Bantakunta ; Sahitya Ghanta ; Chukka Rajasekhar ; Chopparapu Gowthami All Authors

171 Full Text Views

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Abstract

Document Sections

I. Introduction

II. Related Work

III. Methodology

IV. Computational Analysis

Abstract:

Monitoring crop health is a critical component of sustainable agriculture that enables the early detection and effective management of pests and diseases. We propose LapGraph-CutFS, a graph-theoretic feature selection framework designed for the multi-class classification of maize leaf states, encompassing three insect pests (fall armyworm, grasshopper, and leaf beetle), one viral disease (maize streak virus), and a healthy control class. The framework constructs a Laplacian graph of the feature space and applies graph-cut optimization to preserve discriminative properties while eliminating redundancy, thereby improving the class-wise separability. LapGraph-CutFS integrates a Support Vector Machine (SVM) classifier and is benchmarked against baseline deep learning models (ResNet-50, Inception V3) and optimization-based approaches, including the Weighted Grey Wolf Optimizer (WGOA) and Particle Swarm Optimization (PSO). The proposed model was validated using a maize dataset, achieving an accuracy of 99.02%, a balanced accuracy of 99.28%, and a Cohen's kappa score of 0.9869. It

Dr. Dilip Kumar Jang Bahadur Saini
Associate Professor & Chairperson,
Department of CSE (Cyber Security)

Dr. Dilip Kumar Jang Bahadur Saini co-authored the research article titled "Intelligent Performance Prediction of Nanoparticle-Enhanced Automotive Radiator Cooling Using CFD and Machine Learning," published in the prestigious journal Scientific Reports in April 2026.

Article | Open access | Published: 06 April 2026

Intelligent performance prediction of nanoparticle-enhanced automotive radiator cooling using CFD and machine learning

Jitendra B. Satpute, Dilip Kumar Jang Bahadur Saini, Pooja Sharma, Bipin Kumar Rai, Pravin M. Thorat, Gautam Kumar & Kumar Dilip

Scientific Reports , Article number: (2026) | Cite this article

1461 Accesses | Metrics

Abstract

Active thermal control of automotive engines is vital for improving performance, robustness and conventional coolants like water and air frequently bring insufficient heat dissipation. To counterpart this ill effect, the propose study examines and investigate the performance enrichment of an automotive radiator using Al_2O_3–ethylene glycol (EG) nanofluids concluded by collective numerical, experimental, and data-driven approach. Initially, three-dimensional radiator model was developed using AUTOCAD software and computational study was performed in ANSYS-FLUENT, using a pressure-based model and a realizable k–ε turbulence model. The Grid-independence test was directed to ensure numerical accuracy, and CFD predictions were experimentally validated through experimental radiator test rig. The CFD result for pure EG predicted an outlet temperature of 70.11 °C that was closely agreed with the

Dr. Mubeen Ahmed Khan
Assistant Professor
Department of CSE (Cyber Security)

Dr. Mubeen Ahmed Khan co-authored the research article titled “Design and Development of ALU using Multi-Chiplet Methodology for High-Performance Computing,” published in Buletin Ilmiah Sarjana Teknik Elektro, Vol. 8, No. 1, February 2026.

ISSN: 2685-9572 **Buletin Ilmiah Sarjana Teknik Elektro**
Vol. 8, No. 1, February 2026, pp. 116-128

Design and Development of ALU using Multi Chiplet Methodology for High-Performance Computing

Amrita Rai [1], Owais Ahmad Shah [2], Imran Ahmed Khan [3], Mubeen Ahmad Khan [4], Latika Jindal [5], Piyush Chouhan [6]

[1] Department of Electronics & Communication Engineering, Galgotia College of Engineering and Technology, Greater Noida, India
[2] Department of Electronics & Communication Engineering, Dayananda Sagar University, Bengaluru, India
[3] Department of Electronics & Communication Engineering, Jamia Millia Islamia, New Delhi, India
[4] Department of CSE (Cyber security), Dayananda Sagar University, Bengaluru, India
[5] Department of Computer Science & Engineering, Medicaps University, Indore, India
[6] Department of Electronics & Communication Engineering, Medicaps University, Indore, India

ARTICLE INFORMATION

Article History:

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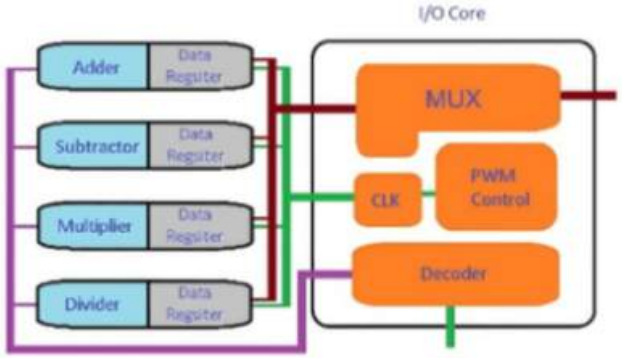
Multi-Chip Module;
ALU;
Booth Multiplier

Corresponding Author:

Owais Ahmad Shah,
Department of Electronics & Communication Engineering,
Dayananda Sagar University,
Bengaluru, India.
Email: mail_owais@yahoo.co.in

ABSTRACT



The fundamental programmable logic unit (PLU) in any microprocessors or a microcontrollers and real-time processor of integrated circuits is the arithmetic and logical unit (ALU). The conventional ALUs had exorbitant power consumptions, route delays, and transistor counts because they were created using complementary metal oxide semiconductor (CMOS) technology. Therefore, the motivation of this paper is on the design and development of ALU using Multi Chiplet design Methodology with FPGA kit and simulation is perform on vivado software. Multi-Chiplet systems helps reduce the cost of chip design, low power consumption and increases yield for complicated SoCs (System on Chips). Low power with less design space semiconductors will be the future of computing as the power requirements and size of the SoC cannot

Prof. Sharanabasappa Tadkal
Assistant Professor
Department of CSE (Cyber Security)

1) Mr. Sharanabasappa Tadkal contributed as an author to the research paper titled “Smart Farming with Low-Cost Sensors: Helping Indian Farmers Save Water, Improve Soil Health, and Increase Crop Yields,” published in the Proceedings of the 2025 6th International Conference on Communication, Computing and Industry 6.0 (C2I6 2025), indexed in Scopus.

2) Mr. Sharanabasappa Tadkal, contributed as an author to the research paper titled “Sustainable IoT for Healthcare: An Energy-Aware Approach for Remote Patient Monitoring,” published in the Proceedings of ICECONF 2025 - 2nd International Conference on Artificial Intelligence and Knowledge Discovery in Concurrent Engineering (IEEE).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Smart Farming with Low-Cost Sensors: Helping Indian Farmers Save Water, Improve Soil Health, and Increase Crop Yields

Proceedings of 2025 6th International Conference on Communication, Computing and Industry 6.0, C2I6 2025 • Conference Paper • 2025 • DOI: 10.1109/C2I6666499.2025.11366962

Bharath M.B.[a] ; Mala B.A.[a] ; Vedashree L.V.[b] ; Yashaswini H.C.[a] ; Pooja Shree H.R.[a] ; +1 author

[a] Dayananda Sagar University, Computer Science and Engineering, Bangaluru, South, India

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Sustainable IoT for Healthcare: An Energy-Aware Approach for Remote Patient Monitoring

Proceedings ICECONF 2025 - 2025 2nd International Conference on Artificial Intelligence and Knowledge Discovery in Concurrent Engineering • Conference Paper • 2025 • DOI: 10.1109/ICECONF65644.2025.11375670

Bharath M.B. ; Pooja Shree H.R. ; Mala B.A. ; Tadkal, Sharanabasappa ; Rakshitha R. ; +1 author

Dayananda Sagar University, Department of Computer Science and Engineering, Bengaluru South, India

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Document Impact Cited by (0) References (15) Similar documents

Abstract

The Internet of Things (IoT) is reshaping healthcare by enabling continuous patient monitoring, early diagnosis, and improved clinical decision-making. Despite its advantages, largescale IoT deployments often suffer from high energy consumption, increased latency, and network congestion, raising sustainability challenges. To address these issues, this paper proposes an energyaware IoT framework for remote patient monitoring that integrates Raspberry Pi as an edge processor with rGO/cobased biosensors for heart rate and temperature. The framework employs adaptive communication intervals using the MQTT protocol to optimize trade-offs

Prof. Sharanabasappa Tadkal
Assistant Professor
Department of CSE (Cyber Security)

3) Mr. Sharanabasappa Tadkal, successfully presented a research paper titled “Edge AI-Based Malware Detection in IoT Devices Using Machine Learning” at the 9th International Conference on Trends in Electronics and Informatics (ICOEI-2026), held from 21st to 23rd April 2026 at SCAD College of Engineering and Technology, Tirunelveli, Tamil Nadu, India

SCAD COLLEGE OF ENGINEERING & TECHNOLOGY

SCAD

Certificate of Presentation

This is to certify that

Sharanabasappa Tadkal

has presented a paper titled

Edge AI-Based Malware Detection in IoT Devices Using Machine Learning

at the 9th International Conference on Trends in Electronics and Informatics (ICOEI-2026) held from 21-23,April 2026 at SCAD College of Engineering and Technology, Tirunelveli, Tamil Nadu, India.

IEEE

Session Chair

Dr.R.Karthik Ganesh
Organizing Chair

Dr. K. Ganesan
Principal

ELECTRON DEVICES SOCIETY

Prof. Biswajit Debnath
Assistant Professor
Department of CSE (Cyber Security)

1) Mr. Biswajit Debnath presented a research paper titled “Evolutionary Approach Towards Liveliness Detection of Biometric Attributes” at the International Conference on Secure Data Science and Applications (ICSDSA-2026), held on 27–28 March 2026. The conference was organized by the Department of CSE (Cyber Security), Dayananda Sagar Academy of Technology and Management, Bangalore, in technical association with the Tejas Scientific Researcher Foundation (TTSRF), India.

2) Mr. Biswajit Debnath successfully participated in a Tech Talk Session delivered by Mark Verchinko, CEO and Founder of RedDuck, Ukraine, held on 7th April 2026. The session was organized by the Department of Computer Science and Engineering (Blockchain Technology) at Jain (Deemed-to-be University) and focused on contemporary advancements and industry perspectives in emerging technologies.

SPRINGER NATURE

International Conference on Secure Data Science and Applications (ICSDSA'26), 27-28, March, 2026

Organized by Department of CSE-Cyber Security

Dayananda Sagar Academy of Technology and Management, Bangalore

CERTIFICATE OF PRESENTATION

Biswajit Debnath, Dayananda Sagar University

presented the paper titled Evolutionary Approach Towards liveliness Detection of Biometric Attributes co-authored with Upasana Shil, Dilip Kumar Jang Bahadur Saini, Mohammed Tajuddin, Sagar Kolekar, Neha Divekar

in the International Conference on Secure Data Science and Applications (ICSDSA-26) held at Dayananda Sagar Academy of Technology and Management, Bangalore, India in technical association with The Tejas Scientific Researcher Foundation, India during March 27-28, 2026.

Dr Samiksha Shukla
General Chair, ICSDSA'26

Dr M Ravishankar
Principal, DSATM, Bangalore

TTSRF/ICSDSA2026/Presenter/142

JAIN
FACULTY OF ENGINEERING AND TECHNOLOGY

Department of Computer Science & Engineering (Blockchain Technology)

CERTIFICATE OF PARTICIPATION

THIS IS TO CERTIFY THAT

BISWAJIT DEBNATH

FROM DAYANANDA SAGAR UNIVERSITY

Has successfully participated in the Tech Talk Session delivered by Mark Verchinko, CEO and Founder, RedDuck, Ukraine, held on 7th April 2026, organized by the Department of Computer Science and Engineering (Blockchain Technology).

We appreciate your enthusiasm and active involvement in the session. Your participation reflects your commitment to learning and professional growth.

Prof. Shivashish Gour
FACULTY COORDINATOR, BCT

Dr. Devaraj Verma C
PROGRAM HEAD BCT

Dr.Kamlesh Tiwari
HOD, CSE

Prof. Architta Bhattacharyya
Assistant Professor
Department of CSE (Cyber Security)

Ms. Archita Bhattacharyya successfully participated in a One-Week Faculty Development Program (FDP) on “Cybersecurity and Ethical AI: Addressing the Human Element in Intelligent Systems,” organized by the Department of Computer Science and Applications, MIT World Peace University, Pune, in collaboration with OPSWAT Academy and Cyber Secured India, from 23rd to 28th March 2026

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MIT-WPU | Dr. Vishwanath Karad MIT WORLD PEACE UNIVERSITY | PUNE | OPSWAT. academy | Cyber Secured India

Department of Computer Science and Applications
School of Computer Science and Engineering

CERTIFICATE OF PARTICIPATION

One Week Faculty Development Program (FDP)
Organized by the Department of Computer Science and Applications

This is to certify that

Archita Bhattacharyya

has successfully completed One Week Faculty Development Programme (FDP) on
'Cybersecurity and Ethical AI: Addressing the Human Element in Intelligent Systems'
from 23rd – 28th March 2026 held at Department of Computer Science and Applications,
Dr. Vishwanath Karad MIT World Peace University, Pune.

Dr. Anuradha Kanade	Prof (Dr.) Deepak Prashar	Dr. Siddharth Chakrabarti	Prasad Khandekar
Program Director DoCSA, MIT-WPU	Associate Dean-Academics SoCSE, MIT-WPU	Dean-Engineering SoET, MIT-WPU	CAO MIT-WPU

DoCSA/FDP/2025-26/4

Prof. Naveen Kulkarni
Assistant Professor
Department of CSE (Cyber Security)

1) Mr. Naveen Kulkarni successfully presented a research paper titled “Robust and Stable Optimized Deep Belief Learning for Predictive Scheduling in Vehicular Fog Networks” at the IEEE International Conference on Recent Advancements in Electrical, Computer, and Communication Technologies (IECCT 2026). The conference was held on 10th–11th April 2026 and organized by the School of Electrical Sciences, MVJ College of Engineering, Bangalore, in association with the IEEE Bangalore Section.

2)Mr. Naveen Kulkarni, successfully presented a research paper titled “Predictive Task Scheduling for Latency Minimization in Vehicular Fog Computing Using Optimized Deep Belief Learning” at the 9th International Conference on Trends in Electronics and Informatics (ICOEI-2026), held from 21st to 23rd April 2026 at SCAD College of Engineering and Technology, Tirunelveli, Tamil Nadu, India


IEEE

International Conference on Recent Advancement in Electrical, Computer and Communication Technologies

IECCT 2026

CERTIFICATE OF PRESENTATION

THIS IS TO CERTIFY THAT

Naveen Kulkarni

has successfully presented the paper titled

Robust and Stable optimized Deep Belief Learning for Predictive Scheduling in Vehicular Fog Computing

authored by

Naveen Kulkarni, Arunkumar Gopu

at the International Conference on Recent Advancement in Electrical, Computer and Communication Technologies (IECCT 2026) held on 10th and 11th April 2026, organized by the School of Electrical Sciences, MVJ College of Engineering, Bangalore in association with IEEE Bangalore section.


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IEEE

Session Chair

Dr.R.Karthik Ganesh
Organizing Chair

Dr. K. Ganesan
Principal

Prof. Sayeli Dey
Assistant Professor
Department of CSE (Cyber Security)

Ms. Sayeli Dey, successfully presented a research paper titled “Edge AI-Based Malware Detection in IoT Devices Using Machine Learning” at the 9th International Conference on Trends in Electronics and Informatics (ICOEI-2026), held from 21st to 23rd April 2026 at SCAD College of Engineering and Technology, Tirunelveli, Tamil Nadu, India

Dr. Jisy NK
Assistant Professor,
Department of ECE

Dr. Jisy N K successfully defended her Ph.D viva-voce on 07 April 2026. Her thesis, “Fundus Image Classification and Visualization for Glaucoma Detection Using Explainable Deep Learning Models,” contributes to healthcare-focused artificial intelligence.

She completed her Ph.D at BITS Pilani Hyderabad Campus under the guidance of Sudha Radhika and M B Srinivas.

Her research has resulted in publications in reputed journals and conferences, focusing on explainable deep learning for early glaucoma detection using fundus images.

Prof. Dinnah Ann Varughese
Assistant Professor,
Department of ECE

1) Prof. Dinah Ann Varughese, Assistant Professor, Department of Electronics and Communication Engineering, Dayananda Sagar University, has published a research paper titled “Synergistic Enhancement of Mechanical and Interfacial Properties in Carbon Fiber Epoxy Nanocomposites via Dual Functionalization of Fiber and Exfoliated Hexagonal Boron Nitride Nanosheets” in the SCIE-indexed Q1 journal Polymer Composites (Wiley, Impact Factor: 4.7).

2) Prof. Dinah Ann Varughese, Assistant Professor, Department of Electronics and Communication Engineering, Dayananda Sagar University, has presented a research paper titled “FPGA-Accelerated Convolutional Feature Extractor for Real-Time Skin Image Analysis using Optimized Hardware CNN Blocks” at the International Conference on Trends in Electronics and Informatics (ICOEI-2026).

WILEY

RESEARCH ARTICLE

Synergistic Enhancement of Mechanical and Interfacial Properties in Carbon Fiber Epoxy Nanocomposites via Du Functionalization of Fiber and Exfoliated Hexagonal Bor Nitride Nanosheets

ABSTRACT

Certificate of Presentation

This is to certify that

Dinah Ann Varughese

has presented a paper titled

FPGA-accelerated convolutional feature extractor for real-time skin image analysis using optimized hardware CNN blocks

at the 9th International Conference on Trends in Electronics and Informatics (ICOEI-2026) held from 21-23,April 2026 at SCAD College of Engineering and Technology, Tirunelveli, Tamil Nadu, India.

IEEE

Session Chair

Dr.R.Karthik Ganesh
Organizing Chair

Dr. K. Ganesan
Principal

Dr Arun Balodi
Professor and Chairperson
Department of ECE

1) Dr. Arun Balodi, Professor and Chairperson, Department of Electronics and Communication Engineering, Dayananda Sagar University, and Academic Transformation Leader, participated in the Golden Jubilee (50th Anniversary) celebration of the IEEE Bangalore Section held at Taj Vivanta, Yeshwantpur, Bengaluru.

2) Dr. Arun Balodi, Professor and Chairperson of Electronics and Communication Engineering at Dayananda Sagar University, Bengaluru, has been recognized as an executive board member of the STEM – Research Society. This honor acknowledges his contributions to advancing research and academic leadership in the field of engineering and technology


CERTIFICATE OF EXECUTIVE MEMBERSHIP

This Certificate is awarded to

Prof. (Dr.) Arun Balodi

Professor & Chairperson - Electronics and Communication Engineering
Dayananda Sagar University, Bengaluru, INDIA

In recognition of the **Executive Board Member** in

STEM – Research Society
(https://stemrs.in)

Director

STEM RESEARCH SOCIETY

Secretary

Dr Arun Balodi
Professor and Chairperson
Department of ECE

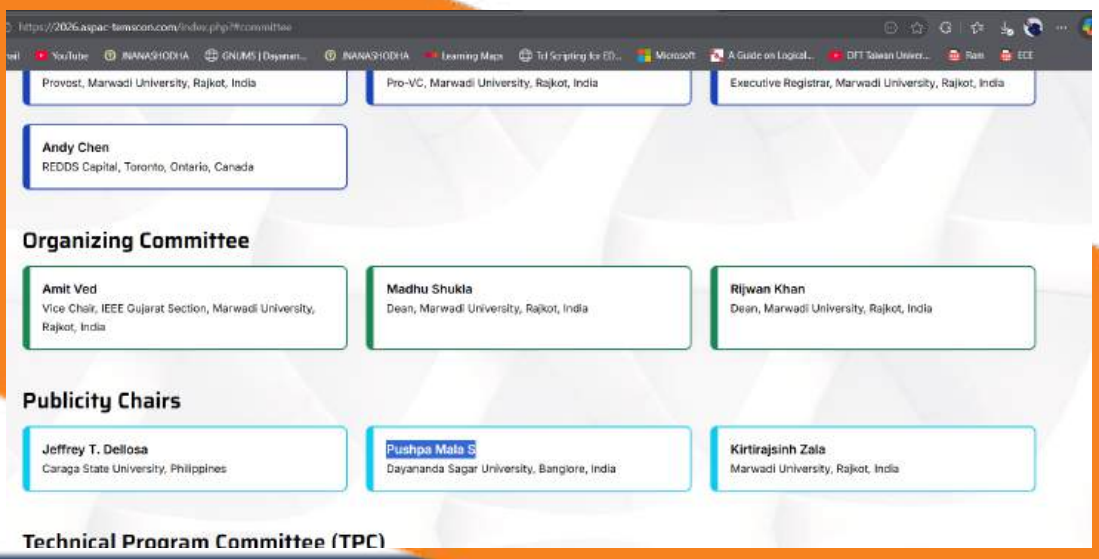
3) Dr. Arun Balodi, Professor and Chairperson of Electronics and Communication Engineering at Dayananda Sagar University, attended the IEEE Bangalore Humanitarian Technology Conference (BHTC) 2026, a platform focused on technology-driven solutions for societal impact. The conference provided valuable insights into the application of engineering, AI, and signal processing in addressing challenges in healthcare, sustainability, and rural development, with an emphasis on affordable and scalable solutions.

The experience reinforced his commitment to advancing AI-driven healthcare and intelligent diagnostic systems, while promoting collaborative research, humanitarian innovation, and real-world problem-solving in engineering education.

Dr. Pushpa Mala S
Associate Professor
Department of ECE

1)Dr Pushpa Mala S participated in the IEEE 50 yr celebration held at Taj Yeshwantpur on 26-04-2026. She serves as the IEEE EXECOM member Bangalore section.

2)Dr Pushpa Mala S is nominated as the publicity chair for the IEEE TEMS Asia pacific conference - TEMSCON 2026

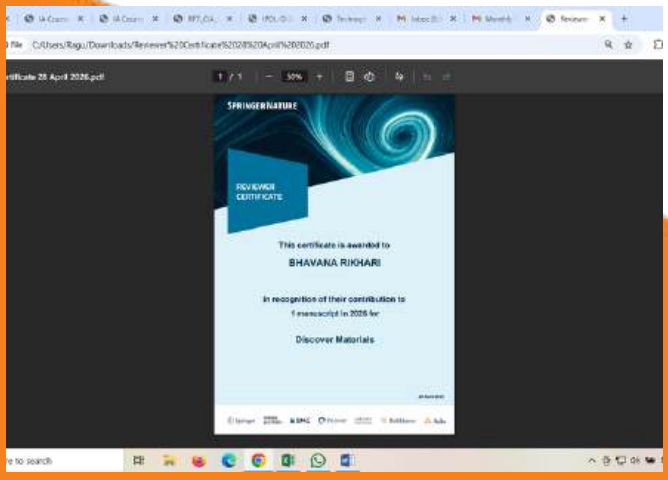


Dr. Bhavana Rikhari
Assistant Professor
Department of Chemistry

1) Bhavana Rikhari published a research article on “Effect of cockroach-wings-derived tin oxide on the coating performance of magnesium alloys."

2) Dr Bhavana Rikhari has presented a Research Paper entitled “Advanced Sustainable Corrosion Protection Systems for Aluminium–Lithium Alloys in Aerospace Applications” in the One-Day National Level Conference on “Frontiers in Integrated Chemical Sciences (FICS-2026): Molecules to Materials to Life” held on 18th April 2026

3) Dr. Bhavana Rikhari has reviewed one manuscript in 2026 for the journal Discover Materials (Springer Nature).



Dr. Shreeganesh Subraya Hegde
Assistant Professor
Department of Chemistry

1) Dr. Shreeganesh Subraya Hegde, Assistant Professor in the Department of Chemistry, has published a recent research paper entitled “Insights from Synthesis to Performance of Polyaniline/Multiwalled Carbon Nanotube/Zinc Oxide/Nickel Oxide Nanocomposite for Hybrid Supercapacitors.” This study has been published in the reputed Q1 journal Batteries & Supercaps, published by Wiley,

2)Dr. Shreeganesh Subraya Hegde, Assistant Professor in the Department of Chemistry, has published a new book chapter titled “Noble-Metal-Based High-Entropy Oxides for Energy Storage Applications.” The chapter appears in the book “High-Entropy Materials for Energy Storage Devices,” published by Wiley.


Batteries & Supercaps

Batteries & Supercaps

RESEARCH ARTICLE

Insights From Synthesis to Performance of Polyaniline/ Multiwalled Carbon Nanotube/Zinc Oxide/Nickel Oxide Nanocomposite for Hybrid Supercapacitors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Chapter 7

Noble-Metal-Based High-Entropy Oxides for Energy Storage Applications

Dibyananda Majhi, Shreeganesh Subraya Hegde, Challapalli Subrahmanyam

Book Editor(s):Chien-Te Hsieh, Pradeep Kumar Panda, Arpan Kumar Nayak

First published: 13 March 2026 | https://doi.org/10.1002/9783527853670.ch7

PDF CITE TOOLS SHARE

Summary

Numerous materials have been explored by the scientific community for constructing efficient and durable energy storage devices. High-entropy oxides (HEOs) are considered as promising class of materials, especially for battery and supercapacitor applications.

Dr. Shreeganesh Subraya Hegde
Assistant Professor
Department of Chemistry

1) Dr. Shreeganesh Subraya Hegde, Assistant Professor in the Department of Chemistry, has published a recent research paper entitled “Insights from Synthesis to Performance of Polyaniline/Multiwalled Carbon Nanotube/Zinc Oxide/Nickel Oxide Nanocomposite for Hybrid Supercapacitors.” This study has been published in the reputed Q1 journal Batteries & Supercaps, published by Wiley,

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Batteries & Supercaps

Batteries & Supercaps — Chemistry Europe

RESEARCH ARTICLE

Insights From Synthesis to Performance of Polyaniline/ Multiwalled Carbon Nanotube/Zinc Oxide/Nickel Oxide Nanocomposite for Hybrid Supercapacitors

A. Ali | Asnit Gangwar | Shreeganesh Subraya Hegde | Subrahmanyam Challapalli | Tapas Das

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Chapter 7

Noble-Metal-Based High-Entropy Oxides for Energy Storage Applications

Dibyananda Majhi, Shreeganesh Subraya Hegde, Challapalli Subrahmanyam

Book Editor(s):Chien-Te Hsieh, Pradeep Kumar Panda, Arpan Kumar Nayak

First published: 13 March 2026 | https://doi.org/10.1002/9783527853670.ch7

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Summary

Numerous materials have been explored by the scientific community for constructing efficient and durable energy storage devices. High-entropy oxides (HEOs) are considered as promising class of materials, especially for battery and supercapacitor applications.

Dr. Shreeganesh Subraya Hegde
Assistant Professor
Department of Chemistry

3) Dr. Shreeganesh Subraya Hegde, assistant professor in the Department of Chemistry, was invited as a speaker to deliver the “Late Krishna T. Bhagwat Memorial Endowment Lecture.” He delivered a talk titled “Small Devices, Big Impact: Supercapacitors and Biosensors for a Sustainable Future” on 6 April 2026

4) Dr. Shreeganesh Subraya Hegde has successfully completed a six-day Faculty Development Programme (FDP) on “Research Methodology For Experimental And Theoretical Sciences," organized by the Departments of Science, Sree Siddaganga College of Arts, Science, and Commerce for Women.

Dr. Shreeganesh Subraya Hegde
Assistant Professor
Department of Chemistry

5) Dr. Shreeganesh Subraya Hegde, Assistant Professor in the Department of Chemistry, has successfully completed the participation and comprehensive assessment for the Mental Wellness, Resilience & Holistic Professionalism Program (Technology Series Webinar) by Academic Network: Mental Wellness, Resilience and Holistic Professionalism – Building the Whole Professional, securing a score of 25/25 (100.0%).

6) Dr. Shreeganesh Subraya Hegde, Assistant Professor in the Department of Chemistry, has successfully completed the Assessment, Impact, and Transformation Program (Technology Series Webinar) by Academic Network: Assessment, Impact, and Transformation - Redefining Excellence in Education, securing a score of 25/25 (100.0%).


Academic Network - Technology Series Webinar

CERTIFICATE OF COMPLETION

This is to certify that

DR. SHREEGANESH SUBRAYA HEGDE

has successfully completed the participation and comprehensive assessment for the
MENTAL WELLNESS, RESILIENCE & HOLISTIC PROFESSIONALISM PROGRAM
Technology Series Webinar by Academic Network
Mental Wellness, Resilience and Holistic Professionalism: Building the Whole Professional
with a score of 25/25 (100.0%)


Academic Network - Technology Series Webinar

CERTIFICATE OF COMPLETION

This is to certify that

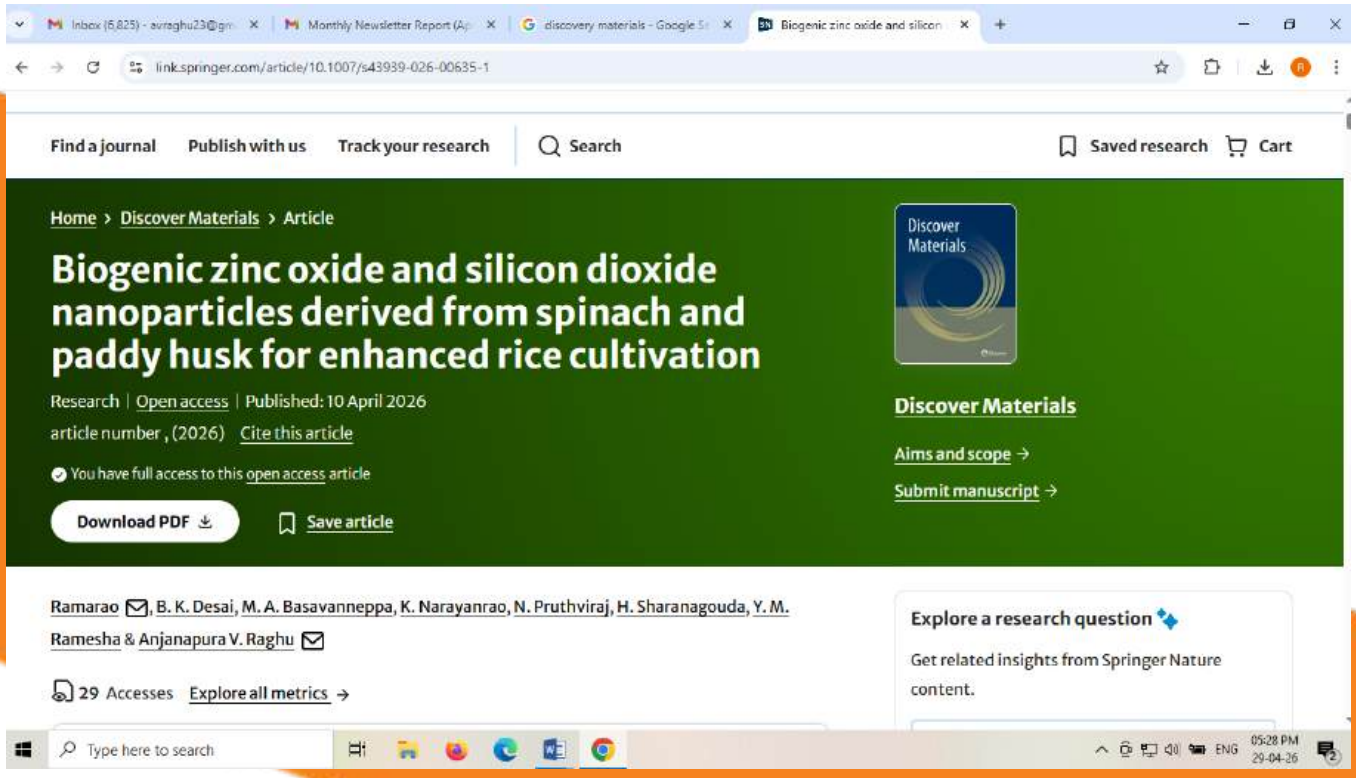
DR. SHREEGANESH SUBRAYA HEGDE

has successfully completed the participation and comprehensive assessment for the
ASSESSMENT, IMPACT AND TRANSFORMATION PROGRAM
Technology Series Webinar by Academic Network
Assessment, Impact and Transformation: Redefining Excellence in Education
with a score of 25/25 (100.0%)

Dr. A V Raghu
Professor
Department of Chemistry

1) Dr. A.V. Raghu, Professor in the Department of Chemistry, has published a recent research paper entitled “Biogenic zinc oxide and silicon dioxide nanoparticles derived from spinach and paddy husk for enhanced rice cultivation." This study has been published in the reputed Q1 open access journal Discovery Materials under Exclusive Papers of Editorial Board Members, published by Springer, which has an impact factor of 5.1.

2) Dr. A. V. Raghu, Professor, has been serving as an editor, handling several articles from the reputable Scopus-indexed journals and also reviewed several articles from the international journals.



Dr. Zafar Mehdi Dar
Assistant Professor
Department of Maths

Dr. Zafar Mehdi Dar published the research article entitled “Modeling Tumor Micro-scale Dynamics via Virtual Element Methods on Polygonized Square and Disk” in the journal ”International Journal of Computer Mathematics," published by Taylor & Francis on 27th April 2026. ISSN: 0020-7160(p), 1029-0265(o); H-Index: 62; Indexation: Science Citation Index Expanded (SCIE), Scopus Q2; Journal Impact Factor: 1.3; SJR: 0.509.

Prof Shankramma S Dhavalagimath
Assistant Professor
Department of Maths

Dr. Shankramma had attended one-week online Faculty Development Program (FDP) on “AI Tools in Empowering Research” conducted by Institute of Public Enterprise (IPE), Hyderabad in collaboration with New Horizon College, Kasturinagar from 23rd to 27th April 2026

INSTITUTE OF PUBLIC ENTERPRISE
(Under the aegis of ICSSR, MoE, GoI)

AWARD

Certificate
of Completion

This is to certify that

Dr Shankramma S Dhavalagimath of Dayananda Sagar University

has successfully completed the **One-Week Online Faculty Development Programme** (FDP) on **“AI Tools in Empowering Research”**, conducted by **Institute of Public Enterprise (IPE), Hyderabad** in collaboration with **New Horizon College, Kasturinagar** from **23rd to 27th March 2026**, and has duly fulfilled all the requirements of the programme, including the successful completion of the assessment.

Director Convenor Principal

Dr Junias J Singh
Assistant Professor
Department of Maths

Dr. Junias J Singh had attended Faculty Development Program on “Teaching in the Age of AI & Gen Alpha” conducted by T. John Institute of Management & Science on 25th April 2026.

T. JOHN GROUP OF INSTITUTIONS

TIMS INSTITUTE OF MANAGEMENT BANGALORE • INDIA

bsi ISO 9001 Quality Management Systems CERTIFIED

CERTIFICATE

OF PARTICIPATION

THIS IS TO CERTIFY THAT

Dr Junias J Singh

HAS PARTICIPATED IN THE **ONE-DAY INTERNATIONAL FACULTY DEVELOPMENT PROGRAM (ONLINE) ON**

“TEACHING IN THE AGE OF AI & GEN ALPHA:

SMART PEDAGOGY, AI TOOLS & FUTURE-READY CLASSROOMS”

ORGANIZED BY **T. JOHN INSTITUTE OF MANAGEMENT & SCIENCE, BENGALURU**, HELD ON **25 APRIL 2026.**

COORDINATOR

PRINCIPAL

Dr Srimanta Maji
Assistant Professor
Department of Maths

Dr. Srimanta Maji had attended a one-day Faculty Development Program (FDP) on “Educate the Educator on Agentic AI” held at Dayananda Sagar Academy of Technology and Management (DSATM), Bengaluru, in collaboration with Capabl. And CSI on 25th April 2026.

Dr Ravitej Y P
Assistant Professor
Department of Mechanical Engineering

Dr. Ravitej Y P, Mechanical Engineering Department, Dayananda Sagar University published a research paper entitled “Experimental and data-driven investigation of dry sliding wear behaviour in Al 6061–graphite composites” in “Canadian Metallurgical Quarterly” 13th April 2026. This paper investigates dry sliding wear in Al 6061–graphite composites using experiments and data-driven methods, revealing wear mechanisms, performance trends, and insights for optimizing composite design and tribological applications.

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Experimental and data-driven investigation of dry sliding wear behaviour in Al 6061–graphite composites

Vinayak V. Kulkarni, Akhil Deshpande, Roopa D N, Chethan S, Shivakumar K. Malladad, Batluri Tilak Chandra, Vrushali Yogesh Bhalerao, A. Srinivas, Bindhu Shree B S, Ravitej Y P, Sharanabasappa Tadkal & Shashidhar L C

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Published online: 25 Apr 2026.

Prof. Jerrin Joy Varughese
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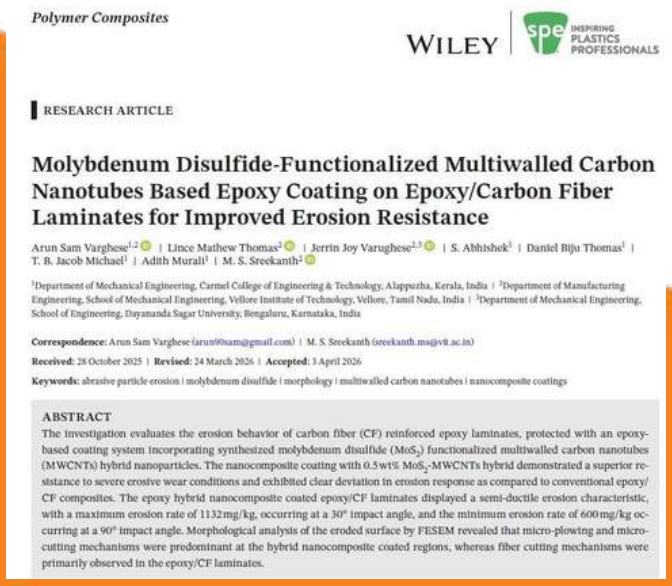
1) Prof. Jerrin Joy Varughese from the Department of Mechanical Engineering published a research article titled “Molybdenum Disulfide-Functionalized Multiwalled Carbon Nanotubes Based Epoxy Coating on Epoxy/Carbon Fibre Laminates for Improved Erosion Resistance” in Polymer Composites (Q1 Journal – Impact Factor: 4.7) during April 2026. The study presents an advanced hybrid nanocomposite coating system integrating MoS_2-functionalized MWCNTs, demonstrating enhanced erosion resistance in epoxy/carbon fibre laminates.

2) Prof. Jerrin Joy Varughese also contributed to the academic community by serving as a reviewer for the reputed journal Materials Letters (Elsevier) during April 2026.



Polymer Composites

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RESEARCH ARTICLE

Molybdenum Disulfide-Functionalized Multiwalled Carbon Nanotubes Based Epoxy Coating on Epoxy/Carbon Fiber Laminates for Improved Erosion Resistance

Arun Sam Varghese[1,2] | Lince Mathew Thomas[2] | Jerrin Joy Varughese[2,3] | S. Abhishek[1] | Daniel Biju Thomas[1] | T. B. Jacob Michael[1] | Adith Murali[1] | M. S. Sreekanth[2]

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Received: 28 October 2025 | **Revised:** 24 March 2026 | **Accepted:** 3 April 2026

Keywords: abrasive particle erosion | molybdenum disulfide | morphology | multiwalled carbon nanotubes | nanocomposite coatings

ABSTRACT

The investigation evaluates the erosion behavior of carbon fiber (CF) reinforced epoxy laminates, protected with an epoxy-based coating system incorporating synthesized molybdenum disulfide (MoS_2) functionalized multiwalled carbon nanotubes (MWCNTs) hybrid nanoparticles. The nanocomposite coating with 0.5 wt% MoS_2-MWCNTs hybrid demonstrated a superior resistance to severe erosive wear conditions and exhibited clear deviation in erosion response as compared to conventional epoxy/CF composites. The epoxy hybrid nanocomposite coated epoxy/CF laminates displayed a semi-ductile erosion characteristic, with a maximum erosion rate of 1132 mg/kg, occurring at a 30° impact angle, and the minimum erosion rate of 600 mg/kg occurring at a 90° impact angle. Morphological analysis of the eroded surface by FESEM revealed that micro-plowing and micro-cutting mechanisms were predominant at the hybrid nanocomposite coated regions, whereas fiber cutting mechanisms were primarily observed in the epoxy/CF laminates.

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Certificate of Reviewing

Awarded for 1 review in April 2026
presented to

JERRIN VARUGHESE

in recognition of the review contributed to the journal

The Editors of Materials Letters

Elsevier Reviewer Recognition

Dr. Naseeem Khayum
Assistant Professor
Department of Mechanical Engineering

Dr. Naseem Khayum, Assistant Professor, Department of Mechanical Engineering has published a review article titled “AI Driven Approaches in Battery Thermal Management Systems for Prediction and Multi-Objective Optimization: A Comprehensive Literature Review” in the journal Discover Mechanical Engineering (Springer), a Q2-indexed international journal. The work highlights advanced AI-based methodologies for improving thermal performance and optimization in battery systems.

Home › Discover Mechanical Engineering › Article

AI driven approaches in battery thermal management systems for prediction and multi objective optimization: a comprehensive literature review

Review | Open access | Published: 09 April 2026
Volume 5, article number 53, (2026) Cite this article

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Yerumbu Nandakishora, Naseem Khayum, Chandan Patra, Prashant Kumar, Abhishek Sharma & Alok Kumar Ansu

306 Accesses Explore all metrics →

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Abstract
Introduction
EV battery thermal management
Application of AI (ML) for prediction
Application of AI (ML) for optimization (multi-o...
Future research directions for AI-based battery t...
Conclusions
Data availability
References
Acknowledgements

Abstract

Battery Thermal Management Systems (BTMS) play a critical role in ensuring the safety, performance, and lifespan of lithium-ion batteries in electric vehicles; however, conventional empirical, numerical, and physics-based approaches often struggle to handle complex thermal behaviors, nonlinear interactions, and real-time operational demands. This limitation highlights the need for intelligent, adaptable, and computationally efficient prediction and optimization frameworks. The objective of this study is to critically review and analyze recent artificial intelligence (AI)-driven approaches for BTMS, with particular

Prof Karthik S B
Assistant Professor
Department of Mechanical Engineering

Prof. Karthik SB, Mechanical Engineering Department, Dayananda Sagar University published a research paper entitled “Finite element analysis of stress concentration and buckling behaviour in composite panels with cutouts” in “ J Mater. Sci: Mater Eng.” 14th April 2026. This paper presents finite element analysis of stress concentration and buckling behavior in composite panels with cutouts. It evaluates structural performance under loading, identifies critical stress regions, and examines stability characteristics, offering insights to improve design efficiency and structural integrity of advanced composite structures.

J Mater. Sci: Mater Eng. https://doi.org/10.1186/s40712-026-00458-1

Article in Press

Finite element analysis of stress concentration and buckling behaviour in composite panels with cutouts

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Karthik SB, Abhijith N, Abhinav, Santhosh N, Manjula K, Prem Chand R, Channa Keshava Naik N, Addisu Frinjo Emma, Mustafa M. Aljumaily & Mukhtar Hamid Abed

Dr Rahul Kumar
Associate Professor
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Dr. Rahul Kumar, Associate Professor, Department of Mechanical Engineering has published a research article in the Journal of Materials Engineering and Performance, a Q2-ranked, SCIE Indexed International Journal (IF-2.3). The published research addresses contemporary challenges in mechanical and sustainable engineering and presented innovative methodologies/analytical insights in WFRP composites aligned with UN's Sustainable Development Goals. This achievement reflects the faculty member's commitment to high-quality research and continuous contribution to the university research ecosystem.

JMEPEG
https://doi.org/10.1007/s11665-026-13924-w

1059-9495/$19.00

ORIGINAL RESEARCH ARTICLE

Tensile Properties Prediction of WFRP Composite Based on Machine Learning and ANN Models: An Experimental and Statistical Approach

Rahul Kumar, Jagadish, Divya Zindani, and Sumit Bhowmik

Submitted: 5 February 2026 / Revised: 16 March 2026 / Accepted: 20 March 2026

Due to increasing sustainability concerns, wood filler-reinforced polymer (WFRP) composite materials have gained prominence as a potential material in various industries such as construction, automotive and consumer products. This real-world application of wood filler-reinforced polymer composites requires well understanding and prediction of important mechanical properties. The conventional experimental methods of material characterization are often resource intensive and time-consuming. Recently, the machine learning (ML) presented a novel and viable avenues for augmenting prediction models, enabling the accurate estimation of mechanical properties with fewer experiments and improved generalization. The current work presents the application of ML techniques for the prediction of tensile properties of WFRP composite. Various models like support vector machine, polynomial regression, and decision trees (DT) are explored for their potential to predict tensile properties based on input variables like filler content, and crosshead speed. These models are very effective and accurate in representing highly intricate and non-linear interdependencies between material input parameters and its performance. Additionally, the artificial neural network model, in particular, exhibits an excellent capability of predicting tensile strength of composites with the lowest MSE value. The study highlights the efficiency of ML models, demonstrating their potential to enhance material property prediction.

Keywords ANN, epoxy, machine learning, predictive modeling, regression, wood filler, wood filler-reinforced polymer (WFRP) composites

1. Introduction

The natural plant-based fiber/filler-reinforced polymer composites have attracted considerable attention for their sustainability, light weight, and biodegradability [1, 2]. These fibers such as wood, bamboo, coir, sugarcane bagasse, and jute are reinforced/mixed with a polymer matrix for covering various applications like automotive components, structural/construction materials and household items [3-8]. These aforementioned applications require good mechanical properties for their usefulness. Therefore, the accurate prediction of mechanical properties is essential for optimizing material design and tailoring specific properties for targeted applications [9, 10].

Rahul Kumar, Department of Mechanical Engineering, School of Engineering (SoE), Dayananda Sagar University, Devarakaggalahalli, Harohalli, Kanakapura Road, Ramanagara Dt., Bengaluru 562 112, India; **Jagadish**, SQC & OR Unit, Indian Statistical Institute, Bangalore Centre, Bangalore, India; **Divya Zindani**, Department of Mechanical Engineering, Sri Sivasubramaniya Nadar College of Engineering, Chennai 603110, India; and **Sumit Bhowmik**, Department of Mechanical Engineering, National Institute of Technology, Silchar, Assam 788010, India. Contact e-mails: rahul.oec@gmail.com, jagadish@isibang.ac.in, zindanidivya@gmail.com, and bhwowmiksumit04@yahoo.co.in.

However, traditionally material scientists and engineers have deeply focused on extensive experimental testing which in turn is very time-consuming, costlier and limited by the complexity of the materials' behavior [11]. As a result of this, researchers working in this domain are strongly exploring the computational methods, particularly machine learning (ML), that learn data pattern and make accurate predictions with minimal experimental input [12, 13].

Machine learning is found to be an efficient computational model that can be utilized to discover data patterns and predict new output values from a given set of input variables [14-24]. Different kinds of machine learning algorithms are supervised, unsupervised and reinforcement learning. There are two major approaches in the supervised kind of machine learning algorithm namely classification and regression. Support vector machines (SVM), decision tree, random forest, k-nearest neighbor are some of the examples of classification-based algorithms [25-27]. The regression and classification-based algorithm have shown immense potential and increasingly utilized in the prediction of mechanical properties of natural fiber composites [28]. The regression-based machine learning algorithmic tools predict various types of mechanical properties based on input features such as fiber type, volume fraction, and processing parameters [29, 30]. These algorithms can assess the patterns and relationships in the experimentally derived dataset, thus precisely predicting the desired properties. In this way it will reduce the dependency on sample fabrication and experimental testing thus offer a cost-effective and quick solution for novel material design and optimization, which in turn lead to tailoring the material for specific set of applications [31-33]. In the last few years, various researchers have carried out/utilized

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STUDENT ACHIEVEMENTS

Ms. Sinchana K (ENG22CS0169), Ms. Sanjana A(ENG22CS0150), Ms. Umabharathi (ENG22CS0200), Mr. Veeresh M Patri (ENG22CS0203) final year CSE students under the guidance of Prof. Bharath M B, Prof. Mala B A, Assistant Professors, Department of CSE are published a paper in the IEEE during 30th March 2026 entitled “Intelligent Wearable Biosensors for Integrated Stress, Substance Use and Chronic Health Monitoring”, which was presented in the 3rd International Conference on Emerging Computation and Information Technologies (ICECIT–2025) Organized by the Siddaganga Institute of Technology, Tumakuru, Karnataka, India.

2025 International Conference on Emerging Computation and Information Technologies (ICECIT)

Intelligent Wearable Biosensors for Integrated Stress, Substance-Use, and Chronic Health Monitoring

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***Abstract*—Wearable health monitoring has emerged as a vital tool in preventive care, enabling continuous assessment of physiological and biochemical markers outside clinical settings. Traditional single-modality approaches, such as ECG/PPG or biochemical sensing, provide valuable insights but suffer from limitations including reduced accuracy, high latency, or inability to capture complex interactions between body signals. These shortcomings restrict timely detection of health risks and affect the reliability of remote monitoring. To overcome these challenges, a multimodal framework is introduced that integrates ECG/PPG signals with biochemical sensor data, thereby leveraging complementary information from different physiological domains. The system design ensures low-latency analysis while enhancing robustness against noise and signal fluctuations. Experimental evaluation demonstrates that the multimodal approach achieves an accuracy of 92.5%, precision of 89.7%, and recall of 91.3% with an average latency of 1.8 seconds, significantly outperforming single-modality systems. These findings highlight the potential of multimodal monitoring for reliable, real-time health assessment in everyday environments.**

***Index Terms*—Wearable Biosensors, Multimodal Monitoring, ECG/PPG, Biochemical Sensing, Real-Time Health Assessment, Low-Latency Systems**

I. Introduction

Wearable biosensors are also a revolutionary technology in the current healthcare system that has helped to bridge the gap between continuously monitoring the physiological state and personalised medicine. The initial progress on sweat-based sensing proved the possibility of non-invasive monitoring by flexible platforms [1]. The initial development of sweat-based sensing proved the possibility of non-invasive monitoring with the help of flexible platforms. These developments highlighted the potential of wearable devices for real-time analysis of biochemical markers without the need for invasive sampling. This area was further accelerated by adding glucose monitoring to the wearables, with some prototypes recording accurate and non-invasive measurements of glucose levels in the human body using wearables and other devices [2]. The rise of electrochemical sweat sensors in the near future was of great importance; delivering sensitive and stable measurements of multiple biomarkers of potential interest in stress, fatigue and metabolic diseases [3], [4]. It was followed by the development of electrochemical sensors which were molecularly imprinted to selectively detect cortisol, one of the principal biomarkers of stressors[5]. This advancement was complemented by the introduction of molecularly imprinted electrochemical sensors, which selectively detected cortisol, one of the major biomarkers of stressors.

With all these developments, there are still issues of accuracy in a real-world situation. Research has indicated that long-term reliability of stress biosensors is limited by environmental noise, uneven secretion of sweat, and signal drifting [6]. Experiments have found that environmental noise, uneven sweat release, and signal drift hamper long-term reliability of stress biosensors [6]It has been revealed that the long-term reliability of stress biosensors is impaired by environmental noise, inconsistent release of sweat, and signal drifting in research studies (Miller, 2022). The solution to these problems was microfluidic sweat sensors, which ensured fine manipulation of the sample and a stable work under natural conditions of everyday life use [8]. Simultaneously, exceptionally integrated watch-based systems shown to be constantly measuring non-invasive glucose in real-life scenarios exhibited continuous operation in sweat analysis of multi-analytes in a more flexible environment than previously supported by electrochemical

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Mr. Qasim Johar (ENG23AS0039), a IV year student from the Department of Aerospace Engineering, has been selected for an internship at the Dassault Systèmes Foundation. This achievement reflects the student's technical competence and the department's emphasis on industry-relevant skills and global opportunities.

Ms. K. Kavya (ENG22CS0076), final year CSE student under the guidance of Dr. Revathi V, Associate Professor, Prof. Nandini K, Assistant Professor, Department of CSE are published a paper in the IEEE during 30th March 2026 entitled “Digital twin model for simulating urban road traffic flows”, which was presented in the 3rd International Conference on Emerging Computation and Information Technologies (ICECIT–2025) Organized by the Siddaganga Institute of Technology, Tumakuru, Karnataka, India.

2025 International Conference on Emerging Computation and Information Technologies (ICECIT)

Digital Twin Model For Simulating Urban Road Traffic Flows

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***Abstract*—Urban traffic congestion is a major issue in smart cities today and it causes longer travel time, more fuel consumption, and pollution in the environment. The current research presents a Digital Twin–based urban traffic simulation framework as a solution to this problem which enables real-time monitoring, analysis, and control of the traffic. The proposed system is based on the SUMO traffic simulator which simulates a four-way signalized intersection and it is integrated with Python through the TraCI interface for establishing real-time bi-directional communication. Parameters such as number of vehicles, average speed and directional flow are being gathered and scrutinized all the time. The adaptive traffic signal control is applied to improve the performance of the intersection depending on real-time congestion situation. The experiments' findings indicate that higher traffic density results in lower vehicle speeds which is a precise depiction of the traffic behavior in the real world. The digital twin excellently reflects the traffic dynamics thus enabling data-driven decision-making and making the traffic flow more efficient. The authors of this paper highlight that the digital twins can be the leading technology for Intelligent Transportation Systems (ITS) and smart city mobility management in the future.**

I. Introduction

The process of urbanization has steadily increased the need for transportation systems that are both effective and efficient and this has resulted in major traffic congestion in cities[1]. The use of traditional traffic management techniques such as fixed-time traffic signals and manual traffic policing is however not sufficient to meet the dynamically changing traffic conditions. This leads to poor signal timing, buildup of longer queues, and consequently, there is an increase in the delays experienced[2].

The rapid growth of digital twin technology has ushered in a new era for the transportation systems of the future. A digital twin refers to a computer-generated mirror image of a physical system that is able to receive data collections in real-time and thus adjusting its behavior accordingly[3]. In the field of traffic management, the use of digital twins means that the constant monitoring, simulation, and optimization of traffic flow can be done without interfering with the operations of the real world[4].

A Digital Twin–aided traffic control system for an urban intersection with four roads is the main subject of this research. The system employs SUMO as a tool for microscopic traffic simulation and Python-based TraCI control to change the traffic signals dynamically according to the real-time congestion levels. By looking at traffic density and vehicle speed, the suggested system shows how digital twins can enhance traffic efficiency and help in the planning of smart city transports[5].

II. Literature Review

Digital Twin (DT) has become a significant innovation for connecting the physical world with its virtual counterpart. A Digital Twin is a live digital version of a real-world system that through continuous data flow mimics its characteristics, operations, and interactions. NASA was the first to put forward the idea but it has since changed into a versatile solution for various industries like manufacturing, healthcare and intelligent transportation systems [1].

Urban systems that are complex can be monitored, simulated and predicted in real- time due to the combination of various technologies, such as the Internet of Things (IoT), Artificial Intelligence (AI), cloud computing, and data analytics that are considered as enablers [6]. Researchers have looked at the possibility of bringing Digital Twins into the transportation infrastructure in the last few years, with the aim of making traffic flow smoother, the whole system being more energy-efficient, and even support- ing smart city planning. Tu et al. have mentioned that the transportation system in the cities can be assessed for energy efficiency in real-time scenario through DT-based models by merging sensor data from the real world and simulation-based predictive models [7].

The study by the authors is about the technological integration where Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA) have been used to measure the performance of road transport infrastructures in different cities

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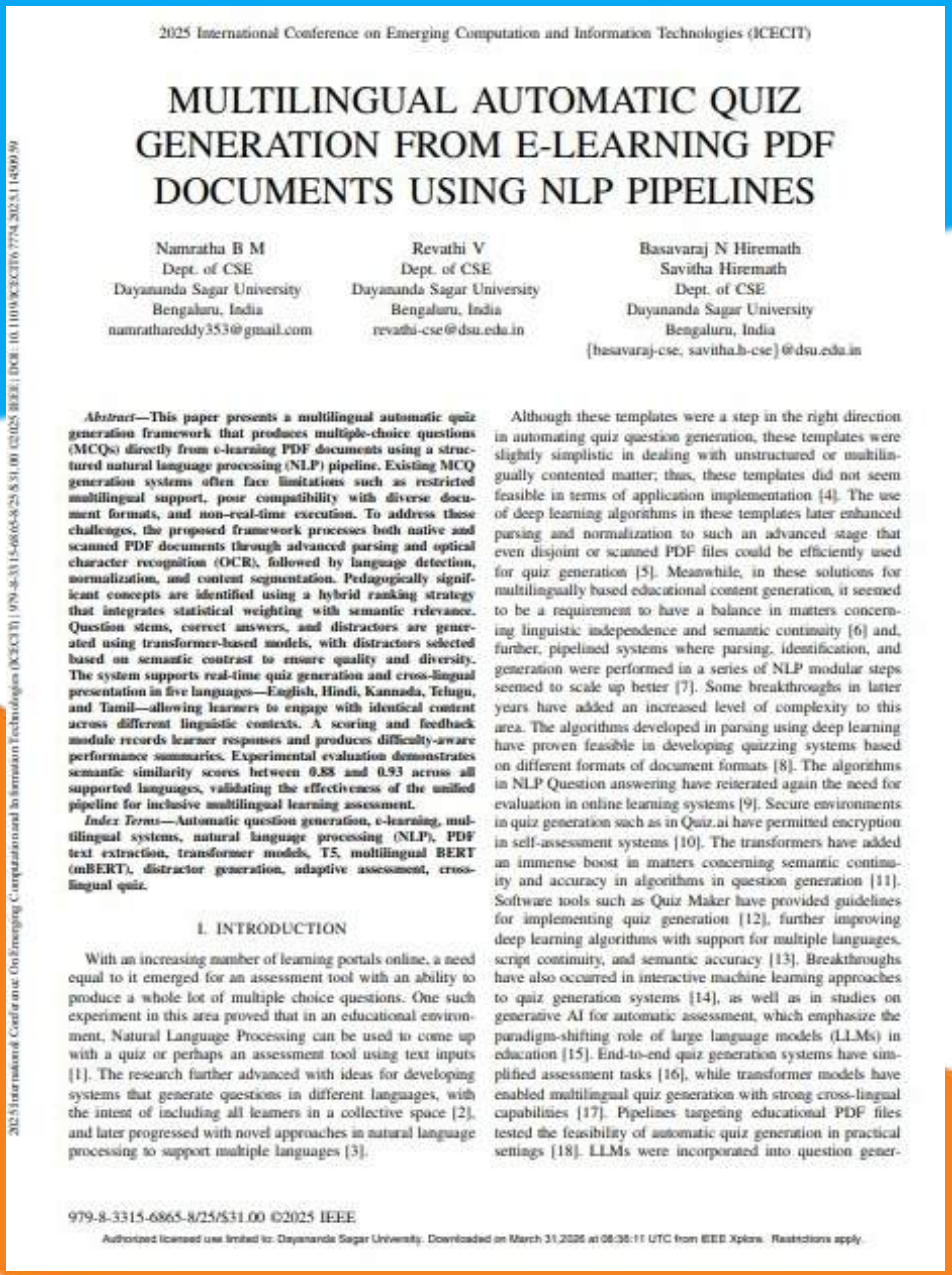
Ms. Namratha B M(ENG22CS0107), final year CSE student, Dr. Revathi V, Dr. Savitha Hiremath, Associate Professors, Dr. Basavaraj N Hiremath, Professor, Department of CSE are published a paper in the IEEE during 30th March 2026 entitled “Multilingual automatic quiz generation from e-learning pdf using NLP pipelines”, which was presented in the 3rd International Conference on Emerging Computation and Information Technologies (ICECIT–2025) Organized by the Siddaganga Institute of Technology, Tumakuru.



2025 International Conference on Emerging Computation and Information Technologies (ICECIT)

MULTILINGUAL AUTOMATIC QUIZ GENERATION FROM E-LEARNING PDF DOCUMENTS USING NLP PIPELINES

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***Abstract*—This paper presents a multilingual automatic quiz generation framework that produces multiple-choice questions (MCQs) directly from e-learning PDF documents using a structured natural language processing (NLP) pipeline. Existing MCQ generation systems often face limitations such as restricted multilingual support, poor compatibility with diverse document formats, and non-real-time execution. To address these challenges, the proposed framework processes both native and scanned PDF documents through advanced parsing and optical character recognition (OCR), followed by language detection, normalization, and content segmentation. Pedagogically significant concepts are identified using a hybrid ranking strategy that integrates statistical weighting with semantic relevance. Question stems, correct answers, and distractors are generated using transformer-based models, with distractors selected based on semantic contrast to ensure quality and diversity. The system supports real-time quiz generation and cross-lingual presentation in five languages—English, Hindi, Kannada, Telugu, and Tamil—allowing learners to engage with identical content across different linguistic contexts. A scoring and feedback module records learner responses and produces difficulty-aware performance summaries. Experimental evaluation demonstrates semantic similarity scores between 0.88 and 0.93 across all supported languages, validating the effectiveness of the unified pipeline for inclusive multilingual learning assessment.**

***Index Terms*—Automatic question generation, e-learning, multilingual systems, natural language processing (NLP), PDF text extraction, transformer models, T5, multilingual BERT (mBERT), distractor generation, adaptive assessment, cross-lingual quiz.**

I. INTRODUCTION

With an increasing number of learning portals online, a need equal to it emerged for an assessment tool with an ability to produce a whole lot of multiple choice questions. One such experiment in this area proved that in an educational environment, Natural Language Processing can be used to come up with a quiz or perhaps an assessment tool using text inputs [1]. The research further advanced with ideas for developing systems that generate questions in different languages, with the intent of including all learners in a collective space [2], and later progressed with novel approaches in natural language processing to support multiple languages [3].

Although these templates were a step in the right direction in automating quiz question generation, these templates were slightly simplistic in dealing with unstructured or multilingually contented matter; thus, these templates did not seem feasible in terms of application implementation [4]. The use of deep learning algorithms in these templates later enhanced parsing and normalization to such an advanced stage that even disjoint or scanned PDF files could be efficiently used for quiz generation [5]. Meanwhile, in these solutions for multilingually based educational content generation, it seemed to be a requirement to have a balance in matters concerning linguistic independence and semantic continuity [6] and, further, pipelined systems where parsing, identification, and generation were performed in a series of NLP modular steps seemed to scale up better [7]. Some breakthroughs in later years have added an increased level of complexity to this area. The algorithms developed in parsing using deep learning have proven feasible in developing quizzing systems based on different formats of document formats [8]. The algorithms in NLP Question answering have reiterated again the need for evaluation in online learning systems [9]. Secure environments in quiz generation such as in Quiz.ai have permitted encryption in self-assessment systems [10]. The transformers have added an immense boost in matters concerning semantic continuity and accuracy in algorithms in question generation [11]. Software tools such as Quiz Maker have provided guidelines for implementing quiz generation [12], further improving deep learning algorithms with support for multiple languages, script continuity, and semantic accuracy [13]. Breakthroughs have also occurred in interactive machine learning approaches to quiz generation systems [14], as well as in studies on generative AI for automatic assessment, which emphasize the paradigm-shifting role of large language models (LLMs) in education [15]. End-to-end quiz generation systems have simplified assessment tasks [16], while transformer models have enabled multilingual quiz generation with strong cross-lingual capabilities [17]. Pipelines targeting educational PDF files tested the feasibility of automatic quiz generation in practical settings [18]. LLMs were incorporated into question gener-

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Ms. Likhitha M(ENG22CS0091), final year CSE student, Dr. Revathi V, Associate Professor, Dr. Girisha G S, Professor, Department of CSE are published a paper in the IEEE during 30th March 2026 entitled “Predictive Modeling for Crop and Fertilizer Selection Based on Soil Characteristics”, which was presented in the 3rd International Conference on Emerging Computation and Information Technologies (ICECIT–2025) Organized by the Siddaganga Institute of Technology, Tumakuru, Karnataka, India.

2025 International Conference on Emerging Computation and Information Technologies (ICECIT)

Predictive Modeling For Crop and Fertilizer Selection Based On Soil Characteristics

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***Abstract*—Inaccurate crop selection and fertilizer recommendation are one of the most important challenges faced in precision farming because bad decisions affect yield and efficient resource utilization. Herein, this work presents a machine learning–driven intelligent crop and fertilizer recommendation system using integrated data analytics into a real-time web-based deployment framework. The presented recommendation system makes use of several soil and environmental parameters, such as N, P, K, temperature, humidity, pH, and rainfall, to decide the best crop for the land and suggest appropriate fertilizers. After preprocessing the features, scaling them using Standard Scaling, and performing stratified train-test splits to maintain class balance, a Random Forest classifier produced an excellent test accuracy of 99.55%, with superb predictive reliability compared to traditional rule-based and manual decision-making approaches. In order to ensure practical usability of the trained model, it was serialized together with a scaler and a label encoder and then integrated into a simple Flask-based web application capable of providing real-time predictions through a user-friendly interface. Experimental results confirm that the proposed system provides an appropriate crop recommendation, effective analysis of nutrient deficiencies in the soil, and actionable fertilizer suggestion with low latency. This study showcases how integrating robust machine learning models with scalable web deployment can result in an efficient and accessible decision-support tool for sustainable and data-driven agricultural practices.**

***Index Terms*—Machine Learning, Predictive Modeling, Soil Analysis, Crop Recommendation, Fertilizer Prediction, Precision Agriculture, Data Analytics, Sustainable Farming, Agricultural Technology.**

I. Introduction

Agriculture has, therefore, started taking an interest in the integration of new data-driven technologies in trying to resolve such issues as those dealing with degradation of the soil, climate variability, and wrong use of fertilizers. Traditional farming is deeply dependent on the experience of the farmer, which most often leads to less-than-optimal selection of crops and misapplication of nutrients. ML presents a scalable alternative by basing decisions on data about soil characteristics and environmental factors, coupled with the learned patterns from the performance of past crops. Recent research has shown that ML-based systems greatly enhance crop and fertilizer recommendations through learning patterns from large agricultural data sets [1]. Applications of ML to crop predictions have grown fast, and most reviews outline the potential for yield forecasting with improved accuracy. Reviews also point to a number of supervised learning approaches that have already been among the best performing in predicting agricultural outcomes relative to traditional statistical models, including Random Forest, Support Vector Machines, and Artificial Neural Networks [2]. Deep learning methods go even further because they capture complex nonlinear interactions among the soil attributes and nutrient compositions, hence allowing very accurate soil nutrient estimation and fertilizer planning [3]. The ML-based models for recommendations on crops are becoming stronger with the consideration of combined factors involving soil parameters such as N, P, K, pH, and organic matter, which indicate suitable crops for specific regions [4], [5]. Systematic reviews have indicated that ML is substantially enhancing the prediction of nutrient levels in the soil and hence building a platform for efficient methods in fertilizer applications [6]. More importantly, integrated ML inference models in mobile-enabled intelligent systems present crop and fertilizer recommendations to farmers in real time [7]. Advancements in Tiny-ML further allow running lightweight crop recommendation models right on the edge devices in remote agricultural fields, hence reducing dependencies on high-power computing infrastructure [8]. Various multi-factor machine learning frameworks have been putting together the soil chemistry with climatic variable inputs and crop requirements. These have shown better accuracies in recommending agricultural inputs [9]. Specific models, like Random Forest, show high performances when tasked to estimate NPK fertilizer requirements from direct soil data [10]. Ensemble stack approaches enhance the nutrient prediction reliability even more on modern precision agriculture platforms [11]. ML-based yield prediction helps in planning resources and agricultural sustainability. Various studies carried out during the last few years over South Asia present the ability of ML models to capture spatiotemporal variabilities in soil and climate characteristics for yield outcome prediction [12]. Comprehensive review studies also affirm the ever-enhancing role of ML and deep learning in yield forecasting, in particular at large-scale agricultural systems [13], [14]. Hybrid models that incorporate ML into process-based crop simulation systems have shown higher performance in comparison with standalone models and allow the derivation of more realistic

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Mr. Veeresh M. Patri (ENG22CS0203), final year CSE student, Dr. Revathi V, Dr. George Fernandez I, Associate Professors, Department of CSE are published a paper in the IEEE during 30th March 2026 entitled “Smart Gesture Interpretation and Speech Synthesis System using AI”, which was presented in the 3rd International Conference on Emerging Computation and Information Technologies (ICECIT–2025) Organized by the Siddaganga Institute of Technology, Tumakuru, Karnataka, India.

2025 International Conference on Emerging Computation and Information Technologies (ICECIT)

Smart Gesture Interpretation and Speech Synthesis System using AI

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***Abstract*—Deaf people and individuals who are Deaf or hard of hearing, unable to speak, rely on sign language to convey messages to others and their communities. Sign languages are complex, previously agreed upon visual manual languages that convey messages using hand actions. Smart Gesture Interpretation and Speech Synthesis system using advanced Artificial Intelligence and Computer Vision technologies to fill communication gaps between the deaf and hard of hearing communities. The system integrates Media Pipe and OpenCV to produce a real time interpretative platform that detects hand movements using a webcam. MediaPipe's sophisticated hand tracking tracks 21 hand landmarks, while OpenCV operates on images with incredible speed and precision. The system includes audio output by Google Text to Speech technology, translating detected sign language or gestures into words and audio directly. This forms an end to end communication bridge between individuals who are hard of hearing and unable to speak. This revolutionary solution empowers individuals.**

***Index Terms*—Google Text to Speech, Computer Vision, MediaPipe, OpenCV, Hand Gesture Detection, Speech Synthesis, Pyttsx3, and Real Time Communication.**

I. Introduction

Social connections are built on human communication, but millions of people who are deaf or have speech or hearing impairments still struggle to express themselves. As the only expressive and highly structured visual manual language that allows abstract thought, affect, and information to be communicated through hand movement, facial expression, and body motion, sign language serves as an essential conduit for sign language communities [1], [2]. Despite being a very linguistically rich medium, most individuals are still unable to use sign language, which leads to a communication gap and, consequently, isolation in workplaces, hospitals, schools, and other everyday situations [3], [4]. Intelligent technologies that can recognize sign language in real time and translate it into spoken or written language are required to close this gap [5], [6]. Conventional options, such as sensor enabled gloves and human interpreters, are either expensive, site specific, or inappropriate for widespread implementation [7], [8]. New opportunities for low cost, gesture detection systems using standard webcams have been made possible by recent advancements in the domains of computer vision and artificial intelligence [9], [10], [11]. The project suggests an AI based Smart Gesture Interpretation and Speech Synthesis System, a real time, end to end framework for speech production, gesture recognition, and sign language interpretation [12], [13]. Recent advances in computer vision and artificial intelligence (AI) have raised hopes for the development of deployable, non intrusive gesture recognition systems using open source platforms [14], [15]. First, it makes advantage of OpenCV's powerful image processing capabilities in conjunction with MediaPipe's incredibly effective hand tracking solution, which detects 21 important hand landmarks [16], [17], [18]. Following the identification of a gesture, it is matched to one of the pre established labels; the resulting text is then converted into speech utilizing [19], [20]. For immediate audio input, use and pyttsx3. Users with speech and hearing impairments can communicate effectively and independently because to the system's integration of gesture detection and speech synthesis.

II. Related Work

In order to improve accessibility for the deaf and hard of hearing, the majority of recent research on sign language interpretation has focused on the combination of deep learning and real time computer vision. For deaf or hard of hearing people to communicate more effectively, sign language recognition is crucial. Because vision based systems are simple to operate and non intrusive, they have grown in popularity. Accurate gesture tracking is made possible by the system's usage of MediaPipe to recognize palms and retrieve 21 hand landmarks. The gestures from these landmark locations are then identified using the K Nearest Neighbours (KNN) classifier from Scikit learn [1].

Video input capture, palm identification, landmark extraction, and text output are all included in the design cycle. The integration layer is Python, and the system is built and run using libraries like TensorFlow and OpenCV. Sign language identifies a system capable of translating American Sign Language (ASL) alphabet into text. Their application reached real time performance and gestures recognition[2] .

A technique for recognising sign language based on OpenCV was used to develop CNN for picture pre processing. Gaussian blur, greyscale conversion, and adaptive thresholding. The tests show that high accuracy and real time performance for sign language recognition may be achieved

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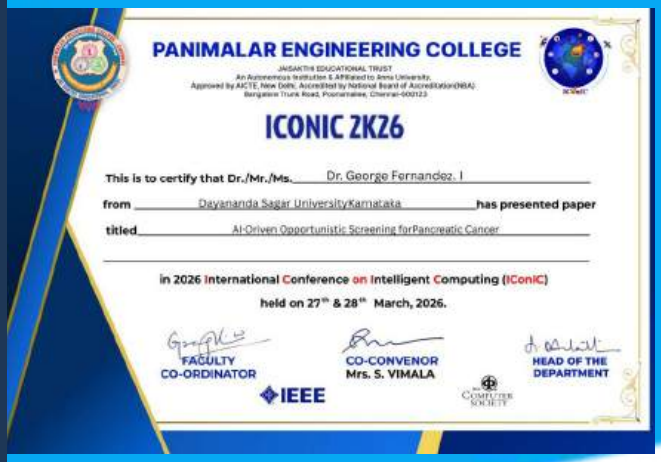
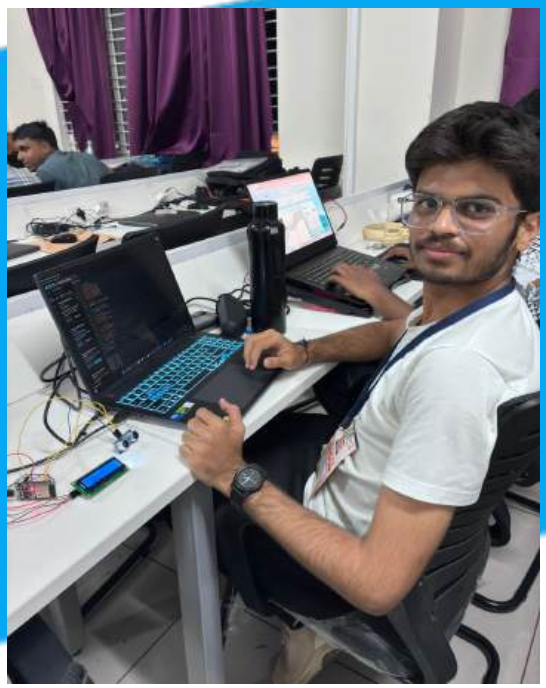
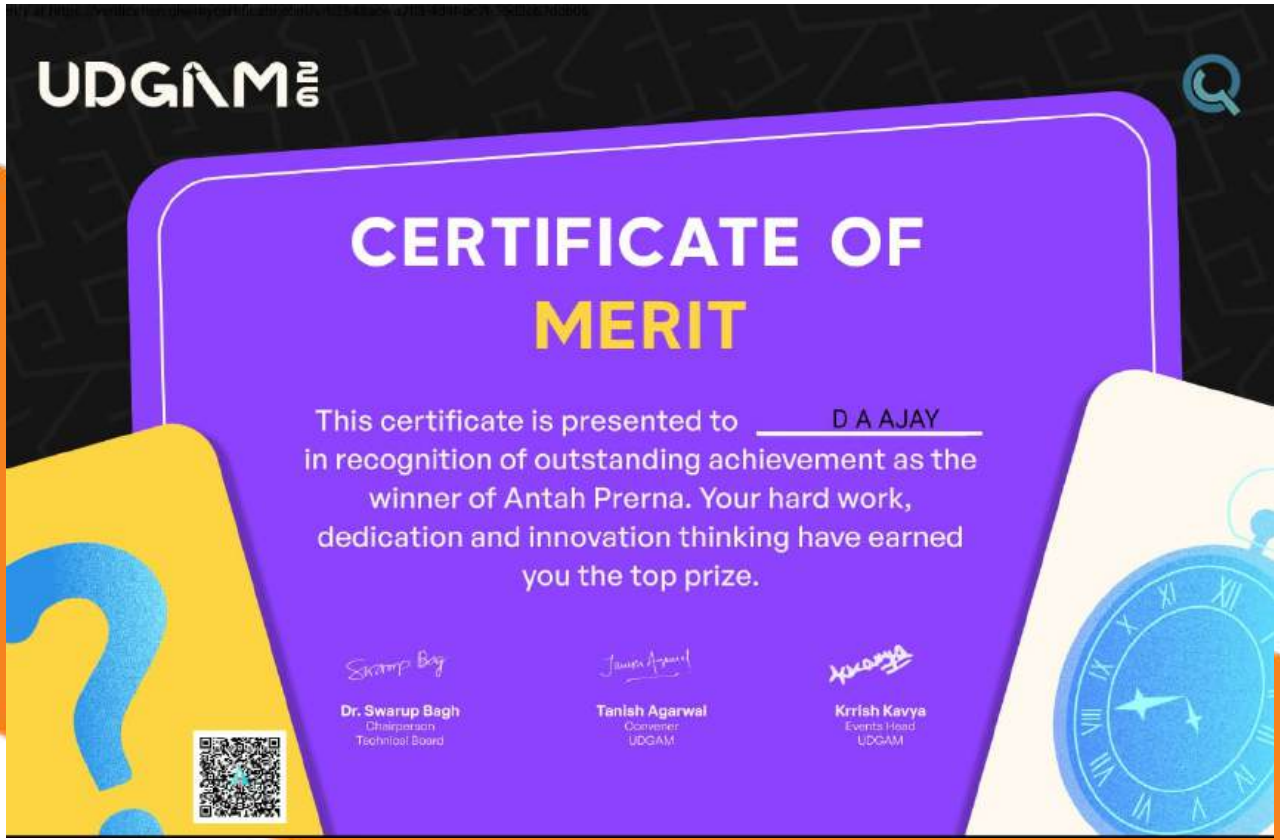


Ms. Esakkiammal (ENG25CSE027), Ms. Shivani Kumari (ENG25CSE058), Ms. Akshitha (ENG25CSE037), Ms. Dhruthi V (ENG25CSE044), 1st year M.Tech students and Dr. George Fernandez I, Associate Professor, Prof. Sumy Joseph, Assistant Professor, Department of CSE presented a paper titled "Interpretable EEG-Based Cognitive PerformanceClassification Using SHAP-Enhanced RandomForest Modeling" at ICONIC 2026 (International Conference On Intelligent Computing) held at Panimalar Engineering College, Chennai on 27th & 28th March 2026.

Mr. Ajay D A (ENG24CS0052), 2nd Year CSE student participated and for secured 3rd Place at ANTAH PRERNA – UDGAM 26, held at IIT Guwahati on 8th April 2026, one of the largest E-Summits in North-East India.





Mr. Pavan Kumar G R (ENG23CS0131), Mr. Omkar S G (ENG23CS0128), Mr. Prajwal Jyotiba Shindhe (ENG23CS0137), Mr. Ahmed Ali Khan (ENG24CS1001), 3rd year CSE students, Prof. Mala B A, Prof. Bharath M B, Assistant Professors, Department of CSE presented a paper titled “Explainable Bias-Aware Risk Stratification for Heart Disease Using Calibrated Machine Learning Models with Uncertainty Quantification and Conformal Prediction” in the International Conference on Recent Advancement in Electrical, Computer and Communication Technologies (IECCT 2026) held at MVJ college of Engineering, Bengaluru.

Mr. Pratham U K(ENG22CS0123), Mr. Goyal Raj (ENG23CS1034), Mr. Mallannagouda(ENG22CS0098), final year CSE Students, Prof. Bharath M B, Prof. Mala B A, Assistant Professors, Department of CSE presented a paper titled “Privacy-Preserving Federated Deep Learning for Real-Time XSS Attack Detection” in the International conference on emerging research in smart electronics and machine informatics (ECMI-2026), held at Adichunchanagiri Institute of Technology, Chikkamagaluru, Karnataka, India during 9th to 10th April 2026.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2025 International Conference on Emerging Technologies in Electronics and Green Energy (ICETEG)

Secure and Auditable Electronic Health Record Management using AES Encryption and Block Chain Verification for Rural Clinics

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***Abstract*— In the age of digital communication, maintaining privacy and integrity of Electronic Health Records (EHRs) is paramount. This paper proposes a secure, lightweight, and verifiable EHR storage architecture based on cryptographic methods and blockchain technology. The architecture enables healthcare data to be encrypted with AES encryption, stored in a SQLite database locally, and be verified by SHA-256 hashes stored in the Ethereum blockchain. A basic Flask web interface allows real-time entry of data. Through comparison of the stored hash with regenerated values, any illegal alteration of encrypted data can be easily identified in real-time. The proposed novel system shows how blockchain can offer auditability and tamper-evidence in EHR without revealing sensitive data. This activity is designed to identify old problems, especially records and strong combinations. In addition to the AES-256 ASST and establishment and chat, we can also lose data and store it from any type. The system has been successful and reduced to availability (~ 170ms) but not display a list of checkers.**

Keywords—Electronic Health Records, Blockchain, AES, SHA-256, Smart Contract

I. Introduction

The records often contain very sensitive personal and medical data including, among other things, diagnoses, medications and prescriptions, labs, insurance data, and contact data. Ensuring the confidentiality, integrity, and availability of such data is paramount, especially with rising incidents of data compromise, cyberattacks, and unauthorized access to sensitive information in healthcare.

This paper presents a complete design, architecture and implementation of the system to demonstrate that block chain can be used not only as a decentralized storage solution, but as a layer of verification to further enhance the trustworthiness and reliability of EHRs.

II. Related Works

The application of blockchain technology in EHR systems has gained growing interest in recent years as a way to improve security, privacy, and interoperability. Various prominent research studies have investigated decentralized architectures, cryptographic protection, and user-oriented access control to overcome the shortcomings of the conventional, centralized EHR systems.

Azaria et al. [1] proposed MedRec, an early blockchain-based EHR system that leveraged the use of Ethereum smart contracts to enforce access control and data integrity. Although MedRec proved the potential of blockchain in the management of medical data, its use of a public Ethereum network created scalability and cost concerns of transactions for practical applications.

Xia et al. [2] suggested a healthcare data gateway based on a permissioned blockchain and a consortium scheme for secure sharing between trusted organizations. Their solution focused on access control and privacy protection but did not provide strong encryption schemes for data storage, rather depending on institutional trust.

Zhang et al. [3] introduced a FHIRChain system, combining Fast Healthcare Interoperability Resources (FHIR) with blockchain to enable safe data sharing. This represented an enhancement in health system interoperability but did not include an end-to-end solution for decentralized storage of records or patient-managed access

Fan et al. [4] investigated a hybrid cloud-blockchain EHR architecture in which off-chain cloud storage holds encrypted data and on-chain blockchain stores metadata. It closely follows our method but did not cover real-world implementation issues like role-based user authentication or secure web application design.

From an encryption perspective, a number of research works have endeavored to integrate symmetric and asymmetric cryptography to offer better data protection. Their work, however, did not integrate with contemporary blockchain identity management platforms

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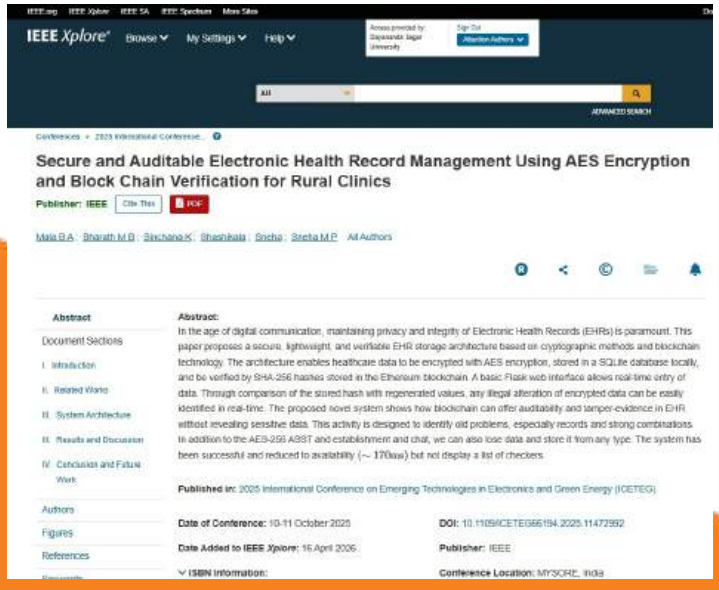

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Secure and Auditable Electronic Health Record Management Using AES Encryption and Block Chain Verification for Rural Clinics

Publisher: IEEE

Mala B A ; Bharath M B ; Sinchana K ; Shashikala ; Sneha ; Sneha M P All Authors

Abstract

Document Sections

I. Introduction
II. Related Works
III. System Architecture
III. Results and Discussion
IV. Conclusion and Future Work

Authors
Figures
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Abstract:
In the age of digital communication, maintaining privacy and integrity of Electronic Health Records (EHRs) is paramount. This paper proposes a secure, lightweight, and verifiable EHR storage architecture based on cryptographic methods and blockchain technology. The architecture enables healthcare data to be encrypted with AES encryption, stored in a SQLite database locally, and be verified by SHA-256 hashes stored in the Ethereum blockchain. A basic Flask web interface allows real-time entry of data. Through comparison of the stored hash with regenerated values, any illegal alteration of encrypted data can be easily identified in real-time. The proposed novel system shows how blockchain can offer auditability and tamper-evidence in EHR without revealing sensitive data. This activity is designed to identify old problems, especially records and strong combinations. In addition to the AES-256 ASST and establishment and chat, we can also lose data and store it from any type. The system has been successful and reduced to availability (~ 170ms) but not display a list of checkers.

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Conference Location: MYSORE, India

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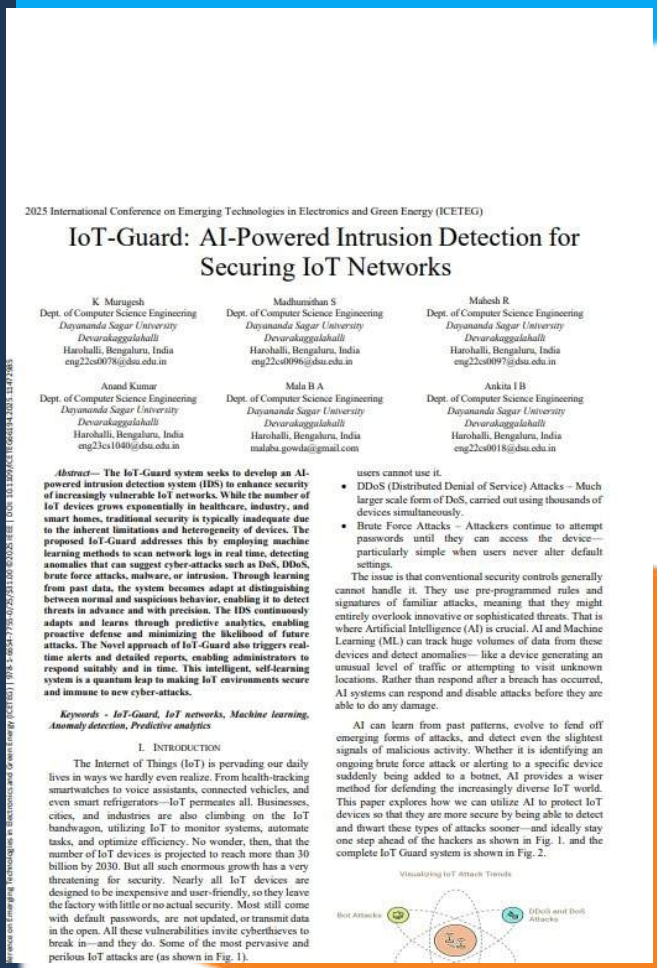

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IoT-Guard: AI-Powered Intrusion Detection for Securing IoT Networks

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***Abstract*— The IoT-Guard system seeks to develop an AI-powered intrusion detection system (IDS) to enhance security of increasingly vulnerable IoT networks. While the number of IoT devices grows exponentially in healthcare, industry, and smart homes, traditional security is typically inadequate due to the inherent limitations and heterogeneity of devices. The proposed IoT-Guard addresses this by employing machine learning methods to scan network logs in real time, detecting anomalies that can suggest cyber-attacks such as DoS, DDoS, brute force attacks, malware, or intrusion. Through learning from past data, the system becomes adapt at distinguishing between normal and suspicious behavior, enabling it to detect threats in advance and with precision. The IDS continuously adapts and learns through predictive analytics, enabling proactive defense and minimizing the likelihood of future attacks. The Novel approach of IoT-Guard also triggers real-time alerts and detailed reports, enabling administrators to respond suitably and in time. This intelligent, self-learning system is a quantum leap to making IoT environments secure and immune to new cyber-attacks.**

Keywords - IoT-Guard, IoT networks, Machine learning, Anomaly detection, Predictive analytics

I. Introduction

The Internet of Things (IoT) is pervading our daily lives in ways we hardly even realize. From health-tracking smartwatches to voice assistants, connected vehicles, and even smart refrigerators—IoT permeates all. Businesses, cities, and industries are also climbing on the IoT bandwagon, utilizing IoT to monitor systems, automate tasks, and optimize efficiency. No wonder, then, that the number of IoT devices is projected to reach more than 30 billion by 2030. But all such enormous growth has a very threatening for security. Nearly all IoT devices are designed to be inexpensive and user-friendly, so they leave the factory with little or no actual security. Most still come with default passwords, are not updated, or transmit data in the open. All these vulnerabilities invite cyberthieves to break in—and they do. Some of the most pervasive and perilous IoT attacks are (as shown in Fig. 1).

- DDoS (Distributed Denial of Service) Attacks – Much larger scale form of DoS, carried out using thousands of devices simultaneously.
- Brute Force Attacks – Attackers continue to attempt passwords until they can access the device—particularly simple when users never alter default settings.

The issue is that conventional security controls generally cannot handle it. They use pre-programmed rules and signatures of familiar attacks, meaning that they might entirely overlook innovative or sophisticated threats. That is where Artificial Intelligence (AI) is crucial. AI and Machine Learning (ML) can track huge volumes of data from these devices and detect anomalies— like a device generating an unusual level of traffic or attempting to visit unknown locations. Rather than respond after a breach has occurred, AI systems can respond and disable attacks before they are able to do any damage.

AI can learn from past patterns, evolve to fend off emerging forms of attacks, and detect even the slightest signals of malicious activity. Whether it is identifying an ongoing brute force attack or alerting to a specific device suddenly being added to a botnet, AI provides a wiser method for defending the increasingly diverse IoT world. This paper explores how we can utilize AI to protect IoT devices so that they are more secure by being able to detect and thwart these types of attacks sooner—and ideally stay one step ahead of the hackers as shown in Fig. 1. and the complete IoT Guard system is shown in Fig. 2.

IoT-Guard: AI-Powered Intrusion Detection for Securing IoT Networks

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Abstract
Document Sections
I. Introduction
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IV. Results
V. Conclusion
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Keywords

Abstract:
The IoT-Guard system seeks to develop an AIpowered intrusion detection system (IDS) to enhance security of increasingly vulnerable IoT networks. While the number of IoT devices grows exponentially in healthcare, industry, and smart homes, traditional security is typically inadequate due to the inherent limitations and heterogeneity of devices. The proposed IoT-Guard addresses this by employing machine learning methods to scan network logs in real time, detecting anomalies that can suggest cyber-attacks such as DoS, DDoS, brute force attacks, malware, or intrusion. Through learning from past data, the system becomes adapt at distinguishing between normal and suspicious behavior, enabling it to detect threats in advance and with precision. The IDS continuously adapts and learns through predictive analytics, enabling proactive defense and minimizing the likelihood of future attacks. The Novel approach of IoT-Guard also triggers realtime alerts and detailed reports, enabling administrators to respond suitably and in time. This intelligent, self-learning system is a quantum leap to making IoT environments secure and immune to new cyber-attacks.

Published in: 2025 International Conference on Emerging Technologies in Electronics and Green Energy (ICETEG)
Date of Conference: 10-11 October 2025
DOI: 10.1109/ICETEG66194.2025.11472965
Date Added to IEEE Xplore: 16 April 2026
Publisher: IEEE

Ms. Linga Reddy Gari Kavyanjali (ENG21CS0205), Mr. K. Amaresh Srujan Gupta (ENG21CS0178), Mr. Jonnavaram Gireesh Reddy (ENG21CS0171), Mr. Markapuram Lokesh Kumar (ENG21CS0225), 2025 passed out batch of CSE Students and Prof. Kavyashree I Pattan, Prof. Nandini K, Assistant Professors, Department of CSE published a research paper in IEEE titled “A Smart Electricity Meter Using IoT for Real-Time Monitoring and Remote Control” during 16th April 2026, which was presented at the ICETEG- 2025 in association with the IEEE Bangalore Section, JSS Science and Technology University, Mysuru, Karnataka.

2025 International Conference on Emerging Technologies in Electronics and Green Energy (ICETEG)

A Smart Electricity Meter Using IoT for Real-Time Monitoring and Remote Control

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***Abstract*—Traditional electricity meters leave consumers with nothing but information on their consumption, giving them extremely little real-time feedback on the usage of energy. Thus, consumers cannot manage electricity utilization effectively, and unscheduled energy utilization and surprise bills are experienced. With growing needs for electricity, there is an urgent requirement for smart energy management systems that are consumer-friendly and utility-friendly as well. In this paper, an IOT based smart electricity meter system design, with a focus on real-time monitoring, enhanced accuracy of bill estimation, and better control over the utilization of energy by the users, has been described. The system has been implemented on an ESP8266 micro controller with a voltage and a current sensor and is web-enabled with a web interface, where electricity statistics of a user can be checked on any device connected to the internet. The most prominent features are real-time units of usage, history of usage, and prediction, which assist the user in identifying which appliance is drawing more electricity. Users can set personal consumption levels and are notified when they reach near these levels in order to utilize energy in the most optimum manner. All these enhancements lead to improved utilization of energy distribution. Remote monitoring and control of energy eliminate the necessity for manual readings of meters and therefore maximize operations and minimize inefficiencies. With the use of data analytic and IOT, such a smart metering solution is a cost-saving, scalable solution for electricity management in the present day. The suggestion is that such a system's operation can instill increased efficiency in household electricity utilization, cut costs, and head towards a greener and smarter grid.**

Keywords—ESP8266 Node Micro-controller Unit, Electronic Communication (IOC-05IOC-06), Cloud Integration, Internet of Things, Mobile App Control

I. Introduction

A fundamental necessity for modern civilization is electricity. As worldwide consumption of energy continues to climb, traditional metering methods are no longer sufficient; they are slow, prone to mistakes, and do not allow consumers to track electricity usage in real time. With the evolution of IoT (Internet of Things) technologies, now it is possible to remotely monitor, control, and optimize energy usage to minimize wastage and reduce bills. Our smart electricity meter combines sensing, communication, and data analysis to provide real-time information and control to consumers.

The goal of this research work is to design a smart electricity meter that tracks parameters like voltage, current, energy usage, and cost. With this setup, users can easily control their devices from anywhere and keep an eye on important information about power usage, all from a simple web dashboard. It runs on budget-friendly parts, such as the ESP8266 Node MCU, some relays, and various sensors, plus it uses handy cloud services like Google Sheets for storing the data. Since the user interface is designed to work on both web and mobile, it is super easy for everyone to use. It offers a variety of payment methods, so users can pay their bills directly through UPI and other options via a secure payment gateway.

The system is designed to provide timely, precise, and actionable energy use statistics. It helps consumers to make smart decisions about how they use energy, promoting energy conservation.

II. Related Work

This section highlights previous research and existing systems related to IoT based energy monitoring, offering context for the proposed approach. G. Deepthiram, etc proposed

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A Smart Electricity Meter Using IoT for Real-Time Monitoring and Remote Control

Publisher: IEEE Cite This PDF

Linga Reddy Gari Kavyanjali ; K. Amaresh Srujan Gupta ; Jonnavaram Gireesh Reddy ; Markapuram Lokesh Kumar ; Kavyashree I Pattan ; Nandini K All Authors

Abstract
Document Sections
I. Introduction
II. Related Work
III. Components and Proposed Methodology
IV. Results and Discussions
V. Conclusions and Future Works
Authors
Figures
References
Keywords

Abstract:
Traditional electricity meters leave consumers with nothing but information on their consumption, giving them extremely little real-time feedback on the usage of energy. Thus, consumers cannot manage electricity utilization effectively, and unscheduled energy utilization and surprise bills are experienced. With growing needs for electricity, there is an urgent requirement for smart energy management systems that are consumer-friendly and utility-friendly as well. In this paper, an IOT based smart electricity meter system design, with a focus on real-time monitoring, enhanced accuracy of bill estimation, and better control over the utilization of energy by the users, has been described. The system has been implemented on an ESP8266 micro controller with a voltage and a current sensor and is webenabled with a web interface, where electricity statistics of a user can be checked on any device connected to the internet. The most prominent features are real-time units of usage, history of usage, and prediction, which assist the user in identifying which appliance is drawing more electricity. Users can set personal consumption levels and are notified when they reach near these levels in order to utilize energy in the most optimum manner. All these enhancements lead to improved utilization of energy distribution. Remote monitoring and control of energy eliminate the necessity for manual readings of meters and therefore maximize operations and minimize inefficiencies. With the use of data analytic and IOT, such a smart metering solution is a costsaving, scalable solution for electricity management in the present day. The suggestion is that such a system's operation can instill increased efficiency in household electricity utilization, cut costs, and head towards a greener and smarter grid.

Published in: 2025 International Conference on Emerging Technologies in Electronics and Green Energy (ICETEG)

Date of Conference: 10-11 October 2025
DOI: 10.1109/ICETEG66194.2025.11472923
Date Added to IEEE Xplore: 16 April 2026
Publisher: IEEE
ISBN Information:
Conference Location: MYSORE, India

Mr. Mohan Kumar A(ENG22CS0106), Mr. K Maruthi(ENG22CS0077), Mr. K Murgesh (ENG22CS0078), Mr. Matin Rehman Nadaf (ENG22CS0108), final year CSE Students, Dr. Girisha G S, Professor, Prof. Mala B A, Assistant Professor, Department of CSE presented a paper titled “CropGuard AI: Multispectral-IoT Fusion Framework for Early Pest and Soil Health Prediction”, at the 9th International Conference on Trends in Electronics and Informatics (ICOEI-2026) held from 21-23,April 2026 at SCAD College of Engineering and Technology, Tirunelveli, Tamil Nadu, India.

Mr. Shashank N (ENG23CS0656), Mr. Roopith K U (ENG23CS0642), Mr.Vishruth Odeyar K (ENG23CS0678), Mr. Chirag C S (ENG23CS0295), 3rd year CSE students, Prof. Bharath M B, Prof. Mala B A, Assistant Professors, Department of CSE presented a paper titled “A Self-Adaptive Edge–Cloud Framework for Continuous Remote Vital Sign Monitoring”, at the 9th International Conference on Trends in Electronics and Informatics (ICOEI-2026) held from 21-23,April 2026 at SCAD College of Engineering and Technology, Tirunelveli, Tamil Nadu, India .

Mr. Yash Soni (ENG24CS0741), 2nd year CSE student successfully completed the Minor in Artificial Intelligence programme from January 2025 – December 2025 at IIT Ropar a rigorous, outcome-driven credit course conducted by the Indian Institute of Technology Ropar in partnership with Masai School and received provisional score card during April 2026.

Indian Institute of Technology Ropar
भारतीय प्रौद्योगिकी संस्थान रोपड़

masai

Minor in Artificial Intelligence, IIT Ropar

Provisional Scorecard

Name: Yash **Batch ID:** IITRPRAI_2501

Student ID: iitrpr_ai_25010204

Semester / Course	Module	Weightage (%)	Score (out of 10)
Semester - 1	Mid Module A	10%	5.40
	End Module A	15%	5.70
	Mid Module B	10%	9.00
	End Module B	15%	8.00
	End Semester 1 Exam	50%	6.25
Semester 1 - Final score			6.62
Semester - 2	Mid Module C	10%	8.70
	End Module C	15%	7.70
	End Module D	15%	6.00
	Module E (Capstone Project)	10%	6.90
	End Semester 2 Exam	50%	3.30
Semester 2 - Final score			5.27

Overall CGPA	**5.94**

This is system-generated report and does not require a signature

Mr. Shivam Saxena, Mr. Supratim Ghosh, Mr. Srijan Bandi, and Mr. Sayan Halder (2nd year CSE students), under the guidance of Dr. Ramesh Sekaran (Professor, Department of CSE), Dayananda Sagar University, presented a research paper titled “A Human-Centred Adaptive Trust Calibration Framework for Autonomous Vehicles Integrating Explainable AI, Behavioural Feedback, and Cybersecurity Resilience.”

The paper was adjudged as the Best Paper at the Third International Conference on Networking and Communications (ICNWC 2026), organized by SRM Institute of Science and Technology, Tamil Nadu, in association with IEEE Madras Section and technical partners from Malaysia.

THIRD INTERNATIONAL CONFERENCE
ON
NETWORKING AND COMMUNICATIONS IN ASSOCIATION WITH IEEE MADRAS SECTION
AND IN TECHNICAL PARTNERSHIP WITH ESFG, UMPSA, MALAYSIA

ICNWC 2026

CERTIFICATE OF PARTICIPATION

This is to certify that

Dr./Mr./Mrs. SHIVAM SAXENA
of Dayananda Sagar University has presented a paper
titled A Human-Centred Adaptive Trust Calibration Framework for Autonomous Vehicles Integrating Explainable AI, Behavioural Feedback, and Cybersecurity Resilience in the "Third International Conference on Networking and Communications (ICNWC 2026) in Association with IEEE Madras Section and in Technical Partnership with ESFG, UMPSA, Malaysia" Organized by Department of Networking and Communications, School of Computing, SRM Institute of Science and Technology, Kattankulathur - 603203, Tamilnadu, India from 07.04.2026 to 08.04.2026.

Dr. M.Thenmozhi, Convenor - ICNWC 2026, Networking and Communications, SRMIST.
Dr. M.Lakshmi, Professor & Head, Networking and Communications, SRMIST.
Dr. M.Pushpalatha, Associate Chairperson, School of Computing, SRMIST.
Dr. Revathi Venkataraman, Chairperson, School of Computing, SRMIST.

THIRD INTERNATIONAL CONFERENCE
ON
NETWORKING AND COMMUNICATIONS IN ASSOCIATION WITH IEEE MADRAS SECTION
AND IN TECHNICAL PARTNERSHIP WITH ESFG, UMPSA, MALAYSIA

ICNWC 2026

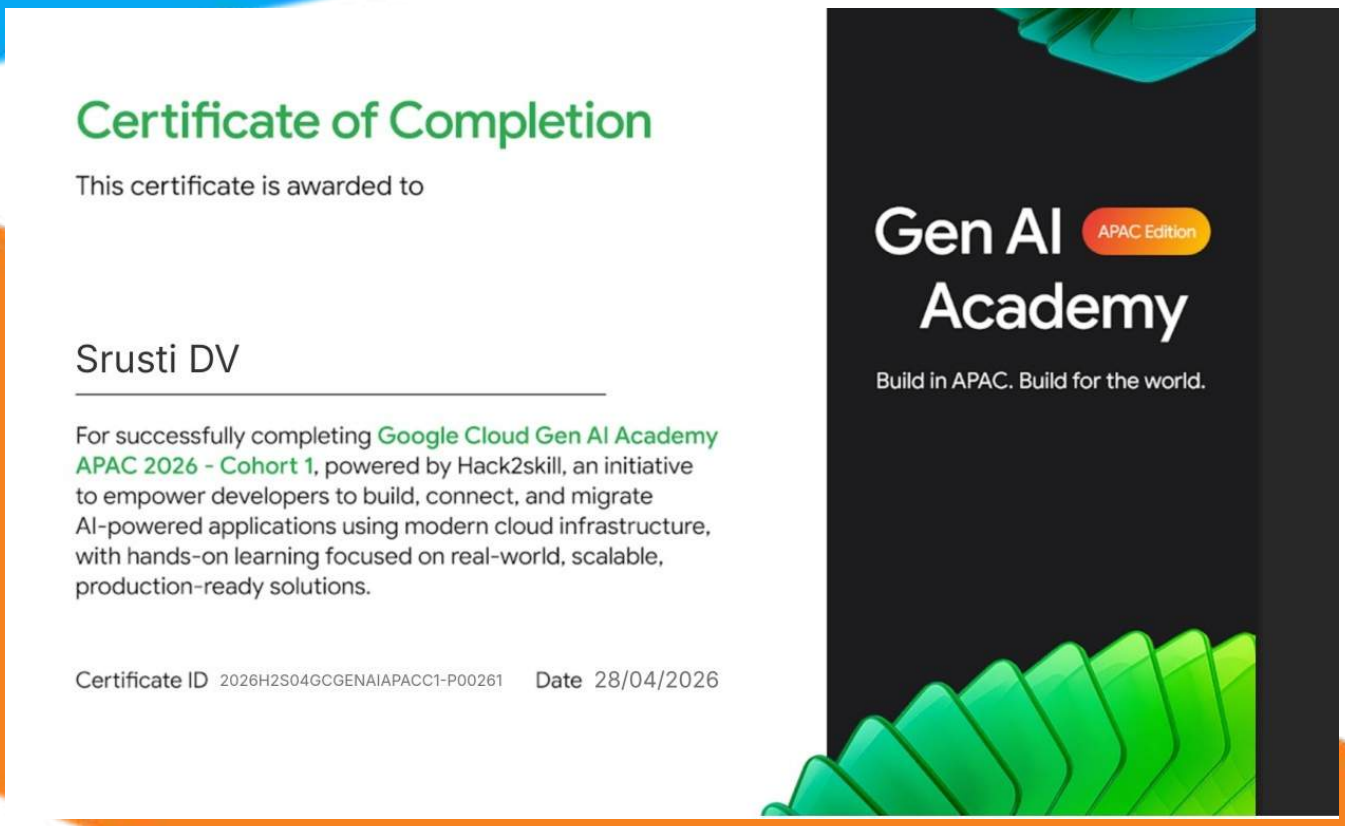
CERTIFICATE OF BEST PAPER

This is to certify that

Dr./Mr./Mrs. SHIVAM SAXENA
of DAYANANDA SAGAR UNIVERSITY has presented a paper
titled A HUMAN-CENTRED ADAPTIVE TRUST CALIBRATION FRAMEWORK FOR AUTONOMOUS VEHICLES INTEGRATING EXPLAINABLE AI, BEHAVIOURAL FEEDBACK, AND CYBERSECURITY RESILIENCE which
has been adjudged as the BEST PAPER in the "Third International Conference on Networking and Communications (ICNWC 2026) in Association with IEEE Madras Section and in Technical Partnership with ESFG, UMPSA, Malaysia" Organized by Department of Networking and Communications, School of Computing, SRM Institute of Science and Technology, Kattankulathur - 603203, Tamilnadu, India from 07.04.2026 to 08.04.2026.

Dr. M.Thenmozhi, Convenor - ICNWC 2026, Networking and Communications, SRMIST.
Dr. M.Lakshmi, Professor & Head, Networking and Communications, SRMIST.
Dr. M.Pushpalatha, Associate Chairperson, School of Computing, SRMIST.
Dr. Revathi Venkataraman, Chairperson, School of Computing, SRMIST.

Ms. Srusti D V (ENG24CS0387), 2nd year CSE student has successfully completed Google Cloud Gen Al Academy APAC 2026 - Cohort 1, powered by Hack2skill, an initiative to empower developers to build, connect, and migrate Al-powered applications using modern cloud infrastructure, with hands-on learning focused on real-world, scalable, production-ready solutions during 28th April 2026.



Certificate of Completion

This certificate is awarded to

Srusti DV

For successfully completing Google Cloud Gen AI Academy APAC 2026 - Cohort 1, powered by Hack2skill, an initiative to empower developers to build, connect, and migrate AI-powered applications using modern cloud infrastructure, with hands-on learning focused on real-world, scalable, production-ready solutions.

Certificate ID 2026H2S04GCGENAIAPACC1-P00261 Date 28/04/2026

Gen AI APAC Edition Academy

Build in APAC. Build for the world.

Mr. Debangshu Mukherji, Mr. John Pulikken, Mr. Justin Jose K., and Mr. Karanam Venkata Sai Goutham (final year CSE students), along with Dr. K. Vengatesan (Professor), Dr. Sivananda Reddy (Associate Professor), and Prof. Muthu Bala N. (Assistant Professor), Department of Computer Science and Engineering, Dayananda Sagar University, have published an Indian patent titled “AI-TUTOR: An Intelligent Personalized Learning Engine Integrating Emotion Recognition and Adaptive Curriculum Sequencing for Children with Autism Spectrum Disorder”.

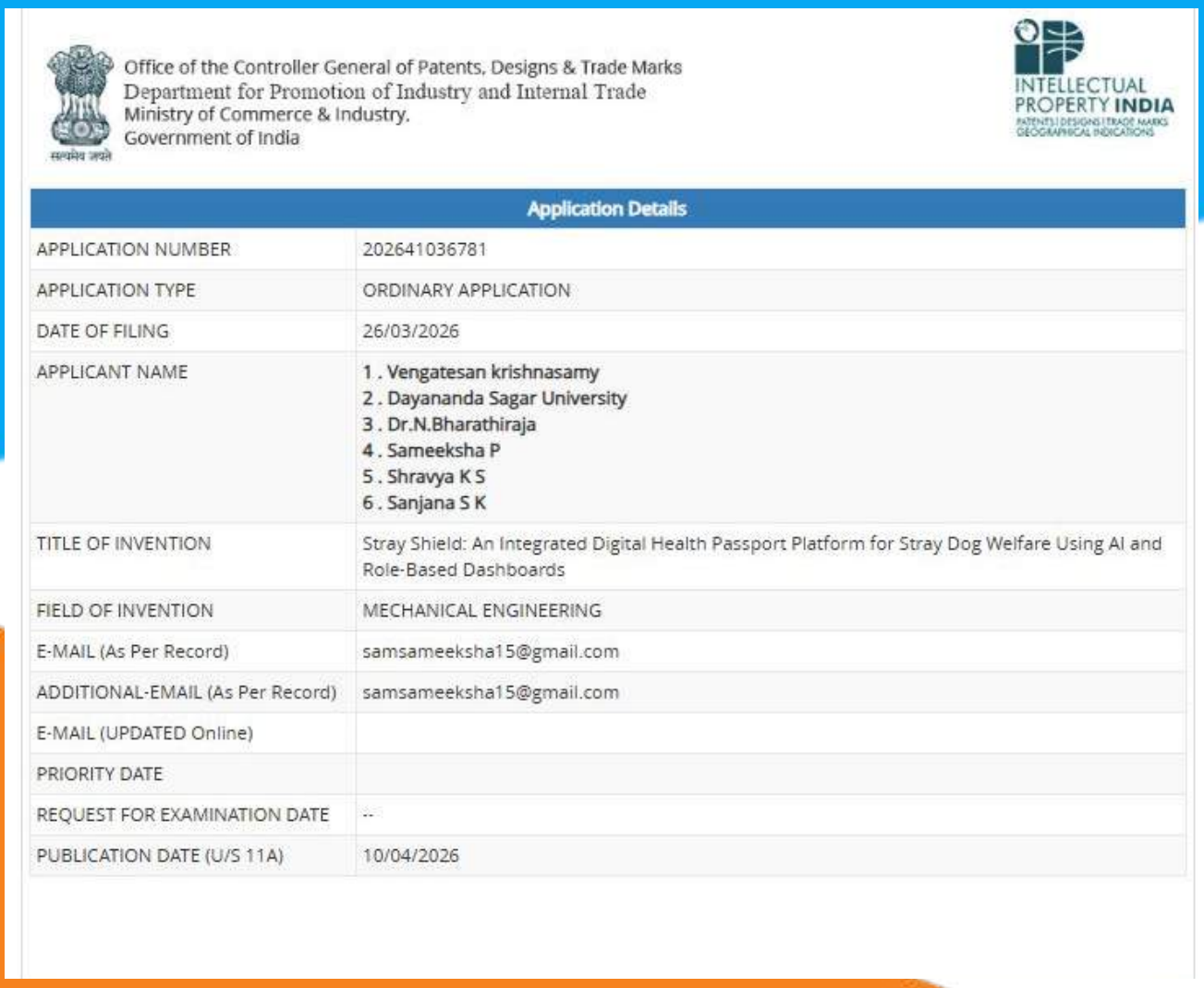
The patent was filed on 24th April 2026 with Application No. 202641045601, highlighting an innovative AI-based solution for personalized learning tailored to children with autism.

Office of the Controller General of Patents, Designs & Trade Marks
Department for Promotion of Industry and Internal Trade
Ministry of Commerce & Industry.
Government of India

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS | GEOGRAPHICAL INDICATIONS

Application Details	
APPLICATION NUMBER	202641045601
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	09/04/2026
APPLICANT NAME	1 . Vengatesan krishnasamy 2 . Dayananda Sagar University 3 . Debangshu Mukherji 4 . John Pulikken 5 . Justin Jose K 6 . Karanam Venkata Sai Goutham 7 . Sivananda Reddy 8 . Muthu Bala N
TITLE OF INVENTION	AI-TUTOR: An Intelligent Personalized Learning Engine Integrating Emotion Recognition and Adaptive Curriculum Sequencing for Children with Autism Spectrum Disorder
FIELD OF INVENTION	PHYSICS
E-MAIL (As Per Record)	vengicse2005@gmail.com
ADDITIONAL-EMAIL (As Per Record)	
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	24/04/2026

Ms. Sameeksha P (ENG22CS0434), Ms. Shravya K S (ENG22CS0440), Ms. Sanjana S K (ENG22CS0455) final year CSE students and Dr. Vengatesan k, Professor, Dr. N Bharathiraja, Associate Professor, Department of CSE published an Indian patent titled “Stray Shield: An Integrated Digital Health Passport Platform for Stray Dog Welfare Using AI and Role-Based Dashboards” with the application No. 202641036781 during 10th April 2026.



Office of the Controller General of Patents, Designs & Trade Marks
Department for Promotion of Industry and Internal Trade
Ministry of Commerce & Industry,
Government of India

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS | GEOGRAPHICAL INDICATIONS

Application Details	
APPLICATION NUMBER	202641036781
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	26/03/2026
APPLICANT NAME	1 . Vengatesan krishnasamy 2 . Dayananda Sagar University 3 . Dr.N.Bharathiraja 4 . Sameeksha P 5 . Shravya K S 6 . Sanjana S K
TITLE OF INVENTION	Stray Shield: An Integrated Digital Health Passport Platform for Stray Dog Welfare Using AI and Role-Based Dashboards
FIELD OF INVENTION	MECHANICAL ENGINEERING
E-MAIL (As Per Record)	samsameeksha15@gmail.com
ADDITIONAL-EMAIL (As Per Record)	samsameeksha15@gmail.com
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	10/04/2026

Mr. Pranay G (ENG22CS0572), Mr. Udaykumar K (ENG22CS0600), Mr. Bhuvan M (ENG22CS0611), Mr. Raghu H(ENG23CS1016), final year CSE students and Dr. Vengatesan k, Dr. J. Sebastian Nixon, Professors, Dr. N Bharathiraja, Associate Professor, Department of CSE published an Indian patent titled “Intelligent Emotional Text Mining for Mental Health Prediction Using Machine Learning ” with the application No. 202641046754 during 12th April 2026.

Office of the Controller General of Patents, Designs & Trade Marks
Department for Promotion of Industry and Internal Trade
Ministry of Commerce & Industry,
Government of India

INTELLECTUAL PROPERTY INDIA

Application Details	
APPLICATION NUMBER	202641046754
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	12/04/2026
APPLICANT NAME	1 . Vengatesan krishnasamy 2 . Dayananda Sagar University 3 . Pranav G 4 . Udaykumar K 5 . Bhuvan M 6 . Raghu H 7 . N. Bharathiraja 8 . J.Sebastian Nixon
TITLE OF INVENTION	Intelligent Emotional Text Mining for Mental Health Prediction Using Machine Learning
FIELD OF INVENTION	BIO-MEDICAL ENGINEERING
E-MAIL (As Per Record)	pranav.kumargp@gmail.com
ADDITIONAL-EMAIL (As Per Record)	
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	24/04/2026

Mr. Anirban Dalui (ENG22CS0525), Mr. Jatin Tiwary (ENG22CS0324), Mr. Ritik Kumar Patra (ENG22CS0416), final year CSE students under the guidance of Dr. Jeeva S, Associate Professor, Department of CSE has presented a paper titled “Decentralized Framework for Transport Carbon Credit Verification Using Blockchain Technology” has been adjudged as the BEST PAPER in the Third International Conference on Networking and Communications (ICNWC 2026) in association with IEEE Madras Section and in technical partnership with ESFG, UMPSA, Malaysia organized by Department of Networking and Communications, School of Computing, SRM Institute of Science and Technology, Kattankulathur - 603203, Tamil Nadu, India from 07.04.2026 to 08.04.2026.

IEEE IEEE MADRAS SECTION esfg energy sustainability focus group
UNIVERSITI MALAYSIA PAHANG AL-SULTAN ABDULLAH
INSTITUTION'S INNOVATION COUNCIL
School of Computing
SRM

THIRD INTERNATIONAL CONFERENCE
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AND IN TECHNICAL PARTNERSHIP WITH ESFG, UMPSA, MALAYSIA

ICNWC 2026

CERTIFICATE OF BEST PAPER

This is to certify that

Dr./Mr./Mrs. Jatin Tiwary, Ritik Kumar Patra, Dr. Jeeva S, Anirban Dalui
of Dayananda Sagar University, Bengaluru, Karnataka has presented a paper titled Decentralized Framework for Transport Carbon Credit Verification using Blockchain Technology which has been adjudged as the BEST PAPER in the "Third International Conference on Networking and Communications (ICNWC 2026) in Association with IEEE Madras Section and in Technical Partnership with ESFG, UMPSA, Malaysia" Organized by Department of Networking and Communications, School of Computing, SRM Institute of Science and Technology, Kattankulathur - 603203, Tamilnadu, India from 07.04.2026 to 08.04.2026.

Dr. M.Thenmozhi
Convenor - ICNWC 2026,
Networking and Communications, SRMIST.

Dr. M.Lakshmi
Professor & Head,
Networking and Communications, SRMIST.

Dr. M.Pushpalatha
Associate Chairperson,
School of Computing, SRMIST.

Dr. Revathi Venkataraman
Chairperson,
School of Computing, SRMIST.

NAAC A++ | Category I with CSR Status | nirf (2025) Ranked 11th University | QS (2026) World Ranking one among 54 Indian Universities | THE (2025) World Ranking one among 31 Indian Universities | SHANGHAI RANKING (2025) World Ranking Ranked 8-9 in Indian Universities | nature INDEX (2025) World Ranking one among 10 Indian Universities | (2024) World Ranking one among 3 Indian Universities

Ms. Moulya B (ENG23CS0371), Ms. Moulika K(ENG23CS0370), Ms. M Sindhu(ENG23CS0355), Ms. Raksha U(ENG23CS0417), 3rd year CSE students and Prof. Bharath M B, Prof. Aishwarya K, Assistant Professors, Department of CSE has successfully presented the paper titled “SeizureSense: An Explainable CNN–LSTM Framework for Patient-Specific Early Seizure Prediction from EEG Time & Frequency Dynamics” at the International Conference on Recent Advancement in Electrical, Computer and Communication Technologies (IECCT 2026) held on 10th and 11th April 2026, organized by the School of Electrical Sciences, MVJ College of Engineering, Bangalore in association with IEEE Bangalore Section.

IEEE Advancing Technology for Humanity

MVJ College of Engineering

IEEE Bangalore Section

International Conference on Recent Advancement in Electrical, Computer and Communication Technologies

IECCT 2026

CERTIFICATE OF PRESENTATION

THIS IS TO CERTIFY THAT

M SINDHU

has successfully presented the paper titled

SeizureSense: An Explainable CNN-LSTM Framework for Patient-Specific Early Seizure Prediction from EEG Time & Frequency Dynamics

authored by

Bharath M B, Moulya B, Moulika K, Aishwarya K, Raksha U

at the International Conference on Recent Advancement in Electrical, Computer and Communication Technologies (IECCT 2026) held on 10th and 11th April 2026, organized by the School of Electrical Sciences, MVJ College of Engineering, Bangalore in association with IEEE Bangalore section.

Conference Chair
Dr. Shima Ramesh Maniyath

Principal
Dr. Ajayan K R

Ms. Trisha V (ENG22CS0599), Mr. K.Dinesh (ENG22CS0345), Ms. Malepati Sampradha Reddy (ENG22CS0559), Ms. Sahana.S (ENG22CS0583), final year CSE students under the guidance of Prof. Vishwas D B, Prof. Bharath M B, Assistant Professors, Department of CSE has presented a paper titled “CognitiveShield-IoT: A Self-Evolving AI-Agent Driven Security Architecture for Adaptive and Resilient IoT Ecosystems” at the 9th International Conference on Trends in Electronics and Informatics (ICOEI-2026) held from 21–23 April 2026 at SCAD College of Engineering and Technology, Tirunelveli, Tamil Nadu, India.

Dudi Gnana Prasoona 8th semester CST, presented paper “Bone Fracture Detection in x rays:a comparative evaluation of YOLOv8 Variants" in 11th International Conference on Information and communication Technology for Intelligent Systems

Karan A Sharma, CST 6th Semester (USN: ENG23CT0007), secured First Runner-Up in Cyberanarchy at Techflix Season 2, Dayananda Sagar University, and won a cash prize of ₹6,000 held on 15/04/2026

Ishaan Sachida Satapathy, 4th Semester (USN: ENG24CT0042), secured First Runner-Up in Celest AI 24hr Hackathon at Dayanand Sagar University, and won a cash prize of ₹15,000 held on April 24-25.

1)Pragathi A B, CST 4th Semester (USN: ENG24CT0015), successfully completed “SkillQuest – Generative AI Literacy” certification from Simplilearn SkillUp

2)Pragathi A B, CST 4th Semester (USN: ENG24CT0015), successfully completed “Introduction to Generative AI Studio” (Google Cloud) via Simplilearn SkillUp.

Dhivya Balakumar 8th Semester, CST, representing Dayananda Sagar University as part of Team dhivyagt01, has earned national recognition by securing the 11th rank in the Pitching Round of the Raccoon AI Innovation Challenge. The prestigious competition was organized by the National Institute of Technology (NIT), Rourkela, and brought together some of the brightest young innovators from across India.

An interdisciplinary student team from the School of Engineering, Dayananda Sagar University comprising Pritam Wani (ENG23AM0262) and Sucheta Rout (ENG23AM0199) from 6th Semester CSE (AI & ML); Dhruva Kumar (ENG24AM0167) from 4th Semester CSE (AI & ML); and Shashi Kumar C (ENG23DS0034), Hansika (ENG23DS0016), Khushi Kumari (ENG24DS0118), Sahanaganga H P (ENG25DS1005), Arighna Chowdhury (ENG23CS0265), Shreyas R (ENG23CS0461), Lekh Rathod (ENG25RA0044), and Akshay M (ENG23DS0051) secured Firat place with a cash prize of Rs. 50,000 in the RoboEdge event during CELESTAI 2026.

The event was organized by the Department of Electronics and Communication in collaboration with the Departments of Aerospace and CSE (Data Science). Team Roxx Power Bots excelled across multiple challenges, including the Obstacle Course, Robo Soccer, and Robo Race. Throughout this journey, the team dedicated nearly 48 hours of continuous effort in the lab designing, testing, overcoming failures, and ultimately achieving success

Jayesh R L (ENG23AM0175), Rajath U (ENG23AM0061), Punya K Bhange (ENG23AM0059), and Prachi Patel (ENG23AM0054), students of 6th Semester CSE (AI & ML), secured the First Prize in CELESTAI 2026 (Edge AI Hackathon), conducted by Dayananda Sagar University. The event witnessed participation from 102 teams, out of which 40 teams were shortlisted for the next round, making this achievement highly commendable. The team was awarded a cash prize of ₹25,000 for securing the top position. Their work focused on collecting real-world data and addressing a real-world problem, demonstrating strong technical skills, innovation, and teamwork. This accomplishment reflects the continuous support and guidance provided by the AIML Department, contributing significantly to their success.

Final-year CSE (AI & ML) students Pooja N P (ENG23AM1002), Rathastha G D (ENG22AM0048), Sahana Priya G (ENG22AM0050), and Nandini (ENG22AM0030) have successfully published a patent titled “Multilingual Retrieval-Augmented Generation for Domain-Specific Indian Case Law Access.” This work was carried out under the guidance of Dr. Sugandha Saxena, Assistant Professor, CSE (AI & ML), and Prof. Nivetha R, Assistant Professor, CSE (AI & ML). The project focuses on developing a multilingual AI-driven system to improve access to Indian case law, enhancing retrieval accuracy while significantly reducing hallucinations in generated responses

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :10/04/2026

(21) Application No.202641045919 A
(43) Publication Date : 24/04/2026

(54) Title of the invention : Multilingual Retrieval-Augmented Generation for Domain-Specific Indian Case Law Access

(51) International classification	:G06F 17/30, G06F 17/27, G06F 40/30, G06F 17/28, G06F 16/33	(71)**Name of Applicant :** **1)Nivetha** Address of Applicant :13, BTR Nagar, 15 Velampalayam, Tamil Nadu India **2)Sugandha Saxena** **3)Pooja NP** **4)Rathastha G D** **5)Sahana Priya G** **6)M Nandini**
(31) Priority Document No	:NA	(72)**Name of Inventor :** **1)Nivetha**
(32) Priority Date	:NA	**2)Sugandha Saxena**
(33) Name of priority country	:NA	**3)Pooja NP**
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(57) Abstract :
The present invention provides a multilingual Retrieval-Augmented Generation (RAG) system and method for domain-specific semantic retrieval and evidence-grounded response generation from Indian case law judgments. The system automatically ingests and chunks large volumes of authentic Indian Supreme Court and High Court judgments, converts them into high-dimensional multilingual embeddings using a sentence-transformer model, and stores them in a FAISS vector database for ultra-fast semantic search. A user can submit a query in any of the six supported Indian languages (English, Hindi, Kannada, Tamil, Telugu, Malayalam) either by text or voice. The system converts the query into a semantic embedding, performs dense vector retrieval followed by domain-specific re-ranking, and feeds only the most relevant judgment passages to a large language model with strict grounding instructions. This architecture ensures that every generated answer is fully supported by actual court judgments, thereby eliminating hallucination while producing concise, natural-language explanations in the same language as the query. An accent-robust voice interface with audio-cleaning pipeline and a responsive web-based front-end further enhance accessibility for lawyers, litigants, law students, and the general public. Experimental results demonstrate top-k retrieval precision exceeding 87.43 % across legal domains with near-zero hallucination, offering a significant improvement over conventional keyword-based legal search engines and general-purpose legal chatbots. The invention thus provides, for the first time, a complete, production-ready, multilingual, voice-enabled, and hallucination-controlled AI platform that makes authentic Indian case law truly understandable and accessible to every citizen.

No. of Pages : 19 No. of Claims : 10

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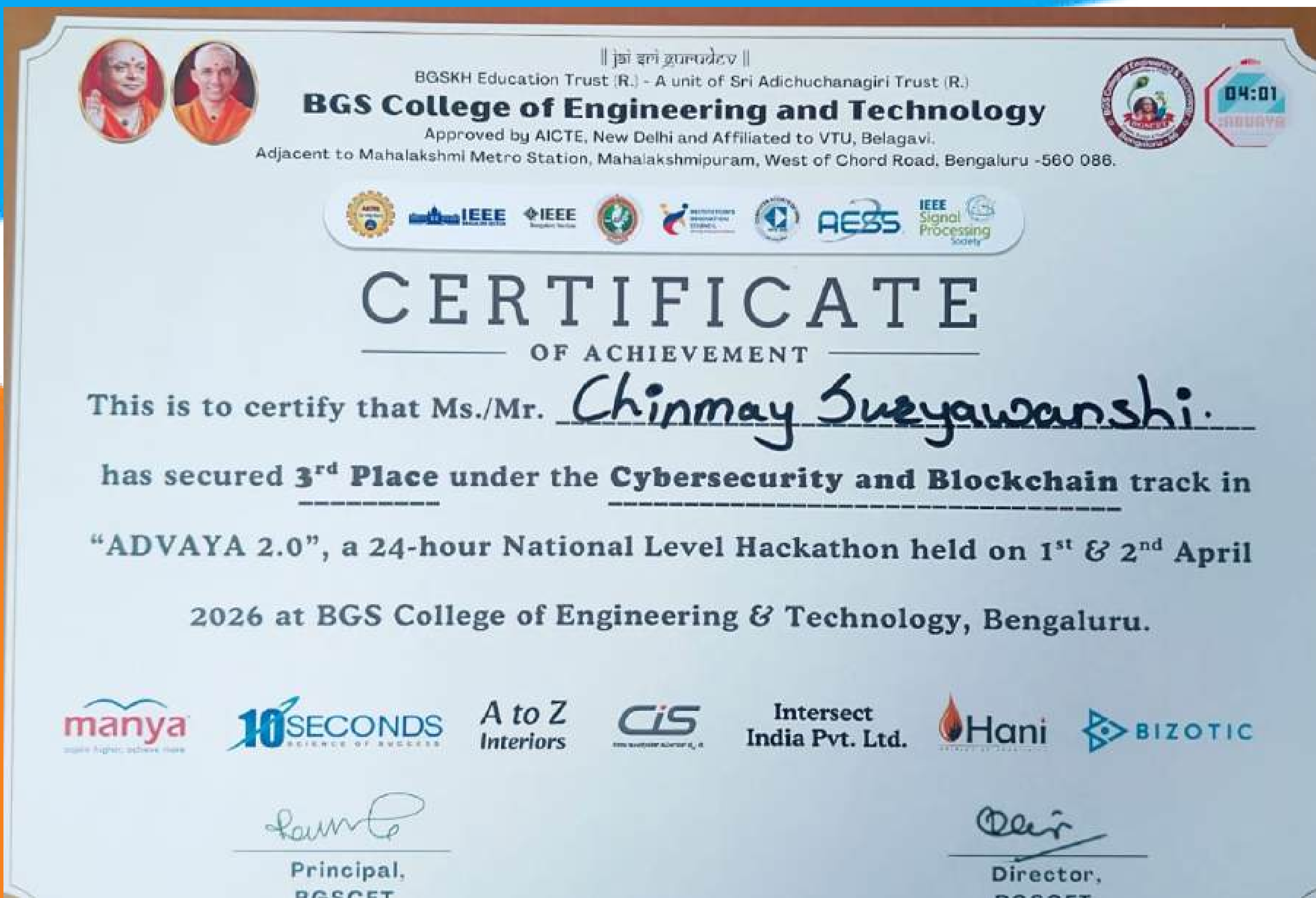
Mr. Shivam Kumar – Microsoft Certification Ms. Vanisha R, Second Year, 4th Semester of CSE (AI & DS), has successfully earned the Microsoft Certified: Azure Data Fundamentals certification. A great achievement showcasing her dedication towards cloud and data technologies!

Ms. Bhoomika K – Microsoft Certification (2) Mr./Ms. Bhoomika K, CSE (AI & DS), has successfully earned the Microsoft Certified: Azure Data Fundamentals certification on 31st March 2026. A proud milestone in the journey of cloud and data learning!

Mr. Chinmay Suryawanshi – Hackathon Achievement Mr. Chinmay Suryawanshi, CSE (AI & DS), secured 3rd Place in the Cybersecurity & Blockchain track at the ADVAYA 2.0 National Level Hackathon. An excellent demonstration of innovation and technical skills!



Mr. Darshan G Valishettar, CSE (AI & DS) has emerged as a Winner of CelestAI for the project titled “Blaze Wing”, securing a cash prize of ₹50,000 for his innovative solution. A proud achievement for the department!

Mr. Krishabh Mahajan – Hackathon Participation Mr. Krishabh Mahajan, CSE (AI & DS), from Team NeuroSync, actively participated in the 24-hour Techflix Season 2 Internal Hackathon. A commendable effort reflecting creativity and problem-solving skills!

Ms. Ruthi Namburi – Microsoft Certification Ms. Ruthi Namburi, CSE (AI & DS), has successfully achieved the Microsoft Certified: Azure Data Fundamentals certification. A strong step towards expertise in cloud computing!

Mr. Ryan Varghese Paul – Microsoft Certification Mr. Ryan Varghese Paul, CSE (AI & DS), has successfully earned the Microsoft Certified: Azure Data Fundamentals certification on April 2, 2026. Keep striving for excellence!

Ms. Sahana Dasharath Yadav – Microsoft Certification Ms. Sahana Dasharath Yadav, CSE (AI & DS), has successfully completed the Microsoft Certified: Azure Data Fundamentals certification. A remarkable achievement in data and cloud technologies!

Mr. Shivam Kumar Mehta – Microsoft Certification Mr. Shivam Kumar Mehta, CSE (AI & DS), has successfully earned the Microsoft Certified: Azure Data Fundamentals certification. A great step towards a strong technical career!

Mr. Tejas G of CSE (AI & DS), presented a research paper titled “Multimodal Transformer-Based Architecture for Early Cancer Detection and Survival Prediction” at the 2026 International Conference on Intelligent Computing (IConIC). A commendable achievement showcasing innovation in AI-driven healthcare solutions!

We extend our sincere gratitude to Dr. Suresh Arumugam, Associate Professor, Department of CSE (Data Science), for his constant encouragement and guidance that motivated students to successfully complete the Microsoft (DP 900) Certified: Azure Data Fundamentals certification.

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This is to certify that Dr./Mr./Ms. TEJAS G
from DAYANANDA SAGAR UNIVERSITY has presented paper
titled MULTIMODAL TRASFORMER - BASED ARCHITECTURE FOR
EARLY CANCER DETECTION AND SURVIVAL PREDICTION
in 2026 International Conference on Intelligent Computing (IConIC)
held on 27th & 28th March, 2026.

FACULTY CO-ORDINATOR
CO-CONVENOR Mrs. S. VIMALA
HEAD OF THE DEPARTMENT

IEEE COMPUTER SOCIETY

Tribute to Prof. Dr. Vijaya Kumar Kambila

It is with deep sorrow that the Department of Physics, School of Engineering, Dayananda Sagar University mourns the untimely demise of Prof. Dr. Vijaya Kumar Kambila on 13 April 2026.

An eminent academician and Chairman of the Department of Physics, he served with distinction for over three decades. His contributions to materials science, particularly in polymer electrolytes, energy storage, and sensor technologies, earned him wide recognition, along with numerous publications, patents, and awards.

A respected leader and compassionate mentor, he inspired countless students and colleagues through his dedication and humility. His passing is an irreparable loss to the academic community.

A condolence meeting was held on 15 April 2026 at the School of Engineering to honor his life and legacy.

We extend our heartfelt condolences to his family and loved ones. May his soul rest in peace.

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