DAYANANDA SAGAR UNIVERSITY

ACCREDITED WITH GRADE A+ NAAC

SCHOOL OF ENGINEERING

SOE - "The Weekly Buzz"

The Official Weekly Newsletter of School of Engineering

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

- Design and deliver contemporary engineering curricula to address regional and global needs while emphasizing ethics, values, integrity and regional relevance.

- 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.

- Develop regional and national leaders to advance the society and economy.

Faculty Contributions

Department Of Aerospace Engineering

Dr. G. K. Suryanarayana, Professor in the Department of Aerospace Engineering, along with collaborators D. B. Singh, Gireesh Yanamashetti, and G. Jagadeesh, has co-authored a significant research study titled "Exploring Dynamic Mode Decomposition Technique for Analyses of Transonic Shock Oscillations on a Typical Launch Vehicle Model." The work involves extensive experimental investigations into the complex behavior of transonic flow over the payload region of a generic launch vehicle. By varying the semi-nose cone angle between 15° and 25°, the team observed large amplifications of pressure fluctuations under specific Mach numbers and angles of attack. Utilizing the Dynamic Mode Decomposition (DMD) technique, the study offers deep insights into pressure sensor data and high-speed shadowgraph images, contributing significantly to flow diagnostics and future prediction models in nonlinear aerodynamics. This research marks an important advancement in understanding shock oscillation phenomena and their implications for launch vehicle stability and performance.

Exploring Dynamic Mode Decomposition Technique for Analyses of Transonic Shock Oscillations on a Typical Launch Vehicle Model

D. B. Singh, Gireesh Yanamashetti, G. K. Suryanarayana, and G. Jagadeesh

Abstract Extensive experimental investigations of transonic flow development over the payload region of a generic launch vehicle model have been carried out. The effect of changing the semi-nose cone angle in the range of 15° to 25° is one of the problems studied. For angles of 20°–25° and certain combinations of Mach number and angle of attack, a large amplification of pressure fluctuations was observed. This paper reports analyses of pressure sensor data and high-speed shadowgraph images based on the dynamic mode decomposition (DMD) technique to better understand the phenomena. This technique holds significance in flow diagnostics and the prospective estimation tools of complex nonlinear flow phenomena.

Keywords Unsteady pressure fluctuations · λ shock system · Launch vehicle buffet · Shock oscillation · DMD

We are delighted to share that Mr. Dheerendra Bahadur Singh, a Ph.D. scholar from the Department of Aerospace Engineering, Indian Institute of Science (IISc), Bangalore, has successfully defended his doctoral thesis titled "Control of Alternating Flow Phenomena in Transonic Shock Wave Boundary Layer Interactions Over Payload Region of a Generic Launch Vehicle Model". The viva voce was held on April 4, 2025. His research, conducted under the guidance of Dr. G. K. Suryanarayanan (Internal Supervisor) and Prof. Gopalan Jagadeesh (External Supervisor), presents significant advancements in the field of high-speed aerodynamics and contributes valuable insights to the design and control of launch vehicles. The department extends heartfelt congratulations to Mr. Singh on this remarkable achievement.

Department Of Computer Science and Engineering

Dr. Senthil Kumar A, Professor, Dr. Gokulakrishnan S, Assistant Professor, Department of CSE presented a paper titled “A Comprehensive Deep Learning Framework for Physical Vehicle Fitness testing and Document Validation” in the Springer Nature 9th International Conference on Information and Communication Technology for Intelligent Systems (ICTIS), Thailand 2025 during 4th to 6th April 2025.

Department Of CSE (Data Science)

We are pleased to announce that three esteemed faculty members from SOE, DSU have successfully completed an AICTE-approved online Faculty Development Program (FDP) organized by SkillDzire in collaboration with SWAYAM Plus, held from 17th March to 31st March 2025. Dr. Santhosh Kumar G (Associate Professor) and Prof. Godhandaraman T (Assistant Professor) completed the FDP on Data Science, while Dr. U. Pavan Kumar (Assistant Professor) completed the FDP on Machine Learning. These programs are designed to enhance teaching competencies and foster innovation in emerging fields of technology. The successful completion of these FDPs reflects the continued commitment of our faculty towards academic excellence and professional growth.

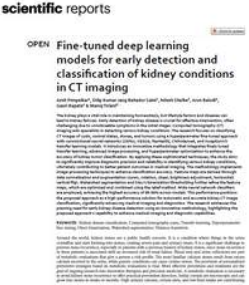


Department Of Humanities

We are proud to share that Ms. Seema Tharannum, faculty member at the School of Engineering, DSU, has successfully completed the NPTEL-AICTE Faculty Development Programme in Soft Skill Development, offered by IIT Madras and funded by the Ministry of Education, Government of India. She earned a consolidated score of 60% in this 8-week course conducted from January to March 2025. As part of the course, Ms. Seema also shared a personal reflection on leadership, highlighting the importance of fostering a culture of support and the role of people skills in navigating social interactions with grace. Her commitment to continuous learning and professional growth contributes greatly to the academic environment at DSU.

Department Of CSE (Cyber Security)

Dr. Dilip Kumar Jang Bahadur Saini, Department of Computer Science and Engineering (CY), has published a significant open-access research article titled “Fine-tuned Deep Learning Models for Early Detection and Classification of Kidney Conditions in CT Imaging.” The article was published on 28th March 2025 in the prestigious journal Scientific Reports (Nature Portfolio), highlighting a pioneering approach to utilizing deep learning for enhancing diagnostic accuracy in kidney-related conditions through CT imaging.



scientific reports

OPEN

Fine-tuned deep learning models for early detection and classification of kidney conditions in CT imaging

Prof. Vinitha V, Department of Computer Science and Engineering (CY), has successfully completed the NPTEL online certification course on Cloud Computing and Distributed Systems, conducted from January to March 2025. She achieved a consolidated score of 48 out of 100, demonstrating a commendable understanding of the core concepts covered in this 8-week program. This accomplishment reflects her commitment to continuous learning and her dedication to staying updated with emerging technologies in the field of computer science.

NPTEL ONLINE CERTIFICATION

Department Of CSE (Artificial Intelligence & Machine Learning)

Dr. Jayavrinda Vrindavanam, Professor and Chairperson, CSE(AIML) Department has published a paper titled " A Review of Block Ciphers and its Post-Quantum Considerations " in IEEE Access (Q1 Journal). The journal is indexed in Web of Science (WoS) and has a high Impact Factor of 3.4. with SCImago Journal & Country Rank (SJR) of Q1. Journal Link :https://ieeexplore.ieee.org/document/10938619

Dr. Shreyas Rajendra Hole, Assistant Professor, Dept. of CSE (AI&ML), has published a conference paper entitled “Design of an Efficient Model for DC–DC Converter Topologies and Grid Integration in Electric Vehicles” Track: Control Applications in Modern Power Systems. EPREC 2024. Lecture Notes in Electrical Engineering, vol 1304. Organized by: NIT Jamshedpur Publisher: Springer, Singapore. Web link: https://doi.org/10.1007/978-981-96-0104-2_20

DOI: 10.1007/978-981-96-0104-2_20


Design of an Efficient Model for DC–DC Converter Topologies and Grid Integration in Electric Vehicles

Dr. Shreyas Rajendra Hole, Assistant Professor, Dept. of CSE (AI&ML), has published a conference paper entitled “AI-Driven Mobile Healthcare: Societal Impact, Workforce Adaptation, and Enhanced Predictive Modeling for Diabetes Risk Assessment” in 2025 International Conference on Pervasive Computational Technologies (ICPCT).
DOI: 10.1109/ICPCT64145.2025.10940740


AI-Driven Mobile Healthcare: Societal Impact, Workforce Adaptation, and Enhanced Predictive Modeling for Diabetes Risk Assessment

February 2025

DOI 10.1109/ICPCT64145.2025.10940740

Conference: 2025 International Conference on Pervasive Computational Technologies (ICPCT)

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Dr. Bahubali Shiragapur from the Department of Computer Science and Engineering, Dayananda Sagar University, Bengaluru, successfully completed a prestigious Faculty Development Programme (FDP) on Quantum Technologies & Applications held from February 28 to March 22, 2025. The FDP, equivalent to a 3-credit course (40 hours), was organized under the Electronics & ICT Academies by leading institutions including MNIT Jaipur, NIT Patna, IIT Roorkee, IIT Guwahati, IIITDM Jabalpur, and NIT Warangal. Endorsed by the Department of Science & Technology (DST), MeitY, AICTE, and UGC, the program aimed to enhance faculty expertise in emerging quantum technologies. Dr. Shiragapur was commended for his sincerity, commitment, and excellent performance throughout the program. This achievement reflects DSU’s continued emphasis on faculty development and cutting-edge research engagement.


Faculty Development Programme on
Quantum Technologies & Applications
February 28 – March 22, 2025
Certificate of Completion

Dr. Mude Nagarjuna Naik and Dr. Shreyas Rajendra Hole, Assistant Professors from the Department of CSE (AI & ML) at Dayananda Sagar University, Bangalore, were honored with certificates of appreciation for their significant contributions as resource persons during a one-day expert talk on “IoT Application”. The session was organized by the Department of Artificial Intelligence & Data Science at Dr. D. Y. Patil Institute of Engineering and Management Research, Akurdi, Pune, on April 5, 2025. Their engaging presentations and expert insights provided valuable knowledge to participants, enhancing the learning experience and fostering interest in the rapidly evolving field of Internet of Things.

Dr. Mubeen Ahmed Khan was honored with a Certificate of Presentation at the 2025 4th OPJU International Technology Conference (OTCON 4.0) for the research titled "Gender Classification Based on Machine Learning Models." Held from 9–11 April 2025 at O. P. Jindal University, Raigarh, India, the conference focused on Smart Computing for Innovation & Advancement in Industry 5.0.

Department Of Electronics and Communication Engineering

We are proud to share that Dr. Arun Ananthanarayana, Associate Professor in the Department of Electronics and Communication Engineering, School of Engineering, Dayananda Sagar University, has co-authored a significant research paper published in the Q2-ranked International Journal of Communication Systems (Wiley). The paper, titled “Advanced Estimation and Feedback of Wireless Channels State Information for 6G Communication via Recurrent Conditional Wasserstein Generative Adversarial Network”, presents a novel deep learning-based model (AEF-WCSI-6G-RCWGAN) that significantly enhances wireless channel estimation in 6G systems.

This research demonstrates a substantial improvement in detection success probability and achieves over a 24% reduction in Mean Square Error (MSE) compared to traditional methods. Addressing vital challenges in next-generation communication systems, the work contributes to improving channel parameter estimation, reducing signal delay, and increasing feedback accuracy. This accomplishment underscores DSU’s continued pursuit of innovation and research excellence. We extend our heartfelt congratulations to Dr. Arun Ananthanarayana on this remarkable achievement.


WILEY

Advanced Estimation and Feedback of Wireless Channels State Information for 6G Communication via Recurrent Conditional Wasserstein Generative Adversarial Network

We are delighted to announce that Dr. Arungalai Vendan S, Professor in the Department of Electronics and Communication Engineering, Dayananda Sagar University, has co-authored a research article titled “Some Studies on Effectiveness of Different Insole Materials in Occupational Shoes on Plantar Pressure Redistribution During Balanced Standing and Normal Straight Gait.” The paper has been published in the Q1-ranked Arabian Journal for Science and Engineering (Springer) under the Mechanical Engineering section on April 2, 2025. This interdisciplinary study explores the biomechanical efficiency of various insole materials in occupational footwear, analyzing their role in redistributing plantar pressure during standing and walking. The research offers valuable contributions to the fields of occupational health, ergonomics, and footwear design. We extend our warmest congratulations to Dr. Arungalai Vendan S for this commendable achievement.

Departmental Activities

Department Of Artificial Intelligence & Robotics

Explores Collaboration with Wefaa Robotics

The Department of Artificial Intelligence and Robotics successfully organized a collaborative interaction with Wefaa Robotics, a prominent Singapore-based robotics company, on March 28, 2025. Facilitated by Skandish, the meeting aimed to explore academic-industry partnerships in the fields of robotics and intelligent systems. Wefaa Robotics showcased their innovative technologies in autonomous systems, humanoid robotics, and AI-driven automation, while also highlighting ongoing collaborations with Indian universities. The session opened avenues for joint research projects, student internships, faculty training, and development of educational tools. The discussion concluded with a shared vision for future collaborations, including innovation labs and industry-focused workshops, strengthening the bridge between academia and industry.

Department Of CSE (Artificial Intelligence & Machine Learning)

"Leveraging the Power of AI with Innovative Applications"

The Department of CSE (AI&ML) hosted an enlightening guest lecture on "Leveraging the Power of AI with Innovative Applications" by Dr. Safak Dogan from Loughborough University London, U.K., on April 4th, 2025. The session commenced with a warm welcome address by chairperson Dr. Jayavrinda Vrindavanam, who set the tone for the event with an inspiring message on the importance of AI in today's world.

Following this, Dr. Mude Nagarjuna Naik, Assistant Professor introduced the guest speaker, highlighting Dr. Dogan's academic journey, research expertise, and impactful contributions in the field of Artificial Intelligence and Human Body Communication. In his talk, Dr. Dogan explored the dynamic potential of AI across various industries, focusing on novel, real-world applications, and interdisciplinary approaches. The lecture provided valuable insights into emerging AI-driven technologies and how they are shaping future innovations.

Student Activities

Ms. Shambhavi Hegde (ENG21CS0371), Ms. K Vaishnavi (ENG21CS0173) and Ms. H S Sinchana (ENG21CS0143) 8th semester Students, Department of CSE presented a paper titled “Smart Wardrobe: AR Driven Virtual Try - on”, under the guidance of Dr. George Fernandez I, Associate Professor, Department of CSE in the 5th International Conference on Internet of Things -ICIoT 2025, held at SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu, during 2nd to 4th April 2025.

Ms. Kalvapalli Keerthi (ENG21CS0176), Ms. Harshitha S (ENG21CS0155), Ms. Madineni Likitha (ENG21CS0212) and Mr. V Bharath Reddy (ENG22CS1042) 8th semester Students, Department of CSE presented a paper titled “Smart Monitoring of Human and Animal Detection using yolo”, under the guidance of Dr. George Fernandez I, Associate Professor, Department of CSE in the 5th International Conference on Internet of Things -ICIoT 2025, held at SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu, during 2nd to 4th April 2025.

We are thrilled to announce that the Entrepreneurship Cell (E-Cell) of Dayananda Sagar University has achieved a remarkable milestone. Our student startup team "Heat & Eat" represented DSU at the College Youth Ideathon Grand Finale, held on April 6, 2025, at IIT Delhi. Comprising first-year students Pratham Kolhar (ENG24DS0039), D A Ajay (ENG24CS0052), and Nithin Katariya V (ENG24CS0151), the team stood out among 50,000+ entries from across the country, securing a place in the top 10 startups and winning a cash prize of ₹1,00,000. The event was organized by Think Startup in collaboration with the Management Entrepreneurship Professional Skills Council (MEPSC), showcasing young entrepreneurial talent from across India. A proud moment for E-Cell and the entire DSU community!




We are delighted to announce that Ms. Sneha Pathra, a CSE (AIML) student from the School of Engineering (SOE), Dayananda Sagar University (DSU), has secured 1st place in the Solo Dance competition at Samskruthi 2025. This intercollegiate Management and Cultural Fest was organized by BMS College of Commerce & Management and BMS Evening College of Arts & Commerce on the 4th, 5th, and 6th of April 2025. Competing against participants from various institutions, Sneha's graceful and captivating performance stood out, earning her the top spot. Heartfelt congratulations to Sneha for her talent, hard work and for making SOE-DSU proud!

SCHOOL OF ENGINEERING

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