DAYANANDA SAGAR UNIVERSITY

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SCHOOL OF ENGINEERING

SOE - "The Weekly Buzz"

The Official Weekly Newsletter of School of Engineering

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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

- 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

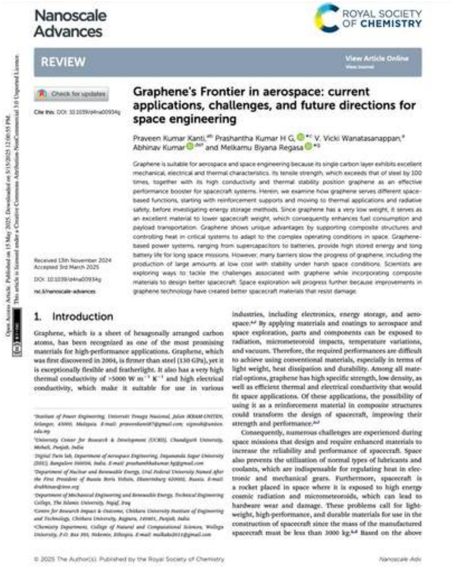
Dr. G. K. Suryanarayana, Professor, Department of Aerospace Engineering, SOE-DSU, has been appointed as a member of the Editorial Board for the journal Aerospace and Aeronautical Engineering, a peer-reviewed open-access publication by Hill Publishing Group Inc., USA. The appointment, effective from 16th May 2025, is initially for a period of one year and may be extended based on mutual agreement. In this role, Dr. Suryanarayana will contribute to the journal's peer-review process, support quality control, recommend referees, and encourage scholarly submissions in the field of aerospace and aeronautical sciences. This recognition reflects his academic expertise and commitment to promoting high-quality research. It also signifies Dayananda Sagar University's growing involvement in global academic and research communities.

HILL PUBLISHING

Aerospace and Aeronautical Engineering

Dr. Prashantha Kumar H. G., Assistant Professor, Department of Aerospace Engineering, School of Engineering, Dayananda Sagar University, has co-authored a notable research article titled “Graphene's Frontier in Aerospace: Current Applications, Challenges, and Future Directions for Space Engineering.” This paper has been published in Nanoscale Advances, a Q1-ranked journal (Impact Factor: 5.6) by the Royal Society of Chemistry.

The publication is the result of an international collaboration involving researchers from Universiti Tenaga Nasional (Malaysia), Ural Federal University (Russia), Amity University, and Dayananda Sagar University (India). The research explores the emerging role of graphene in aerospace applications such as spacecraft structures, thermal shielding, and radiation-hardened electronics. It presents graphene as a transformative material for next-generation space systems due to its exceptional strength, thermal stability, and lightweight properties.



Nanoscale Advances

ROYAL SOCIETY OF CHEMISTRY

REVIEW

View Article Online
View Journal

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Graphene's Frontier in aerospace: current applications, challenges, and future directions for space engineering

Praveen Kumar Kanti,[ab] Prashantha Kumar H G,[*c] V. Vicki Wanatasanappan,[a] Abhinav Kumar[def] and Melkamu Biyana Regasa[*g]

Graphene is suitable for aerospace and space engineering because its single carbon layer exhibits excellent mechanical, electrical and thermal characteristics. Its tensile strength, which exceeds that of steel by 100 times, together with its high conductivity and thermal stability position graphene as an effective performance booster for spacecraft systems. Herein, we examine how graphene serves different space-based functions, starting with reinforcement supports and moving to thermal applications and radiative safety, before investigating energy storage methods. Since graphene has a very low weight, it serves as an excellent material to lower spacecraft weight, which consequently enhances fuel consumption and payload transportation. Graphene shows unique advantages by supporting composite structures and controlling heat in critical systems to adapt to the complex operating conditions in space. Graphene-based power systems, ranging from supercapacitors to batteries, provide high stored energy and long battery life for long space missions. However, many barriers slow the progress of graphene, including the production of large amounts at low cost with stability under harsh space conditions. Scientists are exploring ways to tackle the challenges associated with graphene while incorporating composite materials to design better spacecraft. Space exploration will progress further because improvements in graphene technology have created better spacecraft materials that resist damage.

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rsc.li/nanoscale-advances

1. Introduction

Graphene, which is a sheet of hexagonally arranged carbon atoms, has been recognized as one of the most promising materials for high-performance applications. Graphene, which was first discovered in 2004, is firmer than steel (130 GPa), yet it is exceptionally flexible and featherlight. It also has a very high thermal conductivity of >5000 W m^{-1} K^{-1} and high electrical conductivity, which make it suitable for use in various industries, including electronics, energy storage, and aerospace.[1-4] By applying materials and coatings to aerospace and space exploration, parts and components can be exposed to radiation, micrometeoroid impacts, temperature variations, and vacuum. Therefore, the required performances are difficult to achieve using conventional materials, especially in terms of light weight, heat dissipation and durability. Among all material options, graphene has high specific strength, low density, as well as efficient thermal and electrical conductivity that would fit space applications. Of these applications, the possibility of using it as a reinforcement material in composite structures could transform the design of spacecraft, improving their strength and performance.[5-7]

Consequently, numerous challenges are experienced during space missions that design and require enhanced materials to increase the reliability and performance of spacecraft. Space also prevents the utilization of normal types of lubricants and coolants, which are indispensable for regulating heat in electronic and mechanical gears. Furthermore, spacecraft is a rocket placed in space where it is exposed to high energy cosmic radiation and micrometeoroids, which can lead to hardware wear and damage. These problems call for lightweight, high-performance, and durable materials for use in the construction of spacecraft since the mass of the manufactured spacecraft must be less than 3000 kg.[8-9] Based on the above

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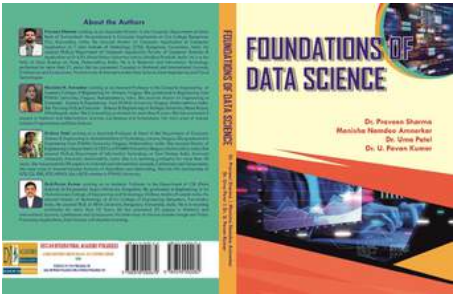
Department Of CSE (Data Science)

Dr. U. Pavan Kumar has published a book entitled “Foundations of Data Science” of DECCAN INTERNATIONAL ACADEMIC PUBLISHERS Registered Under MSME Government of India with ISBN: 978-93-49092-08-2.

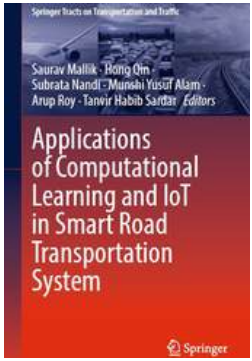


Department Of Computer Science and Technology

Dr. M. Shahina Parveen, Professor & Chairperson participated in a brainstorming and collaboration session on quantum technologies at the Quantum Technologies Innovation Labs, in association with Prof. P.C. Deshmukh and Qupiai Pvt. Ltd.

Department Of Computer Science and Engineering

Dr. Tanvir Habib Sardar, Associate Professor, Department of CSE Published a book titled “Applications of Computational Learning and IoT in Smart Road Transportation System” during May 2025 with publisher “Springer Publications”.



Dr. Tanvir Habib Sardar, Associate Professor, Department of CSE Published 3 ELSEVIER Conference Papers with titles “Integrating Blockchain and Quantum Key Exchange with Deep Learning for Enhanced Medical Data”, “Harnessing Deep Learning and Time Series Models for Accurate Global Solar Radiation Prediction” and “Enhancing Security in MANETs with Deep Learning-Based Intrusion Detection” during 14th May 2025, which was presented in the Sixth International Conference on Futuristic Trends in Networks and Computing Technologies (FTNCT06) held in Graphic Era Hill University, Haldwani Campus, India.

Dr. Girisha G S, Professor, Department of CSE has successfully presented the research papers with the titles “Object Recognition and Tracking System for Visually Impaired people”, “Face Revive: GAN-Based Restoration for Enhancing Facing Imagery” and “Interactive Autism Support System” in the 16th International Conference on Recent Engineering and Technology held on 16th to 17th May 2025 at East West College of Engineering, Bengaluru, India.

Dr. Bipin Kumar Rai, Professor, Department CSE contributed as reviewer in the 3rd IEEE International Conference on Computer, Electronics and Electrical Engineering and their Applications (IC2E3-2025), held from 15th - 16th May, 2025 at National Institute of Technology Uttarakhand, India.

The Department of Computer Science and Engineering actively participated in a Faculty Development Programme (FDP) on “Generative AI and Future Computing” held from May 12–17, 2025 at the School of Advanced Studies, S-VYASA Deemed-to-be-University, Bengaluru. As part of the FDP, Dr. Poongodi and Dr. Natarajan Venkateswaran, Professors from SOE, DSU, delivered expert talks. On Day 1, Dr. Poongodi presented an overview of NLP, sequential data modeling (RNNs, LSTM, GRU), and its applications. On Day 2, she conducted hands-on sessions using Python, NLTK, SpaCy, and introduced Transformers, Generative AI models, and LLMs. On Day 3, Dr. Natarajan Venkateswaran covered topics on GenAI Agents, Agentic AI, and Prompt Engineering with practical sessions. The sessions offered valuable technical insights and hands-on experience, contributing significantly to faculty skill enhancement in emerging AI technologies.


Certificate of Appreciation


Certificate of Appreciation


Certificate of Appreciation

Department Of CSE (AIML)

Dr. Jayavrinda Vrindavanm, Professor & chairperson, Department of CSE (AI&ML) has received the certificate for being distinguished speaker at the INTERDISPILINARY SYMPOSIUM: Al in Neuroscience, held on 15th May 2025, organized in collaboration with CDSIMER, Dean School of Engineering, and NIMHANS.

Dr. Shreyas Rajendra Hole, Assistant Professor, Dept. of CSE (AIML), SOE – DSU, Bengaluru, was honored at the 5th International Conference on Intelligent Systems and Machine Learning (ICISML - 2025), held at NIT Meghalaya on May 16–17, 2025. He received two Certificates of Appreciation for his outstanding contributions as, Session Chair, delivering an impactful keynote address ; Workshop Chair, supporting key aspects of the technical sessions. These recognitions reflect Dr. Hole's dedication to academic leadership and excellence in the field of intelligent systems and machine learning.

Department Of Electronics and Communication Engineering

Dr. Navya R, Assistant Professor, Department of Electronics and Communication Engineering, School of Engineering, Dayananda Sagar University, has been recognized by Springer Nature for her contribution as a peer reviewer. She was awarded a Reviewer Certificate for reviewing a manuscript for the reputed journal Nanotechnology for Environmental Engineering in 2025. This recognition highlights her academic involvement and subject matter expertise, reaffirming the institution's commitment to encouraging faculty participation in global research and review processes.

Dr. Vinu R, Associate Professor, Department of Electronics and Communication Engineering, Dayananda Sagar University, has co-authored a research paper titled “Image Processing for Detecting Melanoma Skin Cancer Using an Optimized Rotation-Invariant Coordinate Convolutional Neural Network.” The paper has been published in the Journal of Mechanics in Medicine and Biology, a Q4-ranked journal known for bridging engineering and medical sciences. The study introduces a novel deep learning model designed to improve the accuracy of melanoma detection, contributing valuable advancements in AI-driven medical imaging.

Departmental Activities

Department Of Aerospace Engineering

Students from the Department of Aerospace Engineering at Dayananda Sagar University actively participated in the physical workshop titled “Digital Twin for Model Rocketry & CANSAT”, held from 13th to 16th May 2025 at Dassault Systèmes, Pramuk Office, Bengaluru. The workshop, organized in collaboration with IN-SPACe (ISRO), provided participants with practical exposure to advanced aerospace design and simulation techniques.

Raghav(ENG21AS0016), Yashas (ENG21AS0051), Amshu (ENG21AS0008), Qasim(ENG22AS0039),Rahul(ENG22AS0027),Barath(ENG22AS0025),Krish(ENG22AS0030)Jaiman(ENG22AS0024),Srilaxmi(ENG22AS0040),Kyathi(ENG22AS0030),Pramath(ENG22EC0091). The workshop covered key areas such as 3D modeling of rockets and CANSATs, aerodynamic and structural simulations, and antenna placement techniques. These sessions aimed to strengthen student capabilities in digital prototyping and simulation aligned with real-world aerospace challenges.Faculty members Dr. Prasanthakumar H.G. and Prof. Sripad Kulkarni S. also took part in the event, reinforcing the department’s commitment to active industry-academia collaboration and fostering innovation in aerospace technology.

Department Of Computer Science and Engineering

An interdisciplinary symposium titled "AI in Neuroscience" was successfully conducted on 15th May 2025 at Dayananda Sagar University, jointly organized by the Department of Computer Science, School of Engineering (SoE) and CDSIMER. The event brought together over 200 participants, including faculty members, researchers, and students from both engineering and medical disciplines. Among them were approximately 50 medical students, with the remaining attendees representing the engineering stream.

The symposium served as a dynamic platform for exploring the transformative applications of Artificial Intelligence in neurophysiological research, neurosurgery, and neuropsychiatric disorders. Distinguished guests graced the event, with Dr. T.N. Sathyaprabha, Associate Dean and Professor at NIMHANS, delivering the keynote as Chief Guest. She emphasized the necessity of fostering collaborative research between the fields of medicine and engineering. Dr. A.C. Ashok, Director of CDSIMER and Guest of Honor, reinforced the importance of interdisciplinary partnerships in addressing complex healthcare challenges.

The event witnessed enriching discussions and knowledge-sharing sessions that highlighted the growing relevance of AI in advancing neurological sciences. The symposium was coordinated by Prof. Arjun Krishnamurthy and Dr. Renuka Devi, whose efforts were instrumental in bringing together diverse perspectives from both fields.

Department Of Electronics and Communication Engineering

The Department of Electronics and Communication Engineering, in collaboration with the ELECTROBLITZ Club, organized an enriching industrial visit to the U R Rao Satellite Centre (URSC), ISRO, Bengaluru, on 15th May 2025. The visit aimed to provide students with real-world exposure to India's cutting-edge advancements in satellite technology and space exploration. A total of 40 students, accompanied by Dr. Divyashree H.B., Assistant Professor and Convener of the club, participated in this educational experience.

The visit offered students a unique opportunity to explore ISRO's major facilities and engage in interactive sessions with scientists and engineers. The team was introduced to the history, objectives, and landmark missions of ISRO, including Chandrayaan, Mangalyaan, and the upcoming Gaganyaan mission. Highlights included a detailed briefing on ISRO's launch pads at the Satish Dhawan Space Centre (SDSC), the significance of cryogenic propulsion systems, and the roles of various satellite series such as INSAT, IRS, and GSAT.

A special session was dedicated to Chandrayaan-3, showcasing a documentary followed by a Q&A session with ISRO scientists. Students gained insights into the spacecraft's modules—Vikram Lander and Pragyan Rover—and the successful soft landing on the Moon's south pole. Technical discussions covered satellite communication, remote sensing, and the use of AI and robotics in space missions.

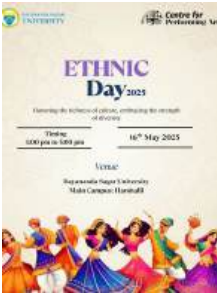
The visit concluded with students expressing immense appreciation for the learning experience, which bridged classroom knowledge with practical innovation. This initiative reflects the department's commitment to providing holistic education through industry-academic interaction and encouraging students to explore future possibilities in aerospace and satellite technology.

Department Of Artificial Intelligence & Robotics

Students of 4th Semester Artificial Intelligence & Robotics, Dayananda Sagar University, visited Moog India Technology Center (MITC), Electronic City, on 16th May 2025. The visit offered insights into advanced motion control systems used in aerospace, defense, and industrial applications. Students toured the mechanical, electrical, and testing labs, attended technical sessions on servo valves, actuators, AI in control systems, and robotic process automation. The interactive Q&A session highlighted career opportunities and Moog's role in "Make in India." The visit provided practical exposure to the integration of engineering technologies and industry practices.

“ETHNIC DAY 2K25”

The Department of Computer Science and Engineering, School of Engineering, Dayananda Sagar University, celebrated Ethnic Day on 16th May 2025 at the university’s Main Campus in Harohalli. Organized in collaboration with the Centre for Performing Arts, the event served as a vibrant tribute to India’s cultural diversity. Students and faculty came together dressed in traditional attire, showcasing the rich heritage of various regions through music, dance, and culinary delights. The celebration fostered a spirit of inclusivity and respect for multicultural traditions, creating a joyful and educational experience. Ethnic Day not only highlighted the importance of cultural identity but also promoted unity in diversity within the campus community.



Student Activities

Mr. Levin Alexy Kuriakose, a final-year student (ENG21AS0020) from the Department of Aerospace Engineering at Dayananda Sagar University, has successfully completed an advanced certification course titled "Rocket Propulsion and Spacecraft Dynamics" offered by Kodacy, in collaboration with the Indian Space Research Organisation (ISRO). This specialized program was delivered by official space tutors and covered core concepts essential to propulsion systems and spacecraft mechanics. Mr. Kuriakose's participation and completion of the course reflect both his personal commitment to academic excellence and the high caliber of students being trained at Dayananda Sagar University.

Mr.Sudarshan T.K.(ENG22CY0042), Ms.Ashwini Jadhav (ENG22CY0005) participated in HackSpark 2025, an intra-college hackathon organized by Sri Venkateshwara College of Engineering, Bengaluru, held on Tuesday, 13th May 2025, from 8:00 AM to 5:00 PM. The event witnessed the participation of over 50 students, all showcasing their technical skills and innovative thinking across various themes. Our team chose to work under the Artificial Intelligence and Machine Learning (AI/ML) category and demonstrated exemplary teamwork and problem-solving throughout the event. After a day filled with intensive coding, collaboration, and innovation, our team successfully secured the Third Place in the competition.

We are proud to announce that four outstanding students from the SOE-DSU have been awarded the IEEE Women in Engineering (WIE) Scholarship for the academic year 2024–25, funded by Quest Global. Congratulations to: Ms. Savita Chinnur, 3rd Year, CSE, Ms. Deeksha M, 3rd Year, CSE, Ms. Deekshitha M, 3rd Year, CSE (AI&ML), Ms. Gaana Shree S, 3rd Year, CSE (AI&ML), Each recipient receives a scholarship of ₹50,000 along with access to IEEE's blended learning resources, industry mentorship, and professional networking opportunities.We commend their dedication and wish them continued success in their academic and professional pursuits!

SCHOOL OF ENGINEERING

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