

AUGUST 2026

BYTE STREAM



COMPUTER SCIENCE AND ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY (ISM)
DHANBAD

MONTHLY NEWSLETTER

An Insight into the
Department of Computer
Science and Engineering,
IIT (ISM)



Technology is a word
that describes
something that doesn't
work yet.

— Douglas Adams

SIG-Computing Systems: Securing the Cryptographic Foundations of Autonomous Systems

SIG-Computing Systems, Department of Computer Science and Engineering, hosted Mr. Animesh Shaw, Senior AVP – Information Security at EXL Service, for its first lecture series on Securing the Cryptographic Foundations of Autonomous Systems. The session was held on 14 August 2026 (Friday) at 6:00 PM in CR-2, Department of CSE. The talk examined how autonomous platforms — from self-driving vehicles to industrial robotics and IoT-enabled devices — relies on cryptographic primitives for secure boot, device identity, authenticated communication, and trust establishment between sensors, controllers, and cloud backends.



Mr. Shaw discussed key challenges unique to these systems: managing keys across distributed and resource-constrained components, ensuring resilience against physical tampering and side-channel attacks, and preparing for a post-quantum threat landscape given the long operational lifespans of autonomous hardware. The session also touched on real-world attack surfaces in autonomous pipelines and the security engineering practices needed to harden them.

Drawing on his industry experience, Mr. Shaw offered practical perspectives on bridging the gap between academic cryptographic research and deployable security in production autonomous systems

Inductions of CSES Divisions

This August the CSE Society welcomed its group of juniors with induction sessions across five divisions, each offering a warm introduction about what they do and how students can be a part of it. CodeISM started with a look at competitive programming, introducing the students to the excitement of an "Accepted" result and the frustration of getting wrong logics. They also showed how competitive programming helps improve problem-solving skills and can lead to great opportunities in tech interviews and quant roles. Weekly classes with no requirements will be led by coordinators Anuj Arora and Sohan Roy Chowdhury. CSAI came next based on four areas- teaching, projects, research and competition. Currently, they have been taking part in three Kaggle competitions and hoping to publish a paper at a top conference like NeurIPS or ICML with help from faculty leads Prof. Anjan Chowdhury and Prof. Priyanka Panigrahi and student coordinators Mohammed Arsh Raza and Srighakollapu Venkata Sriyuthika. CSE Times talked about its Design & Content Team showing students how ideas go from discussions, to writing, design and final publication and described the club as a place for creativity and storytelling. SpeakUP focused on improving confidence and communication through activities like Pitch a Product, Mock Interviews and Structured Debate with a focus on being ready for placements. And it worked, bringing in a lot of people. WebCSE ended things on August 21st, showing its platforms and how they contribute to department events while inviting juniors to join Recruitment.

Together the five sessions had something for every interest. Code, AI, content, communication and the web. But more than that they showed juniors that these divisions aren't just things to put on a resume; they are small groups made by people who really want to help them learn and try new things, and maybe even find a passion they didn't know they had. Whichever division one decides to join, there is a team full of supportive and passionate people on the other side ready to welcome them in.



Insight from an inspiring TECH Talk by Our Alumnus – Nishant Mittal(B.Tech 2016)

The department of Computer Science and Engineering had the opportunity to learn from an inspiring Tech Talk delivered by one of its distinguished alumni, Nishant Mittal. The Tech Talk titled - 'STRIKE RATE > BATTLING AVERAGE' was delivered by Mr. Nishant Mittal who is the proud Co-Founder of PingSafe, acquired by SentinelOne for \$100M+) argues that the traditional corporate career path in India has become high-risk, while early-stage founder-led execution is now more accessible than ever.

Nishant Mittal showered upon the entire CSE Department his experience in the industrial field. He talked about the shift in Career Risk, advising the aspiring tech students to optimize for job interviews and talked about the



vulnerability of crowded lane to AI automation, whereas building early, refined prototypes is the cheapest, highest leverage experiment a student can run. Moving on he talked about Capability Over Corporate Tenure, where he discussed how zero corporate years does not mean ZERO experience; successful founders substitute corporate titles with working prototypes, rapid testing and direct user conversations. An elaborative featured founder case studies were also put forward in front of the audience.

Apollyon Dynamics(2025), Airbound(2023); Etched(2022), Mercor(2023), Geckp Robotics(2013), all five of these showcasing credibility through functional demos and direct user outreach rather than corporate titles. Massive opportunities exist across frontier

sectors like defense UAVs, AI infrastructure, robotics, and energy. Starting requires no large capital or permission—just a team, mentors, and the drive to build an ugly first version.

Toward the end of the Tech Talk an elaborate discussion on recent market shifts, high growth sector market shifts, high growth sector and core requirements. Recent market shifts have dramatically lowered the barrier to entry for new founders, as AI cuts the cost of the first 100 hours of development while free knowledge, inexpensive and robust domestic rails significantly cheapest failure. This supportive ecosystem unlocks immense opportunities across critical high-growth sectors, including Vertical AI, Defence & Infrastructure, Semiconductors, Energy, Semiconductors, Energy, Space and Climate Tech. Ultimately, launching a today requires no formal permission, corporate titles, or massive initial committed team, access to mentors and the willingness to ship a crude first version.

The Talk was a great success as everyone of the students who were there in the Penman Auditorium could not stop applauding for straight five minutes. Then, Mr. Nishant Mittal's parents were called upon the stage for the felicitation ceremony, filling the students' mind with the spark to stand on the very stage someday and experience the momentum with their own parents someday soon.



Quantum Computing Meets Image Analysis: A National Quantum Mission Project

The Department of Computer Science and Engineering of IIT (ISM) Dhanbad has been sanctioned a three-year research project under the Quantum Algorithms vertical of the National Quantum Mission, an initiative of the Department of Science and Technology, Government of India. The project, titled "Qu-GEN: A versatile Quantvolutional Neural Network Library for Enhanced Image Analysis on Quantum Computers", is led by Prof. Partha Pratim Roy as Principal Investigator, working with Dr. Aparajita Khan of the Department of Computer Science and Engineering, IIT (BHU) Varanasi, and Dr. Pradumn Pandey of the Department of Computer Science and Engineering, IIT Roorkee. Bringing three IITs together in a single consortium, this interdisciplinary project builds up on quantum computing, machine learning and computer vision, while reaching into application areas as varied as medical diagnosis, satellite-based earth observation, and the study of materials at the microscopic scale.

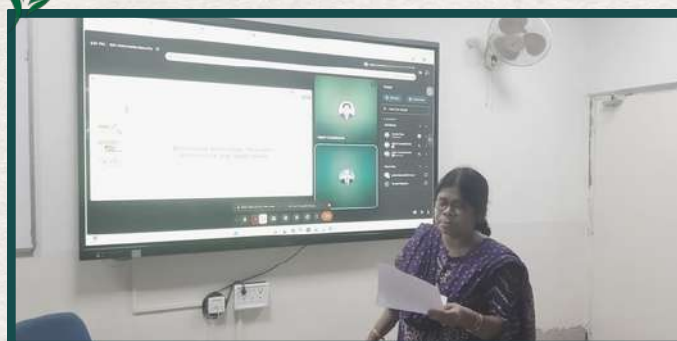


At the heart of Qu-GEN lies a deceptively simple question: can quantum computers see what classical computers miss? Modern image analysis relies on deep learning models that have proved remarkably capable, yet they still struggle with images containing faint signals, fine textures, and subtle structural differences, precisely the cases that matter most in medical scans and scientific imaging. The project develops a hybrid approach in which a small quantum circuit works alongside conventional deep learning models, extracting patterns that classical methods find difficult to capture. The framework will be tested on chest and tumor imaging, satellite photographs for land-use and flood mapping, and micrographs of engineering materials, and run on real quantum hardware rather than simulation alone. Its final outcome will be released as free, open-source software, giving researchers across India a practical foundation for quantum-assisted image analysis, a resource that does not currently exist in the country.

SIG-Information Security Launches Its First Lecture Series with a Session on Blockchain Technology

The SIG-Information Security, Department of Computer Science and Engineering, kicked off its first Lecture Series on Information Security on 04 August 2026 with a talk on "Blockchain Technology: Principles, Architecture and Applications."

The session was delivered by Dr. Preeti Chandrakar, Associate Professor in the Department of Computer Science and Engineering at the National Institute of Technology (NIT) Raipur, who is also an esteemed alumna of our institute.



Dr. Chandrakar walked the audience through the fundamentals of blockchain: its core concepts and architecture before moving into real-world applications across finance, healthcare, and governance. The talk drew faculty members, research scholars, and postgraduate students, many of whom engaged actively through the session.

The lecture offered a clear and practical introduction to blockchain's growing role in secure digital transformation, tying together theory and application in a way attendees found both informative and relevant to ongoing research and industry trends.

The organisers thanked Dr. Chandrakar for an insightful and inspiring session, and for generously sharing her expertise with the academic community.



Udbhav 2026

The Department of Computer Science and Engineering, IIT (ISM) Dhanbad, proudly celebrated its Annual Day, Udbhav 2026, on August 29, 2026, showcasing a vibrant blend of academic excellence and cultural brilliance and bringing together distinguished faculty, prominent alumni, and enthusiastic students.

The formal inaugural session opened on an esteemed note with the traditional lighting of the lamp and the solemn performance of the Institute Invocation Song. The program was graced by Chief Guest Prof. Gopal Mugeraya (Vice Chairman, Goa State Higher Education Council), alongside Prof. Sukumar Mishra (Director and Patron of CSES), Prof. Chiranjeev Kumar (HOD, CSE & President, CSES), Prof. Dharavath Ramesh (Faculty In-Charge, CSES), Prof. Pranay Kumar Saha (Treasurer, CSES), and Ms. Sucheta Ghosal (Secretary, CSES). The audience gained insightful perspectives through welcome addresses and a detailed presentation of the CSES annual statement, highlighting a year of tremendous departmental growth.

A key highlight of the formal proceedings was the felicitation of Mr. Pravesh Kumar (B.Tech 2008), who was conferred the prestigious CSE Alumnus of the Year award for his outstanding contributions to the industry. The occasion also marked the official unveiling of CSE Times: Buffered Reader V8.1, the flagship magazine of the department, followed by an inspiring address from Prof. Sukumar Mishra (Director and Patron of CSES). Honoring industry partnerships, Microsoft was announced as the Best Company for the 2025–26 session in recognition of offering the highest number of offers and internships to CSE students, with PPO recipients stepping forward to accept the honor.

The atmosphere shifted to pure celebration during the afternoon cultural showcase. The stage came alive with the classical elegance of Nrityanjali, soul-stirring melodies in Swaralipi, dynamic band performances in Swarasangraha, and witty-sharp humor in Laugh Lines. A major focal point was an interactive session with alumnus Mr. Nishant Mittal (Founder, PingSafe, Singapore; CSE 2K16), who shared invaluable insights from his corporate journey with his juniors.



The event concluded with a felicitation ceremony recognizing the student teams and competition achievers:

Rang-Kriti (Group Art): Dolly Kumari & Team (B.Tech 2030)
Chitrakala (Solo Art): Aadarsh Shekhar Tiwari (B.Tech 2030)
Swaralipi (Solo Singing): Subhashree Bhattacharjee (M.Tech 2028)
Swarasangraha (Group Singing): Shubhomoy (B.Tech 2028) and Soumik (B.Tech 2028)
Nrityanjali (Solo Dance): Abhyudaya (B.Tech 2030)
Nrityamitra (Group Dance): Ankit Kumar & Team (B.Tech 2030)
Raga Reprise (Instrumental): Sucheta Ghosal (B.Tech 2027)
Laugh Lines (Standup Comedy): Rugved Kulkarni (B.Tech 2030)
CSE Got Talent (Solo): Kathan Kachhi (B.Tech 2030)
CSE Got Talent (Group): Saksham Tyagi & Team (B.Tech 2030)
Meme Mania: Raghvendra Upadhyay (B.Tech 2030)



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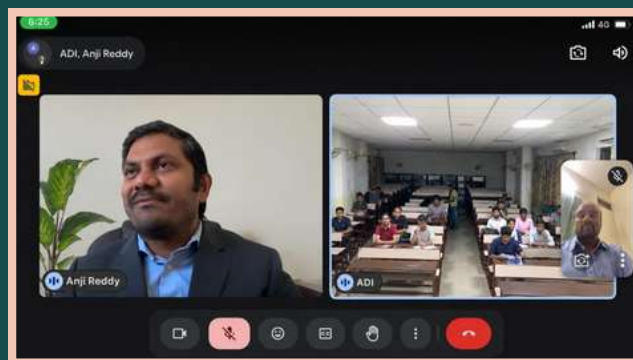


Expert Talk on “Agentic AI, Autonomous Systems & Intelligent Automation

On August 27, 2026, the Department of Computer Science and Engineering at IIT (ISM) Dhanbad successfully hosted an expert talk titled "Agentic AI: Transforming Enterprise Operations with Intelligent Automation." The session brought together students, faculty members, and researchers for an engaging presentation followed by an interactive Q&A session.

The talk explored the paradigm shift from traditional Robotic Process Automation (RPA) to fully autonomous Agentic AI systems, highlighting how intelligent automation is actively reshaping modern enterprise workflows across industries.

Attendees gained valuable insights into real-world application strategies, deployment frameworks, and the broader future of AI-driven operational solutions. A major highlight for student attendees was practical guidance on building a successful career in artificial intelligence, including key technical skills and strategic preparation required to enter the field. The department extends its sincere gratitude to Mr. Anji Reddy Tangirala, Associate Director of Intelligent Automation at Miracle Software Systems, Inc., for sharing his expertise and delivering an inspiring, highly informative session for the academic community.



Recently accepted research work for publication

Title: On-Chain Heuristic Dynamic Swarm-based Bi-directional Stacked MLP Framework for Smart Industrial Pollution Mitigation

Authors: Sweta Dey; Sudepta Mishra; Abhinandan S. Prasad; Dharavath Ramesh

Published at: IEEE Transactions on Engineering Management, IEEE

PhDs submitted in the month July-August 2026

Applicant	Supervisor	Thesis Title
Mahesh Chaurasia	Prof. Arup Kumar Pal	Image and video data protection through cryptography and blockchain technology

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