VIT Vidyalankar Institute of Technology
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An Autonomous Institute

Affiliated to University of Mumbai

BYTES

DEPARTMENT OF COMPUTER ENGINEERING

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Vision of the Department

To be recognized as a Centre of Excellence in the field of Computer Engineering where learners are nurtured in scholarly environment to evolve into competent Computer Engineering professionals to benefit society

Mission of the Department

1.Evolve a curriculum which emphasizes on strong engineering fundamentals with the flexibility to choose advanced courses of interest and gain exposure to tools and techniques in Computer Engineering.
2.Encourage a teaching-learning process in which highly competent faculty share a symbiotic association with the institutes of repute.
3.Facilitate creation and dissemination of knowledge through a digitally-enabled learning environment.
4.Develop academic and infrastructural facilities with modern equipment and other learning resources and encourage reciprocal sharing with other institutes through networking.
5.Establish a centre of excellence to enhance academia – industry partnership and work on collaborative projects.

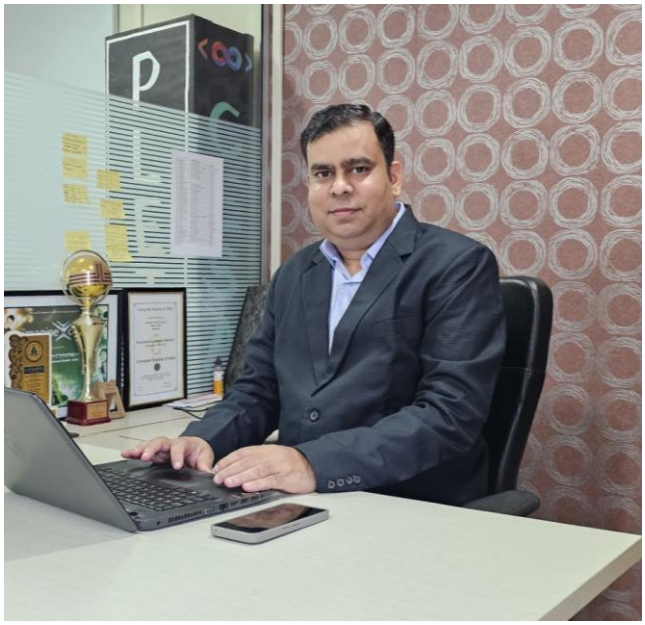
Programme Educational Objectives (PEO)

1.To enable the pursuit of knowledge in the field of Computer Engineering and contribute to the profession and employability of the students.
2.To engage in research, generate the employment through entrepreneurship and work effectively in multidisciplinary environment.
3.To understand the human, social, ethical and environmental context of their profession and contribute positively to the needs of individuals and society at large.

WHAT'S INSIDE

DR. RAVINDRA SANGLE

HEAD OF DEPARTMENT, COMPUTER ENGINEERING



This edition of BYTES reflects the dynamic progress of the Department of Computer Engineering through a blend of academic rigor, research excellence, and holistic student development. Faculty achievements in high-quality publications, funded research, FDPs, and continuous upskilling highlight the department's strong scholarly foundation and commitment to innovation. Student accomplishments in research conventions, technical competitions, leadership roles, and insightful articles demonstrate critical thinking, creativity, and professional maturity. Departmental activities organized through CESA and CSI-VIT, including expert lectures, podcasts, technical events, alumni interactions, and educational visits, have provided meaningful industry exposure and experiential learning opportunities. Alumni narratives featured in this issue further reaffirm the long-term impact of faculty mentorship and learner-centric teaching practices.

Collectively, these initiatives strengthen the department's mission to create a vibrant learning ecosystem that fosters ethical values, problem-solving skills, and lifelong learning, while preparing students to excel in a rapidly evolving technological landscape.

Creativity is intelligence having fun.
—Albert Einstein

STUDENT APPRECIATION

Mr. Tejas Pradip Pawar from second year of Computer Engineering, Vidyalankar Institute of Technology, Wadala secured SECOND RANK at the 20th Aavishkar – Inter-Collegiate Research Convention (Final Round) organized by the University of Mumbai (AY 2025–26).The achievement was accomplished under the mentorship of Dr. Amit K. Nerurkar and reflects the student's research excellence, analytical rigor, and interdisciplinary approach.

TiH GRANT

The TIH Foundation at IIT Bombay, established under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS), is dedicated to advancing innovation in the Internet of Things (IoT) by fostering translational research, nurturing start-ups, and building skilled human resources to position India as a global technology leader. As part of this mission, the CHANAKYA Fellowship Program enables faculty-led teams of undergraduate and postgraduate students to collaborate on IoT projects, bridging academia with industry and society while cultivating the next generation of problem-solvers and entrepreneurs.

Currently, three students from TE CMPN A — Ms. Devanshi Mahajan, Ms. Sakshi Patil under the guidance of Dr. Amit K. Nerurkar, and Mr. Sheshank Singh under the guidance of Dr. Sheetal M. have been selected for the prestigious CHANAKYA Fellowship Program. Each is receiving a fellowship of ₹10,000 per month (₹1,00,000 over 10 months). Their ongoing project focuses on the development of an image-based crop disease detection system leveraging AI/ML techniques and computer vision, with the aim of advancing agricultural practices through early and accurate identification of crop diseases.

Ms. Devanshi Mahajan

Ms. Sakshi Patil

Mr. Sheshank Singh

Department Staff

DR. MANDAR SOHANI
PROFESSOR

EDUCATION QUALIFICATION:
PhD Computer Engineering
WORKING EXPERIENCE:
25 YEARS

AREA OF SPECIALIZATION:
Programming
Embedded Systems
Computer Networking
Image Processing
Microprocessors and Micro Controllers
IoT

DR. UMESH KULKARNI
PROFESSOR

EDUCATION QUALIFICATION:
PhD Computer Engineering
WORKING EXPERIENCE:
28 YEARS

AREA OF SPECIALIZATION:
Artificial Intelligence
Data Analytics and Data Science
Blockchain
System Security
Human Machine Interaction
High Performance Computing
Distributed Systems

> You don’t go to university so you can punch a clock. You go to university so you can be in a position to make a difference.
> —Janet Napolitano

Student's Speak

Devanshi Mahajan

Devanshi Mahajan
TE-A

Hi, I am Devanshi Mahajan, a Computer Engineering student at Vidyalankar Institute of Technology. My journey at VIT has been a transformative blend of learning, leadership, and discovery. What began as an academic pursuit soon evolved into an experience that encouraged me to explore beyond textbooks and embrace diverse opportunities. VIT’s student first approach, coupled with its emphasis on holistic development, has consistently empowered students to grow academically, professionally, and personally. Serving as a Class Representative has been a defining chapter of this journey.

It has strengthened my leadership and communication skills while motivating me to engage more actively in classroom discussions, laboratory sessions, mini projects, and academic activities. This involvement has significantly boosted my confidence and nurtured proactive approach toward learning.

The guidance and encouragement of dedicated faculty have been instrumental in this transformation. Professors such as Amit Sir, Divya Ma’am, Kavita Ma’am, Mahesh Sir, Mandar Sir, Sachin Deshpande Sir, Suvarna Ma’am, Snehal Ma’am, Dr. Sanjeev Dwivedi, and Prof. Pankaj Vanwari (DAO) have consistently inspired me to think critically and apply concepts beyond theory. Their constant support has fostered an environment where learning truly extends beyond the classroom. A special mention goes to Dr. Amit Nerurkar Sir, whose mentorship has played a key role in my selection for the TIH Fellowship, which is currently providing me with valuable exposure to research-oriented and industry-relevant learning.

Academically, opportunities such as the credit transfer course further enriched my learning experience. This initiative enabled me to gain exposure to advanced concepts and practical applications through an academic association with CDAC, offering valuable insights into industry-aligned technologies and strengthening my technical foundation. Industrial visits and technical events have also played a vital role in broadening my perspective.

Experiences such as the visit to the Automation Expo, along with initiatives conducted by CSI and CESA, have enhanced my understanding of real-world applications. As the Documentation Head of CESA, I have gained hands-on experience in coordination and organizational responsibilities under the guidance of Dr. Suja Jayachandran Ma’am, the CESA Convenor. Overall, my time at Vidyalankar Institute of Technology has been empowering. The blend of academic rigor, faculty mentorship, industry exposure, and student-led initiatives continues to shape my growth and prepares me to contribute meaningfully to the field of Computer Engineering.

– Devanshi Mahajan
TE CMPN A

> Graduation is not the end; it's the beginning.
> —Senator Orrin Hatch

KNOW AN ALUMNUS: Deep Shahane

Deep Shahane

As an alumnus of Vidyalankar Institute of Technology (VIT), I look back on my Computer Engineering journey with real gratitude and a quiet sense of pride. Since graduating, I completed my Master's in Computer Science at the University at Buffalo, and I now work as a Research Assistant at the SAIR Lab. In my day-to-day research, I constantly lean on the mindset VIT helped build in me: learn the fundamentals, stay curious, and apply knowledge to problems that matter.

My four years at VIT were a blend of offline and online learning. That transition was not always easy, but the college made it feel manageable. Whether we were in classrooms or attending lectures remotely, the CS department kept the learning structured and accessible, ensuring continuity, resources, and support.

During a period when it was easy to feel uncertain, that consistency gave me confidence and helped me stay focused. What always stood out to me was how sincerely VIT supported student interests. The institute offered strong elective choices, and the department never treated learning as a numbers game. I still remember enrolling in a Deep Learning elective where only two students signed up, yet the course was conducted fully offline. That decision genuinely stayed with me, it reflected a rare commitment to student growth and an attitude that every learner counts.

The CS faculty also created an environment where initiative was welcomed. If you had an idea or a project and the determination to pursue it, professors were willing to guide you step by step, helping refine the problem, challenge assumptions, and push the work toward real-world relevance. That encouragement shaped the way I approach research and engineering today. I want to especially acknowledge my mentor, Dr. Amit Nerurkar, who consistently went the extra mile during our final-year project. His mentorship was hands-on and thoughtful, reviewing our progress, giving direct feedback, and motivating us to maintain high standards. More importantly, his approach reflected what I saw across the department: professors who genuinely care, take ownership of student outcomes, and bring dedication to teaching every day.

I'm proud to be a VIT alumnus, and I remain grateful for the faculty and environment that helped shape my path.

CSI EVENT: Podcast on Data Beyond Dashboard

The Computer Society of India (CSI) Student Chapter, VIT, successfully conducted an engaging and knowledge-enriching podcast session titled "Data Beyond Dashboard" as part of its Professional Development Initiative. The event aimed to provide students with a deeper understanding of data analytics and its growing significance in shaping modern business strategies. The podcast featured Ms. Rujuta Lanke, Senior Data Analyst at American Express, as the esteemed guest speaker, and was hosted by Ms. Gautami Kamble, CSI Publicity Head. The session focused on exploring how data goes far beyond simple visualization tools to become a critical driver of decision-making, innovation, and process optimization in today's corporate world.

Visit: https://youtu.be/g7NUUW4OZ7U?si=9GLdgQtpeR6IxG26

Education is the key to unlocking the world, a passport to freedom
—Oprah Winfrey

CESA Event: Cognition Clash

14th October 2025

Primary Objective: Technical & Logical Validation The judges' core goal was to validate the depth of the students' understanding. It was not enough to simply present a working AI/ML model. The cross-questioning was specifically designed to probe:

● Justification of Choice ● Data Integrity ● Methodological Rigor ● Originality vs. Application Secondary **Objective:**

"Pressure Testing" Communication & Critical Thinking The format itself—a high-stakes pitch followed by rapid-fire cross-questioning—was a deliberate choice to simulate a real-world professional environment (like a VC pitch, a technical review, or a thesis defense). The goal was to assess: ● Intellectual Ownership ● Clarity and Conciseness ● Resilience

The event unfolded in two distinct, critical phases for each group:

1. The Pitch & Prototype Demonstration: This was the group's "opening argument." Each team presented their project, which typically included:

● Problem Statement: Identifying a clear "pain point" or opportunity.

● Proposed Solution: A high-level overview of their AI/ML-powered system.

● The "Proof": A live or pre-recorded demonstration of the functional prototype, showing the core features in action (e.g., inputting data and receiving a prediction, classification, or output).

2. The Judicial Cross-Questioning: This was the "logic and content" validation phase. Immediately after the pitch, the two judges began their interrogation. This was not a generic Q&A; it was a targeted surgical probe to find the limits of the team's knowledge. Common lines of inquiry included:

● On Data: "Your dataset seems small. How did you handle overfitting? What data augmentation techniques did you use, and why?"

● On Model Choice: "You used Model X, but Model Y is state-of-the-art for this task. Justify your decision."

● On Performance: "Your prototype worked in the demo, but what is its actual, quantified accuracy? What trade-offs did you make between speed and precision?"

● On Viability: "What are the real-world limitations? How would this system scale if it had to serve 10,000 users at once? What are the computational or financial costs?"

● On Failure: "What was the biggest technical dead-end you hit, and how did you pivot?"

This event provides a powerful lesson on the true nature of engineering work.

The central takeaway is that a working prototype is merely the ticket to entry; the real evaluation is on the robustness of the thought process behind it.

Every person you meet knows something you don't; learn from them.
—H Jackson Brown Jr.

Tech Cognisphere 2025

4th OCTOBER 2025

The Computer Society of India (CSI), VIT, in collaboration with TSEC CodeTantra and CESA, VIT successfully organized Tech Cognisphere 2025 on the theme "Sustainability Goals & the Survival of Humanity." The event aimed to raise awareness about the United Nations' 17 Sustainable Development Goals (SDGs) and emphasize the importance of technology and innovation in achieving a sustainable and resilient future. It brought together industry experts, educators, and tech enthusiasts to explore how emerging technologies can drive sustainable development and safeguard humanity's future. The event began with an inaugural session that set the tone for the day, emphasizing the role of youth and innovation in driving a sustainable future.

To make the event more interactive and enjoyable, quiz and game rounds based on sustainability and technology were conducted by CSI VIT and hosted by Dr. Amit K. Nerurkar. Participants enthusiastically engaged in these activities, demonstrating their knowledge and creativity. Winners were rewarded with exciting goodies, adding an element of fun and motivation to the learning experience. The inclusion of interactive activities such as quizzes and games made the event engaging and helped reinforce key concepts in a fun way.

CSI-VIT: Expert Lecture on Scalable Anomaly Detection Across Distributed Architectures

17th OCTOBER 2025

The Computer Society of India (CSI) – VIT Student Chapter, organized an expert lecture titled "Scalable Anomaly Detection Across Distributed Architectures" on Friday, 17th October, at the VIT Auditorium. The session aimed to provide students with practical insights into anomaly detection systems and their implementation in large-scale, distributed infrastructures, a concept crucial to the rapidly evolving field of Artificial Intelligence and Data Science. The guest speaker for the event was Ms. Ridhima Tambde, a Data Scientist – Bot & Abuse, known for her expertise in building scalable and intelligent data-driven systems. Through her extensive experience in detecting unusual patterns, malicious activities, and anomalies in distributed platforms, Ms. Tambde offered participants a clear understanding of the intersection between AI, security, and system scalability.

Visit: https://youtu.be/nW-obLIrTTc?si=052BYMEF3CnCXf5Q

Data is the new oil
— Clive Humby

STUDENT ARTICLE BY SIDDHI GAWADE: Memory-First Computing: Why Processing Is Moving Toward Data

Siddhi Gawade
TE-A

Not long ago, improving computer performance meant making processors faster. Each generation delivered higher clock speeds, more cores, and powerful GPUs. Today's systems tell a different story. Modern workloads such as AI training, big data analytics, and real time applications spend more time moving data than processing it. Constant transfers between memory and processors consume time and energy, creating a bottleneck that faster processors alone cannot solve.

This growing imbalance is changing how system designers think. Instead of focusing only on faster processors, the focus is shifting toward bringing computation closer to where data resides. This shift defines memory first computing, an approach that prioritizes data locality, reduces data movement.

Why Processing Near Data Matters

The impact of memory-first computing becomes clear in modern applications:

· Artificial Intelligence: AI models rely on frequent access to large datasets. Reducing data movement significantly improves training and inference speed.

· Big Data Systems: Analytics platforms benefit from faster data access and lower power consumption.

· Mobile and Edge Devices: Processing near memory reduces battery usage and enables real-time decision-making.

· Cloud Computing: Data centers can achieve better performance without proportional increases in energy costs.

Key Models of Memory-First Computing:

1. Near-Memory Computing: Small processing units are placed close to memory rather than inside the main processor. This reduces the distance data needs to travel, leading to faster execution and lower energy consumption. It is especially useful in data-intensive tasks such as AI inference and high-performance computing.

2. In-Memory Computing: In-memory computing takes this idea further by performing computation directly within the memory itself. Instead of transferring data to a processor for every operation, memory components handle certain computations internally. This approach significantly improves efficiency for operations like matrix calculations, which are common in machine learning and analytics.

3. Memory-Centric Computing: It shifts the entire system design around memory rather than processors. In this model, memory acts as the central hub, while processors access shared data pools as needed. This architecture is well-suited for cloud platforms and big data systems where large datasets must be accessed quickly by multiple computing units.

Conclusion: As data continues to grow faster than processing power, memory-first computing represents a necessary shift toward architectures that deliver performance, efficiency, and scalability by moving computation closer to where data lives.

UPCOMING EVENTS

- **ORIENTATION PROGRAM FOR EVEN 25-26 WILL BE HOSTED IN JANUARY 2026**
- **CSI-VIT WILL HOST ITS FLAGSHIP EVENT ENTHUSIA IN MARCH 2026**
- **CESA-VIT WILL HOST ITS FLAGSHIP EVENT PLETHORA IN FEBRUARY 2026**
- **VERVE 26 WILL BE HOSTED IN FEBRUARY 2026**
- **TEDxVIT WILL BE HOSTED IN MARCH 2026**

> When one door closes, another opens; but we often look so long and so regretfully upon the closed door that we do not see the one which has opened for us
> —Alexander Graham Bell

THE

EDITORIAL TEAM

DR. AMIT K. NERURKAR

Chief Editor