VIT Vidyalankar Institute of Technology
Accredited A+ by NAAC

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

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DEPARTMENT STAFF
- PROF. SHIVANI HERLEKAR
- PROF. SHWETA JAISWAR

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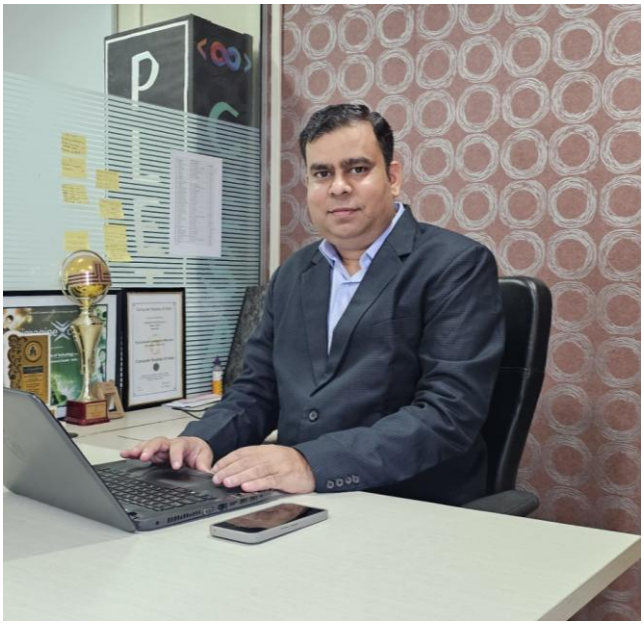
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STUDENT ARTICLE: HARSHITA DHANDE
STAFF APPRECIATION: DR. AMIT AYLANI

DR. RAVINDRA SANGLE

HEAD OF DEPARTMENT, COMPUTER ENGINEERING

This edition highlights our commitment to fostering a culture of innovation, research, and experiential learning. The research publication by our third-year students, technical explorations in AI-driven manufacturing and cybersecurity, and thought-provoking discussions on biocomputing demonstrate the growing curiosity and research orientation among our learners. Initiatives undertaken by CSI-VIT, GDG-VIT, and CESA-VIT, including the Automation Expo visit, Smart India Hackathon guidance session, technical competitions, and expert interactions, have provided valuable opportunities for students to strengthen their technical knowledge, creativity, teamwork, and leadership skills. The experiences shared by our students and alumni further reflect the importance of holistic development beyond classroom learning. As technology continues to evolve, our focus remains on nurturing technically competent, innovative, and socially responsible engineers who are prepared to address real-world challenges. I appreciate the collective efforts of our faculty, students, student committees, and editorial team in making this edition meaningful and engaging.



Creating a better future
Requires creativity in the present.
— Matthew Goldfinger

TECHNICAL WRITEUP ON AI BASED AUTOMOTIVE PAINT SHOP

AI-Driven Automotive Paint Shops: A Step Towards Intelligent and Sustainable Manufacturing. A perfectly painted car is not just about its appearance; it reflects precision, quality, and advanced engineering. Behind the glossy finish lies a complex manufacturing process where even a minor variation in paint thickness, spray pressure, or temperature can affect the final outcome. Traditionally, automotive paint shops have relied on automated machinery and human expertise to maintain quality. Today, Artificial Intelligence (AI) is opening new possibilities for making this process smarter, more efficient, and environmentally sustainable.



Computer vision techniques can identify surface imperfections, colour inconsistencies, and coating defects, enable early detection and reducing the need for costly repainting. One of the most promising research areas is predictive maintenance and energy optimization. By analysing historical equipment performance and operating conditions, machine learning models can anticipate potential failures in robotic painting systems, pumps, and ventilation equipment. AI can also help optimize energy-intensive operations such as air handling and paint curing, potentially reducing electricity consumption and environmental impact.

The efficiency of an AI-enabled paint shop can be evaluated through measurable indicators such as paint transfer efficiency, defect rate, rework percentage, energy consumption per vehicle, production cycle time, and equipment downtime. These parameters provide valuable opportunities for research into data-driven decision-making and sustainable industrial automation.

The future of automotive painting is not simply about replacing human effort with robots, but about combining human expertise with intelligent systems. While skilled engineers continue to play a vital role in quality assurance and process supervision, AI can support them with faster analysis, consistent monitoring, and informed decisions. AI-driven paint shops represent a promising direction for Industry 4.0, where manufacturing becomes more precise, resource-efficient, and sustainable.

--Dr. Amit K. Nerurkar

Department Staff

PROF. SHIVANI HERLEKAR
ASSISTANT PROFESSOR



EDUCATION QUALIFICATION:
M. Tech (IoT)

WORKING EXPERIENCE:
6 months

AREA OF SPECIALIZATION:
Cyber Security
IoT
Deep Learning

PROF. SHWETA JAISWAR
ASSISTANT PROFESSOR

EDUCATION QUALIFICATION:
M. Tech (IoT)

WORKING EXPERIENCE:
6 months

AREA OF SPECIALIZATION:
AIML
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Deep Learning



> Do not get obsolete like an old technology, keep innovating yourself.
> — Sukant Ratnakar, Open the Windows

Student's Speak

KRISHNA SHINDE



Krishna Shinde
TE-B

When I joined Vidyalankar Institute of Technology in 2024, I had a simple idea of what my engineering journey would look like. As I step into my third year, I realize that my experience at VIT has become much more than academics. It has been a journey of learning, opportunities, responsibilities and personal growth.

Being a student of the Computer Engineering Department has given me an environment where learning extends beyond the classroom. The department has consistently encouraged us to participate in projects, technical activities, presentations and various student initiatives. These experiences have helped me understand the importance of applying theoretical knowledge, working collaboratively and approaching problems with confidence. I am grateful to Dr. Ravindra Sangle Sir, our Head of Department, for his guidance and for fostering an environment that encourages students to learn and grow.

The support and encouragement provided by the faculty have made my academic journey both enriching and meaningful. My experiences with CSI VIT and TEDxVIT have been among the most memorable parts of my journey. I am particularly thankful to Dr. Amit Nerurkar Sir for encouraging me to explore opportunities beyond academics. These experiences helped me develop my communication, teamwork and organizational skills while giving me the opportunity to take on new responsibilities.

My involvement in the Student Council has also contributed significantly to my growth. Working on events and taking up responsibilities taught me valuable lessons in leadership, coordination and teamwork. I am grateful to Dr. Sachin Deshpande Sir for his guidance and encouragement throughout these experiences.

My academic journey in Computer Engineering has also introduced me to several wonderful teachers who have contributed greatly to my learning. I have had the opportunity to learn from Dr. Swapnil Sonawane Sir, Dr. Sanjeev Dwivedi Sir, Pankaj Vanwari Sir, Dr. Amit Alyani Sir, Divya Surve Ma'am, Dr. Suvarna Sapre Ma'am and Dr. Kavita Shirsat Ma'am. Their teaching, guidance and approachability have made learning more meaningful and have encouraged me to develop a deeper understanding of the subjects I study. Through technical projects, practical assignments and presentations, I have also learned to apply my knowledge beyond textbooks. These experiences have strengthened my problem-solving abilities and helped me become more confident in working with others and taking on challenges.

As I continue into my third year, I know that there is still much more to learn and experience. I am grateful to the Computer Engineering Department, my teachers and everyone who has supported me so far for providing me with an environment that has allowed me to grow both academically and personally. My journey at VIT is still ongoing, and I look forward to making the most of the opportunities and experiences that lie ahead.

— Krishna Shinde (Third Year, Computer Engineering)

> Leadership is not about a title or a designation. It's about impact, influence, and inspiration.
> — Robin S. Sharma

KNOW AN ALUMNUS: Nitin Giri



Nitin Giri

Looking back at my four years at Vidyalankar Institute of Technology, I realize VIT did a lot more than just hand me a degree, it fundamentally shaped who I am today. After graduating in 2021 with a degree in Computer Engineering, I stepped into the corporate world with a toolkit of skills that eventually led me to Deloitte USI (Offices of US).

Today, I'm a Senior Consultant and Supply Chain Specialist, partnering with global technology leaders like Google to re-imagine and build their future-proof procurement ecosystems. We work on complex ERP implementations with platforms like Ivalua and Coupa, a role that sits right at the intersection of deep technology and high-stakes business strategy.

People often ask me how a computer engineering background connects to a field like sourcing and procurement consulting. For me, the answer is everything. VIT didn't just teach me to code; it taught me how to think in frameworks.

It's the art of deconstructing a seemingly impossible business problem into a series of logical, manageable modules - much like designing complex software architecture. That foundational mindset of breaking down systems, translating tech-heavy requirements into tangible business solutions, and designing processes with algorithmic precision is what I rely on every single day.

But honestly, the classroom was only half the story. A huge part of my growth happened through the responsibilities I took on outside of lectures. Serving as a Class Representative (CR) was my very first introduction to stakeholder management, teaching me how to communicate clearly and balance different perspectives. Taking that a step further, my tenure as the Joint General Secretary (JGS) for CSI-VIT was a complete gamechanger. It wasn't just about organizing events; it was about strategic planning, resource management, and inspiring a volunteer team to deliver flagship technical symposiums that elevated the college's reputation. That role is where I transitioned from being an individual contributor to truly understanding how to lead a team toward a shared, ambitious vision.

None of this growth would have been possible without the incredible mentors who went out of their way to support me. I owe a huge shout-out to Dr. Amit Nerurkar and Dr. Mohini Chaudhari, who were absolute pillars of support during my JGS tenure. They didn't just oversee our work; they empowered us, trusted our decisions, and gave us the strategic guidance needed to scale CSI-VIT's activities to new heights. My deepest gratitude also goes to Dr. Rugved Deolekar, whose elegant way of teaching Data Structures and Algorithms rewired my brain to see not just code, but the beautiful logic and efficiency behind it. And to Dr. Ravindra Sangle, who had a gift for making a challenging subject like Computer Graphics feel intuitive and exciting, and whose door was always open for support whenever I hit a roadblock.

If I could give one piece of advice to the students currently at VIT, it's this: your degree gets you through the door, but the campus is where you build your character. Don't just stick to the syllabus. Get out of your comfort zone, take up leadership roles, organize festivals, and join student committees. The technical skills are your foundation, but the soft skills, leadership experience, and friendships you build here are what will truly set you apart and accelerate your career. Make the most of these years, learn relentlessly, and don't be afraid to take charge. VIT gives you the launchpad; it's up to you to build the rocket.

> Some fish love to swim upstream. Some people love to overcome challenges.
> — Amit Ray, Walking the Path of Compassion

VISIT TO AUTOMATION EXPO

JULY 25, 2026



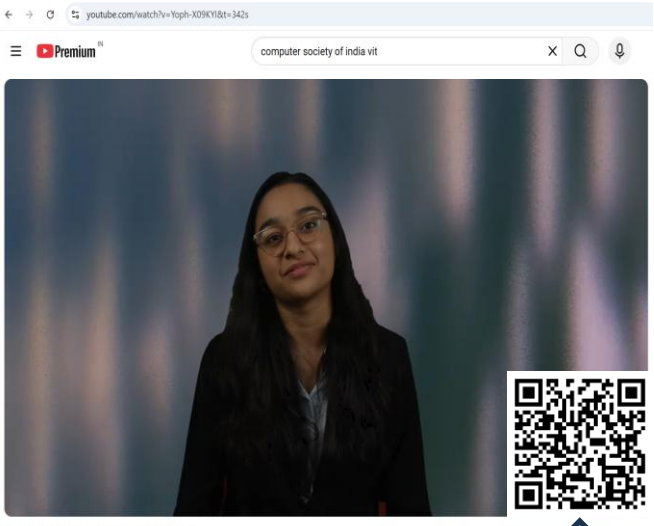
Automation Expo is an industrial technology exhibition that brings together leading companies, professionals, and technology enthusiasts to showcase advancements in industrial automation, robotics, artificial intelligence, IIoT, machine vision, and smart manufacturing. The visit provided participants with an opportunity to explore emerging technologies, observe live demonstrations, and gain insights into their practical applications across various industries.

CSI-VIT, CESA-VIT and GDG-VIT in collaboration with Department of Computer Engineering organized this visit.

CSI-VIT: PODCAST ON WELCOME TO BIOCOMPUTING

AUGUST 19, 2026

This podcast explores the fascinating world of biocomputing, where living brain cells and silicon chips come together to shape the future of artificial intelligence. It discusses how scientists are experimenting with living neurons to interact with games like Pong and DOOM, inspired by the human brain's remarkable energy efficiency. The podcast highlights pioneering contributions from Cortical Labs (Australia), led by Brett Kagan and his team, and FinalSpark (Switzerland), which is advancing biological computing through its Bio-Cloud platform. Inspired by the curiosity-driven storytelling of Vsauce's Michael Stevens, it explores the potential of biocomputing in AI, neuroscience, healthcare, and energy-efficient computing, while raising important ethical questions. Ultimately, it asks: Could living neurons power the next generation of intelligent computers?



Scan to watch

CSI-VIT X TSEC: SUSTAINING THE HUMAN RACE

SEPTEMBER 05, 2026



The event, organized by CSI VIT in collaboration with TSEC Codetantra, brought together students and technology enthusiasts for an engaging learning experience. It featured two insightful sessions covering environmental management and sustainable development and Agentic AI and autonomous systems, encouraging participants to explore how engineering and emerging technologies can address real-world challenges. The first session focused on Environmental Management and Sustainable Development Goals, led by Dr. Thampi, highlighting the role of engineering in addressing environmental challenges. After a short break, the second session, "Agentic AI: From LLMs to Autonomous Systems," explored the evolution of AI, autonomous systems, and key components of AI agents.

> If you want something new, you have to stop doing something old
> — Peter Drucker

GDG: ROAD TO SIH!: Guidance Session

AUGUST 27, 2026

Road to SIH! was a guidance session organized by GDG on Campus VITM to create awareness and guide students about Smart India Hackathon (SIH) 2026. The session featured two speakers who shared their practical experiences, preparation strategies, and valuable insights about participating in SIH. The event also included an interactive Q&A session, allowing students to clarify their doubts and gain better understanding of the SIH process.





Participants appreciated the practical guidance provided by both speakers, particularly the insights on SIH preparation, problem statement selection, solution development, and the evaluation process. The interaction with Dr. Dhananjay Patel, SIH Coordinator, and Sameer Shelar, SIH 2024 & 2025 Finalist, along with the Q&A sessions, helped students understand the SIH journey more clearly. Overall, the session was informative and engaging and successfully created awareness, provided process-related guidance, and motivated students to participate confidently in SIH 2026.

CSI-VIT : THE INSIDER A TECHNICAL COMPETITION

AUGUST 20, 2026



The Computer Society of India (CSI-VIT) successfully organized “The Insider” on 20th August 2026 at the VIT Campus, witnessing enthusiastic participation from over 100 students. The event offered a unique blend of technical knowledge, strategic thinking, and social deduction, challenging participants to answer technical questions while identifying a hidden “Insider” among them. Through multiple quiz rounds, interactive discussions, exciting challenges, and voting sessions, participants demonstrated their technical expertise, critical thinking, observation, and decision-making skills. The event fostered teamwork, healthy competition, and active engagement, making it an exciting and memorable learning experience for all participants.

RESEARCH CONTRIBUTION BY STUDENTS

Kasim Ishaque Ghanchi and Ali Mehdi Mirza from Third Year Computer Engineering published their research paper titled **“Robustness of Spatio-Temporal Graph Neural Networks for Traffic Forecasting Under Realistic Sensor Degradation”** in the International Journal of Research and Scientific Innovation (IJRSI). Their research focuses on improving the reliability of AI-based traffic forecasting under sensor failures and data degradation, contributing to advancements in intelligent transportation systems.

> The goal of security is not to eliminate all risk, but to understand, manage, and recover from it.
> -- Bruce Schneier

Student Article By Harshita Dhande: Adversarial Robustness – Can AI Cybersecurity Systems Be Fooled?



HARSHITA DHANDE (TE-A)

Artificial Intelligence is quietly reshaping cybersecurity. It helps organizations spot phishing emails, malware, fraud, suspicious network activity, and insider threats. In a world where security teams face thousands of alerts every day, AI acts like a filter that separates real danger from background noise.

Ai is also of our best tools against zero-day attacks (new, unseen threats that have no known signature). Instead of matching only old patterns, AI can detect unusual behaviors like abnormal file access, strange login activity, or unexpected communication across the network.

But here's the uncomfortable truth: attackers are now targeting AI itself. This challenge is called Adversarial Robustness; it is the ability of an AI system to stay reliable when someone deliberately tries to trick it.

Imagine an AI-based malware detector. An attacker makes tiny changes to a malicious file, so the AI sees it harmless. The malware still works, but the security system now labels it safe. This isn't an accident. It's a planned attack against the intelligence of the defense. Attackers don't always break in through the front door. Sometimes they quietly manipulate the data that the AI system relies on.

Evasion attacks: Small changes to malware, emails or traffic that make harmful activity look normal Data poisoning: Corrupting training data so the model learns the wrong lessons Transferable attacks: An attack that fools one AI model may also bypass another Misleading explanations: Manipulating AI explanations so analysts trust the wrong alerts Many AI defenses look strong in labs but struggle in the real world. Most are tested against a single fixed attack.

Real attackers are adaptive; they watch learn and keep changing their strategy until they find a gap. Real networks also evolve constantly with new devices, cloud services, IoT systems, and zero-day threats that appear every day. Building stronger AI-based security means testing against realistic, repeated, and adaptive attacks.

We must ask: Does the attack still work after modification? Can it fool multiple models? Can humans spot when an explanation has been manipulated? AI should never replace cybersecurity professionals. It should empower them. The strongest future defense will combine the speed and scale of AI with the judgment, experience, and accountability of human analysts.

--Harshita Dhande (TE-A)

STAFF APPRECIATION



We are delighted to share that Prof. Amit Aylani has successfully completed his Ph.D. in Technology. This remarkable academic milestone reflects his unwavering dedication, intellectual rigor, and passion for research and innovation. His achievement not only strengthens the academic excellence of our department but also serves as an inspiration to students and colleagues alike. We wholeheartedly congratulate him on this well-deserved accomplishment and look forward to his continued scholarly contributions and impact on the academic community and beyond.

Heartiest congratulations, Dr. Amit Aylani!

UPCOMING EVENTS

- **CESA WILL HOST COGNITIVE CLASH — THE AI-ML SHOWDOWN & UI UX DESIGNATHON IN OCTOBER 2026**

- **CSI-VIT WILL HOST UI UX BASED COMPETITION & ONE WEEK SYMPOSIUM IN COLLABORATION WITH CYBERFRAT ON EMERGING TRENDS AND TECHNOLOGIES IN OCTOBER 2026.**

- **GDG-VIT WILL HOST IDEATHON "INNOVEST 2026" & CODING COMPETITION"CTRL+ALT+DISTRACT" IN OCTOBER 2026**

> The best way to predict the future is to invent it
> — Alan Kay

THE

EDITORIAL TEAM

DR. AMIT K. NERURKAR

Chief Editor