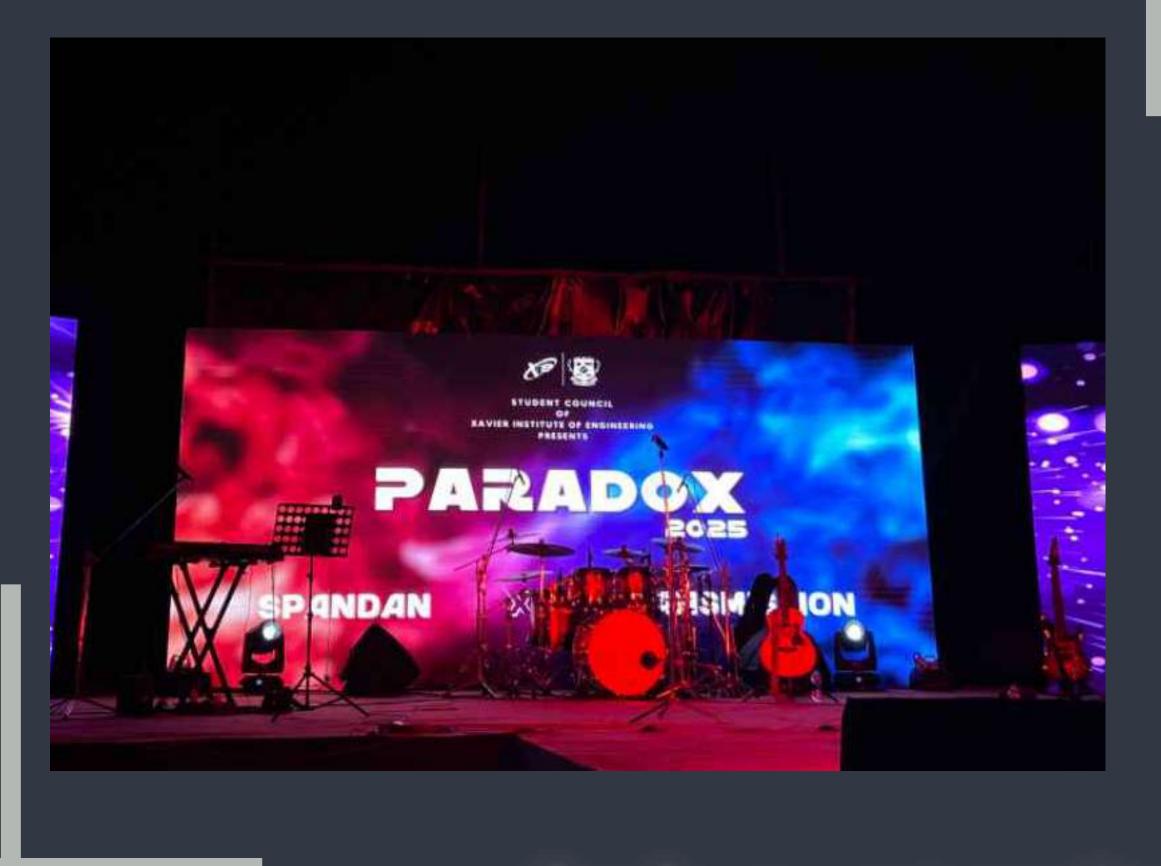
## College Insider

academics



Achievements



JANUARY EDITION

Institute
of
Engineering

Xavier



Department of Information Technology

#### Departmental Vision

To nurture the joy of excellence in the world of Information Technology

#### Departmental Mission

M1: To develop the critical thinking ability of students by promoting interactive learning.

M2: To bridge the gap between industry and institute and give students the kind of exposure to the industrial requirements in current trends of developing technology.

M3: To promote learning and research methods and make them excel in the field of their study by becoming responsible while dealing with social concerns.

M4: To encourage students to pursue higher studies and provide them awareness on various career opportunities that are available.

#### Program Educational Objectives (PEOs)

**PEO1:** Information Technology Engineering Graduates shall be employed as IT Professionals, and shall engage themselves in learning, understanding and applying newly developed ideas and technologies as their field of study evolves.

**PEO2:** information Technology Engineering graduates shall be competent to use the learnt knowledge successfully in the diversified sectors of Industry, academia, research and work effectively in a multi-disciplinary environment.

**PEO3:** Information Technology Engineering Graduates shall be aware of professional ethics and create a social responsibility in the building the nation/society.

#### Program Specific Outcomes (PSOs)

#### Student will be able to:

**PSO1:** Demonstrate the ability to analyze and visualize the business domain and formulate appropriate information technology solutions.

**PSO2:** Apply various technologies like intelligent systes, Data mining, IOT, Cloud and Analytics, Computer and Network Security etc. for innovative solution to real time problems.

## CONTENTS

#### ARTICLES ..... 01

Stay updated with the newest advancements and emerging trends that are shaping the tech landscape.



#### ACHIEVEMENTS ..... 16

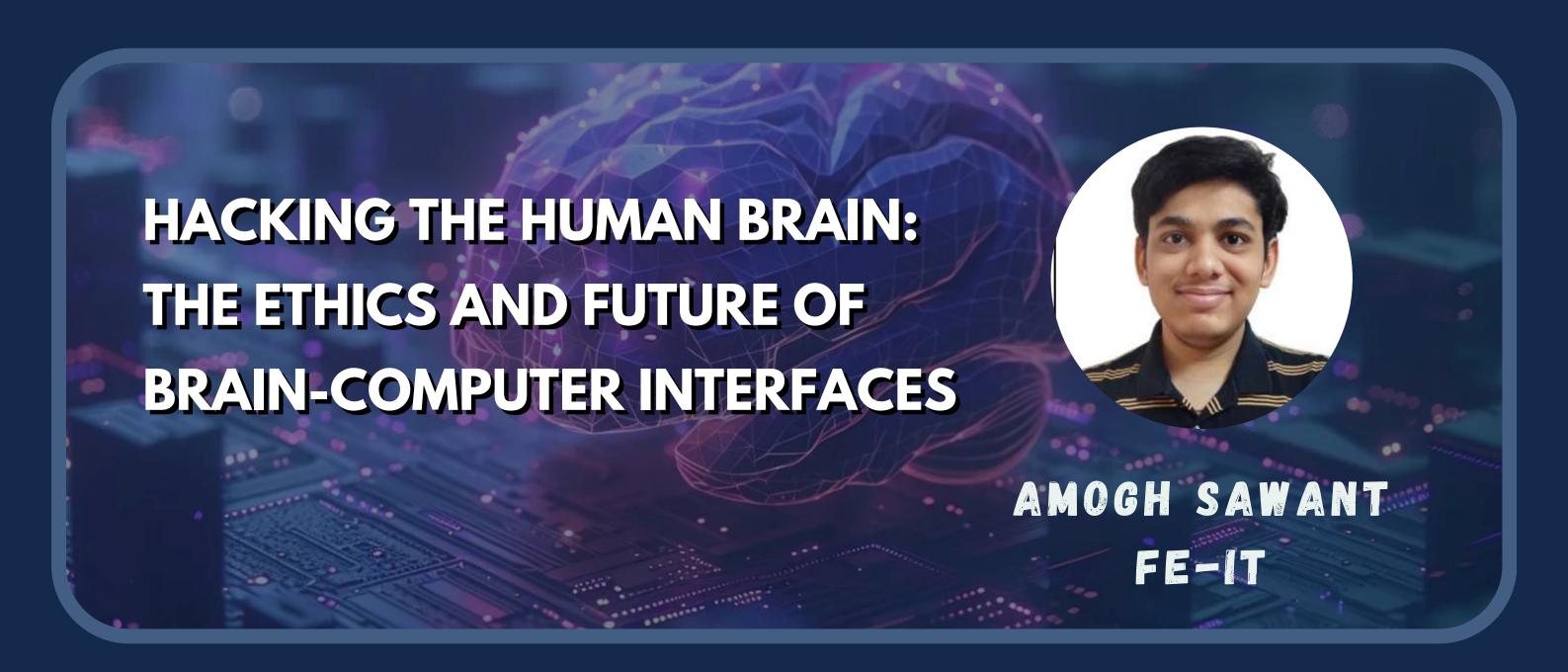
Highlighting the remarkable achievements and milestones of our students, faculties and department in academics, competitions, and beyond..



#### 

Get a glimpse into the academic and research activities undertaken by students and faculty, showcasing efforts to enhance knowledge and drive innovation.





#### Introduction

Brain-Computer Interfaces (BCIs) are emerging as one of the most groundbreaking technological advancements of the 21st century. These systems allow direct communication between the human brain and external devices, opening possibilities for medical applications, enhanced cognition, and even human-AI integration. However, with great power comes significant ethical and security concerns. Can BCIs truly revolutionize human capabilities, or are we heading toward a future filled with privacy risks and ethical dilemmas?



#### **Understanding Brain-Computer Interfaces**

BCIs use sensors to read brain signals and translate them into digital commands. These systems can be invasive (implanted directly into the brain) or non-invasive (using external electrodes). Companies like Neuralink, OpenBCI, and Kernel are pioneering advancements in BCI technology, aiming to enhance human interaction with machines and restore lost neurological functions.



#### **Key Developments & Applications**

BCIs have made remarkable progress in several areas:

**Medical Advancements:** BCIs help individuals with paralysis regain movement, assist stroke victims in rehabilitation, and provide new communication methods for people with disabilities.

**Neuroenhancement:** Future BCIs may boost cognitive functions such as memory, focus, and learning capabilities.

Gaming & Virtual Reality: BCIs are being explored to create immersive VR experiences controlled by thought alone.

#### **Future Implications**

The future of BCIs holds immense potential, but its trajectory depends on multiple factors:

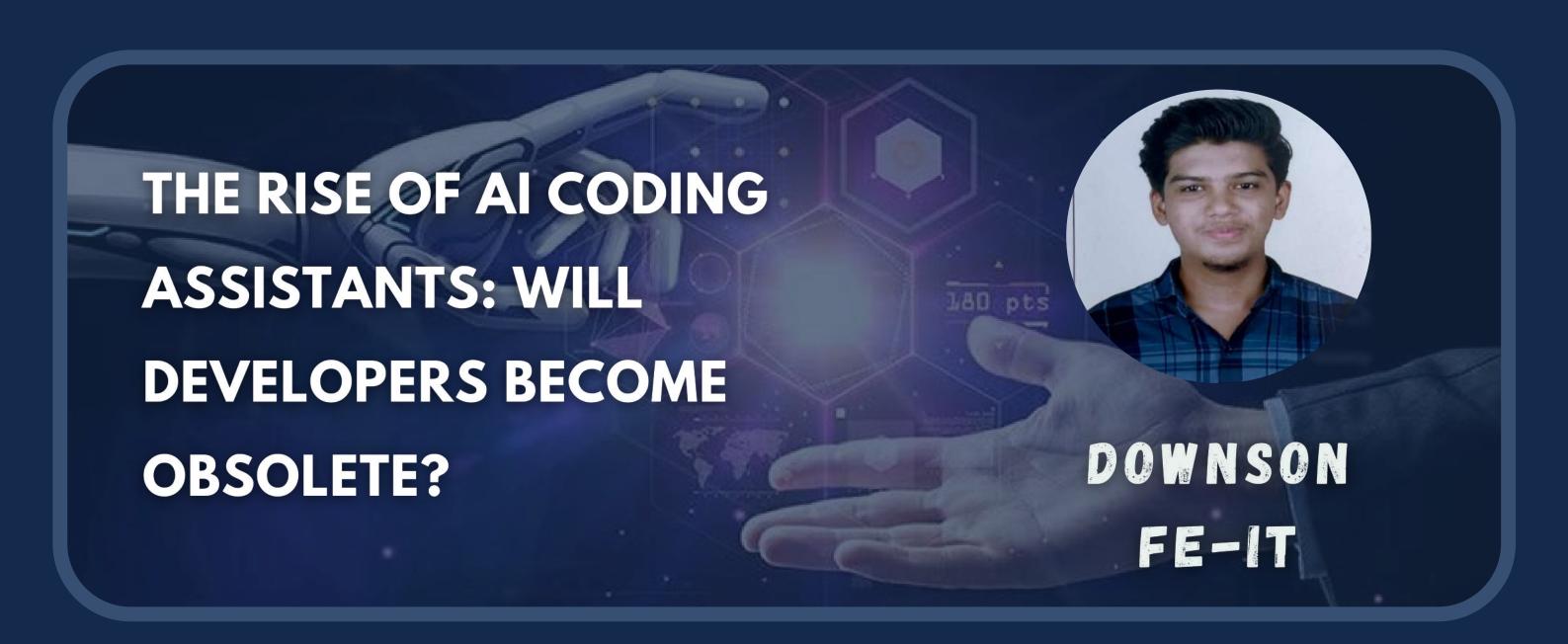
Revolutionizing Healthcare: BCIs could enable people with neurodegenerative diseases like ALS and Parkinson's to regain independence.

Expanding Human Capabilities: Enhanced BCIs may lead to superhuman cognition, allowing faster information processing and direct brain-to-brain communication.



#### Conclusion

Brain-Computer Interfaces represent a future where humans and machines merge more seamlessly than ever before. While the potential benefits are immense, careful consideration must be given to ethical and security concerns. Ensuring that BCI development remains responsible and inclusive will be crucial in determining whether this technology uplifts humanity or introduces new societal challenges.



#### Introduction

The rapid advancements in artificial intelligence (AI) are transforming numerous industries, and software development is no exception. AI-powered coding assistants like GitHub Copilot, Tabnine, and OpenAI's ChatGPT have revolutionized the way developers write code, offering real-time suggestions, debugging support, and even generating complete functions. This raises a critical question: will AI coding assistants eventually replace human developers, or will they serve as indispensable tools to enhance productivity?

#### Understanding AI Coding Assistants

AI coding assistants leverage machine learning models trained on vast repositories of code to provide real-time assistance to developers. These tools can suggest code snippets, optimize algorithms, detect errors, and even translate code between programming languages. By automating repetitive tasks, they allow developers to focus on problem-solving and innovation rather than syntax and boilerplate code.

#### **Key Developments & Applications**

The integration of AI in software development has seen significant progress:

**Code Autocompletion & Generation:** AI-powered tools help developers write efficient and error-free code by predicting and completing lines based on context.

**Bug Detection & Fixing:** AI models analyze code structures to identify vulnerabilities and suggest fixes, reducing debugging time.

**Automated Documentation:** AI assists in generating documentation, making codebases more readable and maintainable.

**Code Refactoring & Optimization**: AI helps improve code efficiency by suggesting performance-enhancing modifications.

#### **Future Implications**

While AI coding assistants streamline development, their impact on the industry will depend on several factors:

Increased Productivity: Developers can focus on high-level problem-solving rather than routine coding tasks.

Democratization of Coding: AI could lower the barrier to entry for non-programmers, enabling more people to build software solutions.



Shift in Skill Requirements: Developers will need to adapt, focusing more on design thinking, software architecture, and AI model training.

#### Challenges & Ethical Concerns

Despite their benefits, AI coding assistants pose several challenges: Code Quality & Reliability: AI-generated code may introduce subtle errors or inefficiencies that require human oversight.

Intellectual Property & Copyright Issues: AI models trained on publicly available code may inadvertently suggest proprietary code snippets, raising legal concerns.

Over-reliance on AI: Developers who depend too much on AI tools may experience skill degradation, limiting their ability to solve complex problems independently.



#### Conclusion

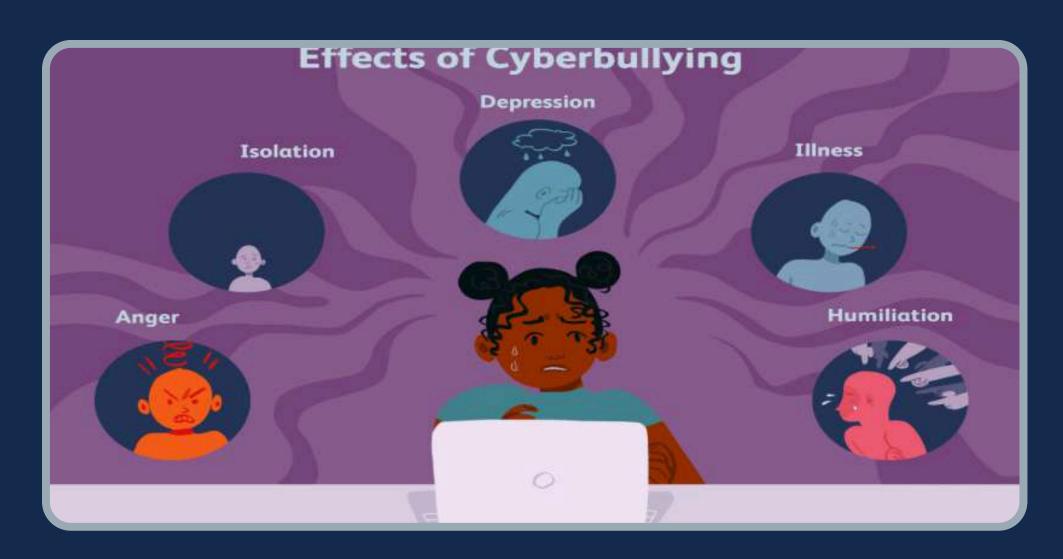
AI coding assistants are transforming software development by automating repetitive tasks and enhancing productivity. However, they are unlikely to replace human developers entirely. Instead, the role of developers will evolve, requiring them to work alongside AI, leveraging its capabilities while ensuring ethical and high-quality software development. The future lies in a balanced collaboration between human creativity and AI efficiency.

## CYBERBULLYING AND ITS IMPACT ON MENTAL HEALTH: CAN TECHNOLOGY HELP?



#### Introduction

In today's world, where we are always connected through phones and computers, technology has brought many benefits. But it has also created a new problem: cyberbullying. Unlike face-to-face bullying, cyberbullying happens online, and it can follow people everywhere, even into their homes. This makes it hard for victims to escape its effects.



#### How Cyberbullying Affects Mental Health.

Cyberbullying can cause serious mental health issues like anxiety, depression, and low self-confidence. Some victims even develop suicidal thoughts. Since bullying online can be anonymous, it often makes people feel helpless. Harmful messages or posts can spread quickly, and once they are online, they are hard to erase, leading to embarrassment and stress.

#### Can Technology Be the Solution?

The same technology that enables cyberbullying can also help stop it. Here's how:

#### 1. Smart Tools to Catch Bullying

Social media platforms now use artificial intelligence (AI) to find and remove harmful comments or posts. These tools can stop bad behavior before it does too much damage.

#### 2. Report and Block Options

Apps like Instagram and Facebook allow users to report, block, or mute bullies. These features give victims some control and help them protect themselves.

#### 3. Teaching Safe Online Behavior

Schools and organizations are teaching kids and adults how to behave online. Lessons on kindness, respect, and the effects of bullying are shared through apps and online courses.



#### 4. Mental Health Apps

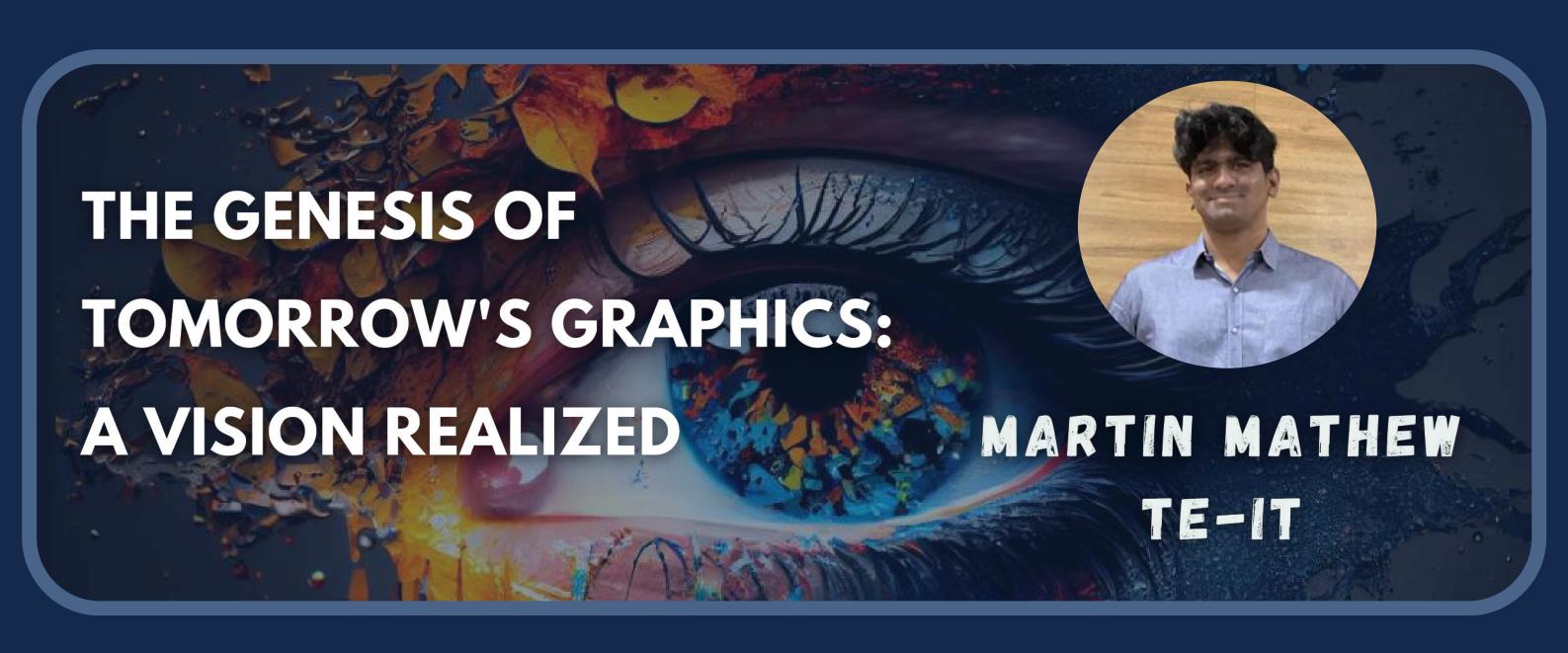
Apps like Woebot and BetterHelp offer support to people affected by cyberbullying. They provide tools to manage emotions and connect with counselors for advice and therapy.

#### 5. Stronger Rules Against Bullying

Governments and tech companies are creating stricter rules to deal with cyberbullies. Technology is also being used to track bullies and hold them accountable, while keeping victims safe.

#### **Moving Forward**

By working together, we can make the internet a safer place where people feel supported and valued, not attacked or bullied.



#### Introduction

In the realm of technological evolution, certain moments stand as watershed points where aspiration meets achievement, where tomorrow's dreams materialize into today's reality. NVIDIA's unveiling of the RTX 50 Series at CES 2025 marks precisely such a moment. With CEO Jensen Huang taking the stage to unveil the new series, the RTX 5090 emerged as the cornerstone of this new era, promising to reshape the landscape of computational graphics.

The journey toward photorealistic rendering has been the holy grail of computer graphics for decades. Now, with the RTX 5090, that destination no longer shimmers on the horizon; it stands before us, tangible and real. Through its groundbreaking architecture and innovative design, we witness how this technological marvel redefines our understanding of what's possible in digital visualization.



#### Design and Engineering Excellence

The RTX 5090 is an embodiment of years of cutting-edge research, bringing NVIDIA's vision of unparalleled graphical performance to life. It embodies the culmination of years of tireless engineering, driven by a singular goal: to reshape how we experience digital content. This graphical powerhouse has been built from the ground up to deliver not just incremental improvements, but transformative changes in computational capabilities.

The 5090's design is a testament to NVIDIA's relentless pursuit of innovation. The sleek and futuristic aesthetic is matched only by the meticulous engineering that lies beneath. With an intricate cooling solution, a robust and expansive architecture, and an intelligently designed power delivery system, the 5090 promises to redefine expectations for thermal efficiency, performance, and longevity.

#### The Blackwell Architecture: Forging the Silicon Soul.

At the heart of the RTX 5090 lies the Blackwell Architecture, the driving force behind its astonishing leap in performance. Blackwell is more than just a refinement of its predecessors; it represents a paradigm shift in how GPUs process data. In this architecture, we find the perfect fusion of raw computational power and precision optimization, allowing the 5090 to push graphical fidelity to unprecedented heights.

The Blackwell design architecture focuses on multi-layered improvements; each thread of its design is aimed at eliminating bottlenecks and amplifying performance. It's a sophisticated blend of technological breakthroughs and engineering discipline that enhances real-time ray tracing, AI performance, and power efficiency.

#### Conclusion: The Vision Realized.

As we stand at this crossroads, looking back at how far we've come, and forward to what lies ahead, it's clear that the RTX 5090 isn't just a GPU; it's the manifestation of a vision.



#### Introduction

In an era dominated by data-driven decision-making, the demand for faster and more efficient data processing continues to rise. Traditional cloud computing models, while powerful, often struggle with latency, bandwidth limitations, and security concerns. Edge computing emerges as a revolutionary approach, bringing data processing closer to the source, reducing latency, and enhancing overall efficiency.



#### What is Edge Computing?

Edge computing is a distributed computing paradigm that processes data near the source of generation rather than relying on a centralized cloud infrastructure. This approach minimizes the need to send large volumes of data to remote data centers, thereby improving response times and reducing bandwidth costs.

#### **Key Benefits of Edge Computing**

- 1. Reduced Latency By processing data locally, edge computing significantly decreases the delay in transmitting data to centralized servers, making real-time processing more feasible.
- 2. Bandwidth Optimization Edge computing reduces the amount of data sent to the cloud, leading to lower bandwidth consumption and cost savings.
- 3. Enhanced Security and Privacy Keeping data closer to its source minimizes exposure to cyber threats and enhances data privacy by limiting the need for transmission over external networks.
- 4. Scalability Edge computing supports distributed processing, allowing businesses to scale their operations efficiently by deploying edge nodes as needed.
- 5.Improved Reliability Localized processing ensures that even if the cloud connection is disrupted, critical functions can continue to operate independently.

#### **Applications of Edge Computing**

Edge computing is transforming various industries by enabling faster and more efficient data processing. Some of its key applications include:

- **Healthcare** Real-time patient monitoring devices analyze data locally, allowing for quicker medical interventions.
- Smart Cities Edge-powered IoT devices enhance traffic management, energy distribution, and public safety.

#### The Future of Edge Computing

As industries continue to embrace digital transformation, edge computing is expected to play a crucial role in shaping the future of data processing. With advancements in 5G technology, AI, and IoT, edge computing will become even more powerful, enabling smarter and more responsive applications. Businesses that adopt edge computing early will gain a competitive advantage in an increasingly data-driven world.

# DEEPSEEK: THE NEW AI ON THE BLOCK AND WHY EVERYONE'S TALKING ABOUT IT



As a college student constantly juggling assignments, research, and the occasional existential crisis, I've come to rely heavily on AI tools to make life a little easier. From ChatGPT helping me with programming to Grammarly fixing my grammar disasters, AI has become my go-to study buddy. But recently, there's been a new name buzzing around the tech world: DeepSeek. It's being hailed as the next big thing in AI, and as someone who's always curious about the latest tech trends, I decided to dive deeper into what makes DeepSeek stand out—and whether it's worth the hype.

#### What is DeepSeek?



DeepSeek is an advanced AI platform that claims to outperform many existing AI models in areas like natural language processing, data analysis, and even creative tasks like content generation. Unlike some of its competitors, DeepSeek is designed to be highly adaptable, making it suitable for industries ranging from healthcare to finance, and yes, even academia. Its ability to process vast amounts of data quickly and provide actionable insights has made it a hot topic in tech circles,

#### DeepSeek vs. Other AI Models

Let's be real—ChatGPT, Bard, and Claude have been dominating the AI conversation for a while now. So, how does DeepSeek stack up?

- **Speed and Efficiency:** DeepSeek is reportedly faster at processing complex queries, which is a huge plus when you're racing against a deadline.
- **Accuracy:** While ChatGPT sometimes gives me answers that sound plausible but are factually wrong (we've all been there), DeepSeek claims to have a better accuracy rate, especially for technical and research-based tasks.
- **Customization**: DeepSeek allows users to fine-tune the AI for specific needs, something that's still a bit clunky with other models.

However, it's not all sunshine and rainbows. DeepSeek's user interface isn't as intuitive as ChatGPT's, and it's still playing catch-up in terms of brand recognition. Plus, it's not as widely available yet, which brings me to my next point.

eepSeek V3 vs Claude Sonnet vs GPT-4o				
Challenge	DeepSeek	C-Sonnet	GPT-40	
Cost	\$0.10	\$0.30	\$3.20	
Chain of Thought	High	High	Medium	
Functionality	Excellent	Good	Good	
Time	7:10 min	5:20 min	9:05 min	
Tool-Use	Fair	Good	Excellent	

#### How Different Countries Feel About DeepSeek.

The reception of DeepSeek varies across the globe, and it's fascinating to see how different cultures and economies are responding to this new AI.

• **India:** With its booming tech industry, India is embracing DeepSeek for its potential to revolutionize education and business. However, affordability and accessibility remain concerns.

- **United States:** The U.S. tech community is cautiously optimistic. Many see DeepSeek as a potential game-changer, especially for industries like healthcare and finance. However, there's also skepticism about whether it can truly outpace established players like OpenAI.
- **China:** As the birthplace of DeepSeek, China is all in. The government and private sector are heavily investing in its development, seeing it as a way to gain a competitive edge in the global AI race.
- **Europe:** European countries are more reserved, focusing on ethical concerns and data privacy. DeepSeek's compliance with GDPR (General Data Protection Regulation) will be a key factor in its success there.

#### Advantages of DeepSeek.

- Versatility: DeepSeek can handle a wide range of tasks, from writing code to analyzing data, making it a one-stop solution for students and professionals alike.
- Global Potential: DeepSeek's multilingual capabilities make it accessible to a broader audience, breaking down language barriers.

#### Disadvantages of DeepSeek.

- Learning Curve: It's not as user-friendly as some of its competitors, which can be frustrating for non-tech-savvy users.
- Ethical Concerns: Like all AI, DeepSeek raises questions about data privacy, bias, and job displacement. These issues need to be addressed for it to gain widespread trust.

#### Conclusion.

As a college student, I'm excited about the possibilities DeepSeek brings to the table. Its speed and accuracy could be a game-changer for research and productivity. However, it's still early days, and the AI landscape is evolving rapidly. Whether DeepSeek will dethrone ChatGPT or carve out its own niche remains to be seen.

#### Achievements



Proff.Meena Ugale received certification from International Journal of Electrical & Computer Engineering for contribution in the journal as a Reviewer.

Prof.Meena Ugale

**Professor of IT Department** 





Prof.Suvarna Aranjo guided & co-ordinated with student from SE-I.T Mr. Jay Kshirsagar to conduct robotics workshop in association with Techfest,IIT-B as a faculty co-ordinator.

## Prof. Suvarna Aranjo





Mr. Jay Kshirsagar conducted a Robotics Workshop in association with Techfest,IIT-B under the guidance of Prof. Suvarna Aranjo.

Jay Kshirsagar
s.E-I.T





Gaurav Kashelkar topped in the dept of I.T in MU(University Topper) for SEM-VII

#### Gaurav Kashelkar

B.E-I.T



#### Joint Achievement of Kanchan Kumari & Disha Jaiswal

- 1) I was a speaker at the 9th National Cyber Psychology Conference organized by Responsible Netism, where the theme was 'Youth for Cyber Wellness.' Representing the youth perspective, I delved into the technical aspects of social platforms and intermediaries, highlighting critical loopholes and the need for better cyber regulations. Through my insights, I emphasized the importance of digital responsibility and cybersecurity awareness. This experience not only strengthened my public speaking skills but also deepened my passion for cybersecurity. I was honored to receive a Letter of Appreciation from Responsible Netism for my contribution as a speaker.
- 2) I participated in the Cyber Sakhi Training Program, organized by Responsible Netism in collaboration with Dosti House. This initiative focuses on cybersecurity awareness and digital safety, equipping individuals with the skills to prevent cybercrimes and promote responsible internet usage.

On the first day, we had the opportunity to visit the U.S. Embassy in BKC, where we explored the need for such initiatives and delved into digital safety concerns affecting individuals today. On the second day, we underwent training at PTVA College, where we learned how to actively serve as Cyber Sakhis, supporting and guiding those who have fallen victim to cybercrimes.

This experience has deepened my commitment to cybersecurity, and I look forward to equipping others with this knowledge to create a safer and more aware digital community.

#### Kanchan Kumari

S.E-I.T











Disha Jaiswal
s.e-i.t



#### Activites



NEP Implementation in Engineering & Technology event organized by University of Mumbai in collaboration with A.P Shah Institute of Technology

#### Prof. Jyostna More





NEP Implementation in Engineering & Technology event organized by University of Mumbai in collaboration with A.P Shah Institute of Technology

Prof. Stella J.





Mr. Prudhvi Vakapalli of IT Department and Prof. Mishil Patel and conducted a two-day Python training program at St. Augustine English School, Parbhani from 03-04 January 2024. They conducted a hands-on training based on The Joy of Python for the students and staff of the school.

Mr.Prudhvi Vakapalli

Lab Assistant of IT Department





Dr.Jaychand Upadhay delivered a session in "FDP on AI Tools for Academics" on 18th January 2025. Tools covered:Typeset,Wordtune.

Dr. Jaychand Upadhay

**HOD of I.T Department** 





Prof. Chhaya Dhavale recently took session on prompt engineering in interdisciplinary faculty development program. Stalin Sir,Amit Sir,Sulochana Mam & Martina Mam were the participants.

Tool covered:ChatGPT.

## Prof. Chhaya Dhavale





Proff.Suvarna Aranjo delivered a session in "FDP on AI Tools for Academics" on 18th January 2025. Tool covered:Jenni AI.

## Prof.Suvarna Aranjo





Proff.Meena Ugale delivered a session in "FDP on AI Tools for Academics" on 18th January 2025. Tool covered:Affor AI.

#### Prof.Meena Ugale

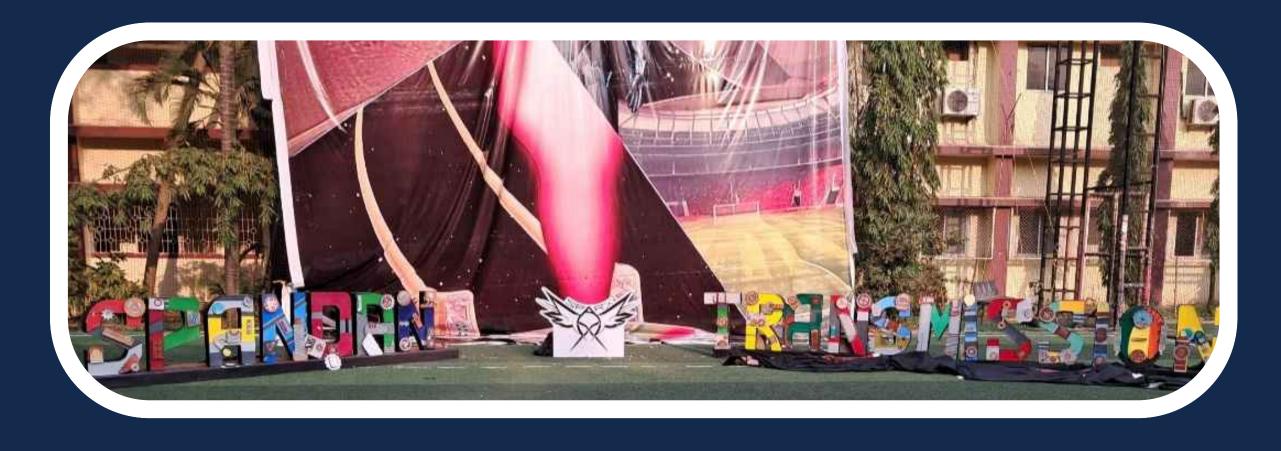












The month of January started with full of events. Various students from I.T department took part and some won in competitions held in the annual event of college themed as 'PARADOX'='SPANDAN X TRANSMISSION'. Also, this year for the very first time a 24-hours Hackathon was held by the name 'TECHNOVA'.

NAME OF THE STUDENT/CLASS	EVENT	
F.E-I.T Chiragkumar Kapadia Other players: Bhavik Sawant Sanskruti Magar Suraaj Dabhade Madhura Kakad	Real-Life LUDO	
F.E-I.T Durva Deorukhkar Veronica Franco Jevin Faleiro Harsh Patil	Scavenger Hunt	
F.E-I.T Madhura Kakad	Blind Voyage	
S.E-I.T Jay Kshirsagar	Tech-Mystery Box	
S.E-I.T Sarthak Sanjay Ghadge Niket Jha	Tech Talk Battles	
S.E-I.T Sarthak Ghadge Niket Jha John Bright Bhoomika Bhoir	Code Sprint	
S.E-I.T all active participants & winners Sports Boys & Girls	Rink Football(Boys),Open Football(Boys/Girls),Kabaddi(Boys),Table Tennis(Single/Doubles),Volleyball(Girls), Open Cricket(Boys/Girls),Relay(Single Girls)	
T.E-I.T  Bibhor Mishra  Sachin Vishwakarma  Himanshu Tiwari  Chandan Rajpurohit  Abhishek Konge  Kein Machado  Omkar  Nikhil Chilliveri	Cricket Runner-up	
T.E-I.T  Aman Parab  Vinit Sukale  Priyadarshini Sandilyan  Harshad Sawant	Tech-Mystery Box	
T.E-I.T Om Deshmukh,Beatrice Gomes	Soul Tunes,Shades Of Imagination	

NAME OF THE STUDENT/CLASS	EVENT	
T.E-I.T all active participants & winners Sports Boys & Girls	Badminton(Boys/Girls/Mix Doubles/Boys Doubles/Girls Doubles),Table Tennis(Girls),Box Cricket(Boys),Arm Wrestling(Boys/Girls),Sports Fitness(Girls)	
B.E-I.T Mangesh Pangam Saish Rane Nelson Kolas Parth Chaudhary	Code Relay	
B.E-I.T Mayuresh	Step-up Solo	
B.E-I.T Harshit Jain	Sports Fitness(Boys)	
Akib Sayed	Dye Hard	

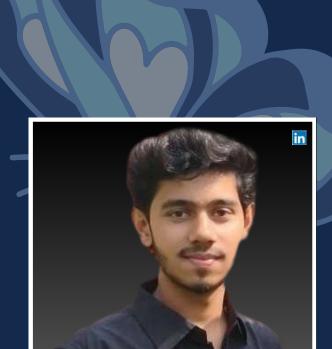
NAME OF THE STUDENT/CLASS	POST	
S.E-I.T	Robotics H.O.D-Team	
Jay Kshirsagar	Transmission	
S.E-I.T Aarya Sawant	Security H.O.D-Core Team	
S.E-I.T Sanchit Patil Darwin D'Souza Sarvesh Singh	Marketing H.O.D-Core Team	
S.E-I.T	Graphics H.O.D-Team	
Disha Jaiswal	Transmission	
S.E-I.T Aditya Sanka	Decoration H.O.D-Core Team	
S.E-I.T	LAN Gaming Volunteer-Team	
Jason Fernandes	Transmission	
S.E-I.T	Informal Volunteer-Team	
Vaishnavi Karanje	Spandan	
S.E-I.T	Informal Volunteer-Team	
Harshitha Nakka	Spandan	
T.E-I.T Pradnesh Patil	Security H.O.D-Core Team	
T.E-I.T	Software & Coding-Team	
Zia Sayed	Transmission	
T.E-I.T	Informals H.O.D-Team	
Nikhil Chiliveri	Spandan	
T.E-I.T	Logistics Volunteer-Core	
Pranav Deogaonkar	Team	
T.E-I.T	Security Volunteer-Core	
Chirag Moolya	Team	
T.E-I.T	Security Volunteer-Core	
David Dennis	Team	

### A A B I I G B E W





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