VIDYAVARDHINI'S COLLEGE OF ENGINEERING & TECHNOLOGY

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Department of Information Technology
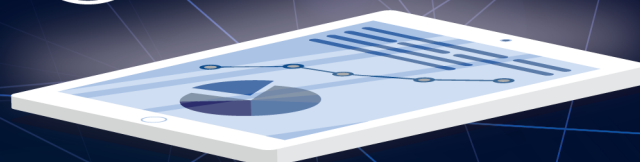
Presents

I-TECH
MAGAZINE

LOGIN TO EXPLORE

Latest News,
Articles,
Blogs & more!

2023 | 14th Edition

Vision & Mission

VISION

To foster and maintain excellence by orienting the captivating minds of the aspiring engineers towards IT- driven technological solutions for the benefits of the society.

MISSION

- To provide quality education, by employing best and diversified teaching practices and tools, and teaching beyond the confines of the university syllabus.

- To keep students abreast with latest technological advancements in the market.

- To prepare students to troubleshoot and solve IT system problems.

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY

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From
HOD's Desk

HOD, IT

I am immensely proud to present you 14th edition of VCET, Information Technology Departmental Magazine, "LOGIN... To Explore ". The magazine gives an insight into the initiatives taken by the department to inculcate superior virtues in the students and encourage them.
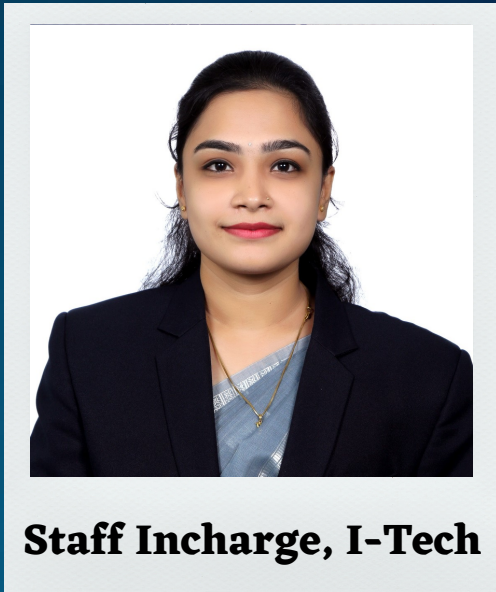
The department endeavors to produce confident professionals tuned to real time working environment and aims to offer excellent academic environment with a team of highly qualified faculty members to inspire the students to develop their technical skills and inculcate the spirit of team work in them. The Magazine and Newsletter of our department facilitates our students and faculty members to publish their achievements and efforts.

Reflecting upon all the activities taking place in the department, the face of the department has changed considerably whether it is the number of co-curricular activities to new course offerings, the environment continues to grow and evolve.

All this wouldn't have been possible without the spirit of co-operation and understanding between the staff and the students. I convey my warm regards to the entire I-Tech team for their relentless efforts and extend my best wishes for their future endeavors.

Prof. Thaksen Parvat
Head of Department, Information Technology (VCET)

Staff Incharge, I-Tech

From
Staff-Incharge's Desk

I am delighted to present the 14th edition of "LOGIN... To Explore", the Annual Technical Magazine of Department of Information Technology. Departmental Committee 'I-Tech' provides a flair to the latest technological advancement. The key purpose of this magazine is to convey to the readers the trends and development in the field of Information Technology.

The inhouse annual magazine reflects the success stories of our students and the faculty members. It is circulated to all students and faculty members containing information including Curricular & Extra-curricular activities. It also highlights the top-notch rankers in University, whereas the Newsletter rives insights of all the greatest accomplishments of the IT industries around the globe.

On behalf of 'I-Tech' Committee we would like to extend our sincere gratitude to Our Beloved Principal Dr. Harish Vankudre for his support and also Our HOD Prof. Thaksen Parvat for their valuable guidance. Special thanks to our dedicated Team of Designers, Editors, and PRs and also the entire I-TECH Committee who have put in their heart and soul to the making of this magazine.

We are sure you will enjoy the technological extravaganza this magazine holds.

Happy Reading...

Ms. Snehal Mhatre
Staff-In Charge, I-TECH Committee

Chairperson, I-Tech

From
Chairperson's
Desk

"Technology is a tool that can enable us to do incredible things, but it's up to us to use it wisely and with purpose."

- Sundar Pichai

I'm delighted to present you the 14th edition of LOGIN, The Annual Technical Magazine of the Department of Information Technology, in which the I-TECH committee aspires to brief the Students on how the technological advancements are changing society and what that means for the future. Through "LOGIN," the I-TECH committee aims to inform the students about the most recent developments and studies in the area of information technology. It also illustrates how IT is fusing with many other industries, leading to many amazing developments. It also praises the students' accomplishments in co-curricular and extracurricular activities.

I would like to extend my sincere gratitude to our honorable H.O.D. Prof. Thaksen Parvat, and our respectable staff-in-charge, Ms. Snehal Mhatre, for relentlessly guiding and encouraging the I-TECH committee, I would also like to thank the team members for their commitment and enthusiastic attempt in the making of this magazine. The I-TECH committee will keep educating the students with the newest technological extravaganza and outdo itself by producing a better edition of the journal every year.

Abhishek Jani
Chairperson, I-TECH Committee

LOGIN

Quantum Computing

Quantum computing is a type of computing that uses quantum-mechanical phenomena, such as superposition and entanglement, to perform operations on data. Unlike classical computers, which use bits to represent and process information, quantum computers use quantum bits, or qubits. Because of the properties of quantum mechanics, a qubit can exist in multiple states simultaneously, which allows quantum computers to perform certain types of calculations much faster than classical computers.

Some examples of the potential use cases of quantum computing include:

- Cryptography: breaking modern encryption schemes that would take centuries.

- Drug discovery and materials research: simulating complex molecular systems

- Machine learning: solving optimization problems

- Financial modeling: simulating the behavior of financial systems.
  However, the technology is still in its early stages and has several practical and theoretical challenges that still need to be overcome before it can be widely adopted.

- Cryptography in quantum computing

Quantum computing has the potential to fundamentally change the field of cryptography. One of the most significant implications of quantum computing on cryptography is that it could break many of the commonly used public-key encryption algorithms, such as RSA and Elliptic Curve Cryptography (ECC), that are currently considered secure. These encryption algorithms rely on the fact that it is computationally infeasible to factor large composite numbers or find the discrete logarithm of a large prime number, but quantum computers can solve these problems exponentially faster than classical computers.

Quantum Key Distribution (QKD) is a technique that makes use of the properties of quantum mechanics to securely distribute a secret key between two parties. This technique is based on the Heisenberg uncertainty principle and the no-cloning theorem, which state that it is impossible to measure or copy a quantum state without altering it. Therefore, any attempt to intercept or eavesdrop on a quantum key will be detected.

The National Institute of Standards and Technology (NIST) is currently in the process of standardizing post-quantum cryptography, which are cryptographic systems that are secure against an attack by a quantum computer. These systems include lattice-based, code-based, and multivariate-quadratic-equations based systems.

- Machine learning in quantum computing

Quantum computing has the potential to accelerate certain types of machine learning tasks. One area where quantum computing could be particularly beneficial is in solving

optimization problems, which are a fundamental component of many machine learning algorithms.

One example of a quantum algorithm for optimization is the Quantum Approximate Optimization Algorithm (QAOA), which uses quantum gates to find approximate solutions to combinatorial optimization problems. QAOA has been shown to be able to find near-optimal solutions to problems such as maximum cut, maximum clique, and many other NP-hard problems faster than classical algorithms.

Another example is the use of quantum machine learning for supervised and unsupervised learning, where quantum algorithms can be applied to extract useful information from large datasets. One such algorithm is the quantum principal component analysis (PCA), which can extract the most significant features in a dataset exponentially faster than classical PCA.

A quantum version of support vector machine (SVM) called Quantum Support Vector Machine (QSVM) has also been proposed, which can classify data exponentially faster than the classical SVM.

However, it is important to note that the field of quantum machine learning is still in its early stages, and more research is needed to fully understand the potential of quantum computing in machine learning and develop practical quantum algorithms.

- Financial modeling in quantum computing

Quantum computing has the potential to revolutionize the field of financial modeling. The ability of quantum computers to perform certain types of calculations much faster than classical computers could enable more accurate and complex simulations of financial systems.

However, it is important to note that the field of quantum finance is still in its early stages, and more research is needed to fully understand the potential of quantum computing in financial modeling and to develop practical quantum algorithms.

- By Yogesh Jain

BE-IT

Goodbye Dashboards: How Modern BI Tools Are Being Used to Analyze Data

Not all that long ago, the only way for businesses to readily access their data was through dashboards. And, even then, these predefined and static dashboards provided data that was restricted only to citizen data scientists and data analysts. Standalone, static dashboards also inadvertently distract users and force them to shift their focus from their typical tasks in order to glean insights from data that are often overly broad to begin with. These days, however, businesses are increasingly adopting modern business intelligence (BI) tools to analyze their large volumes of data.

Let's take a look at how – and why – businesses are migrating toward modern BI tools and why those tools are so useful for analyzing data.
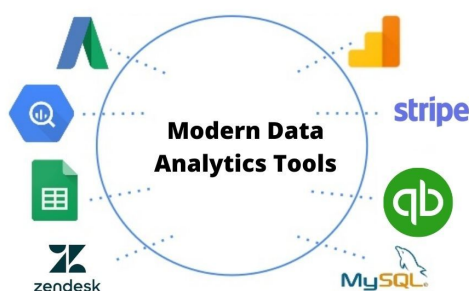
Why Dashboards No Longer Work as Primary Data Analysis Tools

When people talk about moving away from dashboards in order to address their modern business intelligence requirements, they don't necessarily mean that dashboards are dead and completely obsolete – rather, the "death" of the dashboard really means that businesses have alternative methods through which they can communicate their data.

While dashboards once were the only reliable source of data that drove informed business decisions, modern analytics stacks allow organizations to analyze every piece of data that they gather; the same can't be said of traditional business intelligence dashboards, which now limit the agility of their data analysis and competitive edge.

The catalyst behind this shift? Without a doubt, innovative data analysis tools: AI and ML technologies and automated analytics tools deliver in-depth data analysis and make it possible for organizations to seize data-driven opportunities. Many of these emerging technologies don't even require that their users possess the technical expertise to use them, which means businesses can glean deeper insights more quickly and efficiently without requiring their employees to develop new skill sets and shift their attention from their typical workloads.

Available Connectors

Modern Data Analytics Tools

Why Modern BI Tools Are So Useful for Varied Data Analysis

In our modern and hyperconnected world, data is driving businesses and informing their decisions in innumerable ways. Key trends such as AI/ML, data science, and big data analytics are at the forefront of the modern market, and as organizations strive to streamline their business processes, it becomes imperative that they embrace data-driven models.

Below are some of the biggest reasons why modern BI tools are more flexible and ultimately more useful than dashboards when it comes to data analysis.

Ability to Work with Smaller Sets of Data

In the wake of the COVID-19 pandemic, historical data has lost much of its relevance as the modern business landscape undergoes permanent changes. Scalable and intelligent AI/ML techniques are supplanting more traditional ones, and they can visualize and summarize relatively small sets of data. .

Digital Differentiation and Innovation

Data analytics models can facilitate significant digital innovation and growth. Agile, composed data and analytics models aim to create an experience for users accessing and interacting with data that is flexible and intuitive.

Edge Computing for Faster Analysis

Despite the preponderance of big data analytics tools that are saturating the modern market, there still persists the issue of businesses needing to process huge volumes of data. To address the need to process so much data, in order to visualize and summarize large volumes of data.

Thanks to quantum mechanics, processing capabilities require less bandwidth and can provide improved data privacy and security. Edge computing for faster analysis presents a much more attractive alternative to classical computing considering that a processor's quantum bits can solve problems in just a minute or two. Although it still requires more fine-tuning before becoming suitable for widespread public adoption, edge computing for faster analysis will inevitably become crucial to many organizations' business processes.

- By Aditya Trivedi

TE - IT

The Role of Artificial Intelligence in Cybersecurity

Introduction:

As cyber threats become more sophisticated, traditional cybersecurity measures may not be enough to protect us. The emergence of artificial intelligence (AI) in cybersecurity has created new opportunities to enhance our defenses against cyber attacks. In this article, we'll explore how AI is being used in cybersecurity and what benefits it brings.

What is AI in Cybersecurity?

AI is being used in cybersecurity to analyze vast amounts of data and detect patterns that humans may not be able to recognize. AI can be trained to recognize known threats and also detect unknown or "zero-day" threats. AI-powered security systems can also provide real-time monitoring and response to cyber attacks.

Benefits of AI in Cybersecurity:

The use of AI in cybersecurity provides several benefits, including:

Improved detection and response times: AI-powered security systems can detect and respond to cyber attacks much faster than traditional methods.

Increased accuracy: AI can analyze large amounts of data and identify potential threats with high accuracy.

Reduced false positives: AI can analyze data and identify legitimate threats, reducing the number of false positives.

How is AI used in Cybersecurity?

AI is being used in cybersecurity in several ways, including:

Network Security: AI is used to monitor network traffic for suspicious activity and identify potential threats.

Endpoint Security: AI is used to monitor devices and detect potential threats on endpoints such as laptops, desktops, and smartphones.

Behavioral Analytics: AI is used to analyze user behavior and detect anomalies that may indicate a security breach.

Vulnerability Management: AI is used to identify potential vulnerabilities in software and applications before they can be exploited by cybercriminals.

Challenges in Using AI for Cybersecurity:

While AI has many benefits in cybersecurity, there are also some challenges to consider, including:

Complexity: Implementing AI-powered security systems can be complex and require significant resources.

False Negatives: While AI can detect threats with high accuracy, there is always a risk of false negatives, which can result in an attack going undetected.

Conclusion:

AI is revolutionizing the way we approach cybersecurity, and its benefits are undeniable. The use of AI in cybersecurity provides improved detection and response times, increased accuracy, reduced false positives, and adaptability to evolving cyber threats.

- By Insha Mulla

BE - IT

Blockchain Technology: Revolutionizing Industries and Transforming Business Models

Introduction:

Blockchain technology has emerged as one of the most disruptive and transformative technologies of the 21st century. Originally developed to underpin cryptocurrencies, it has quickly become clear that blockchain technology has far-reaching implications for a wide range of industries. In this article, we'll explore the fundamentals of blockchain technology, how it works, and its impact on various industries.

What is Blockchain Technology?

In this section, we'll define blockchain technology and explore its key features, such as decentralization, immutability, and consensus mechanisms. We'll also examine the different types of blockchain networks, such as public, private, and consortium blockchains.

How Does Blockchain Technology Work?

This section will delve deeper into how blockchain technology works, including how transactions are verified, how blocks are added to the chain, and how consensus is reached among network participants. We'll also look at the role of smart contracts in blockchain networks, which allow for self-executing contracts with predefined conditions.

Blockchain Applications and Use Cases

In this section, we'll explore the many potential applications and use cases for blockchain technology. We'll look at how blockchain is being used in financial services, supply chain management, identity management, voting systems, and other industries. We'll also examine some of the challenges and limitations of blockchain technology.

Blockchain in Action: Case Studies

In this section, we'll examine several real-world examples of how blockchain technology is being used to solve real-world problems. We'll look at projects such as IBM's Food Trust, which is using blockchain to improve food safety and traceability, and Provenance, which is using blockchain to increase transparency in fashion supply chains.

The Future of Blockchain Technology

Finally, we'll explore the future of blockchain technology and its potential impact on industries and society as a whole. We'll examine emerging trends such as decentralized finance (DeFi), non-fungible tokens (NFTs), and central bank digital currencies (CBDCs). We'll also look at some of the challenges and obstacles that must be overcome in order for blockchain to reach its full potential.

Conclusion:

Blockchain technology is still in its early stages, but its potential for disruption and transformation is enormous. As more businesses and industries recognize the benefits of blockchain, we can expect to see widespread adoption and innovation in the coming years. By understanding the fundamentals of blockchain technology and its potential applications, businesses can position themselves for success in the 21st century economy.

- By Kedar Malap

TE - IT

Driving Towards Driverless Cars

If you had to choose a single technology that's already changing urban mobility in the most fundamental way, what would it be?

Autonomous driving technology is promising, rapidly developing, and a real game changer in the automotive, smart cities, transportation, and other related sectors. Unsurprisingly, self-driving cars have become a hot topic on both corporate blogs that specialize in autonomous driving technology and automotive magazines.

A self-driving car is a computer-controlled vehicle that drives itself. Also referred to as an autonomous vehicle, driverless car, or robotic car (robotic-car), a self-driving car analysis its environment to safely move and react without human input.

In 2014, the engineering group SAE International created six levels of driving automation which have since been adopted by the U.S. Department of Transportation. These include:

Level 0: No automation

Level 1: Driver assistance

Level 2: Partial driving automation

Level 3: Conditional driving automation

Level 4: High driving automation

Level 5: Full driving automation

6 Levels of Driving Automation

The driver monitors the driving environment

Level 0	Level 1	Level 2
No Driving Automation	**Driver Assistance**	**Partial Driving Automation**
Driving as usual. A human is continuously in control of speed and direction and is required to always operate the vehicle safely.	A human must do all the driving, but the vehicle offers smart performance and driving capabilities which add layer of safety and comfort.	Key automated capabilities (steering and acceleration) become standard, but driver is still in control and needs to monitor the rest of the driving tasks.

The automated system monitors the driving environment

Level 3	Level 4	Level 5
Conditional Autonomy	**High Driving Automation**	**Full Automation**
The vehicle can operate independently. Steering functions, braking and acceleration are automated, but the driver must be prepared to intervene.	The vehicle can perform all driving functions under specific circumstances, but the driver has the option to control it at any time.	The vehicle is completely automated and performs all driving tasks. The human's attention or interaction is not required at all.

Automakers have already announced Level 3 autonomous driving cars—and are working to develop and deploy Level 4 self-driving trucks as well as commercial robotaxis. According to Accenture, vehicles with full-on self-driving capabilities could start hitting highways as early as 2030.

Most advanced driver-assistance systems (ADAS) powering vehicles with various levels of autonomy leverage a combination of specialized cameras and sensors to create an internal map of the vehicle's surroundings. These sensors include:

· **Lidar**—Pulses thousands of beams of infrared laser light at objects to calculate distances and avoid objects.

· **Radar**—Uses radio waves to measure angles, ranges, and velocities of objects in most environmental conditions.

· **Sonar**—Identifies large objects made of solid materials, such as metal and ceramics, at short distances.

· **Inertial navigation system**—Helps self-driving cars stabilize themselves.

· **GPS**—Geolocates with numerical coordinates, including latitude and longitude, while navigating by combining real-time GPS coordinates with other digital map data applications.

Self-driving cars analyze the data generated by these sensors to plot navigational paths and react in real-time by stopping, speeding up, slowing down, and avoiding objects. They reduce the risk of accidents and collisions by implementing safeguards, alerting drivers, and taking full control of a vehicle if necessary. Moreover, self-driving cars automatically detect and react to other vehicles, bicyclists, pedestrians, construction zones, potholes, traffic accidents, and traffic jams. Perhaps most importantly, self-driving cars enforce safety standards that may be deliberately or accidentally ignored by human drivers.

Semiconductors in connected vehicles and self-driving cars power extremely complex electronic systems. In the past, vehicle electronic systems implemented flat architectures with isolated functions controlling various components of the powertrain and vehicle dynamics. These electronic systems communicated primarily through legacy bus interconnect protocols, such as controller area network (CAN) and media-oriented systems transport (MOST) technologies.

PROS OF SELF-DRIVING CARS

1. Prevention of car crashes

Of the 37,133 vehicle fatalities in 2017, 94% of the crashes were due to human error. Computers based on sophisticated systems and algorithms will essentially eliminate costly human error. Major causes of accidents, including drunk or distracted driving, will not be factors with self-driving cars. It's estimated self-driving cars can reduce accidents by up to 90%.

2. Traffic efficiency

One of the major benefits of self-driving cars is their ability to communicate with each other. With this ability to communicate in real-time, cars would be able to travel efficiently at optimized distances from each other. They'd also determine the best route for you to take, as to eliminate bumper-to-bumper traffic jams.

3. Better access and mode of transportation

For those who cannot or choose not to drive, self-driving cars could be a safe and reliable mode of transportation. Those with a disability or the elderly would be able to get into a self-driving car without putting others at risk.

Cities with limited public transit coverage would also benefit from self-driving cars. Self-driving cars can easily reach areas where infrastructure is lacking.

4. Environmentally friendly

Another significant factor in the self-driving cars pros and cons debate is the environment. Autonomous cars will likely be electric rather than utilizing internal-combustion engines. Furthermore, the consistent speeds self-driving cars will be traveling at will reduce constant braking and accelerating. These factors will all contribute to reducing emissions and becoming more environmentally sustainable.

CONS OF SELF-DRIVING CARS

1. Security issues

One of the potential cons about self-driving cars is the possibility of hacking. To have automated cars talk and coordinate with each other, they would need to share the same network protocol. If a large number of cars share the same network, however, they would be susceptible to a hack.

2. Job losses

Those who depend on driving to make a living may find their career obsolete with the introduction of self-driving cars. Those in the trucking industry, bus drivers, taxi drivers, will all need to find new employment. Fast food delivery and Uber drivers would also find themselves replaced by automated cars.

3. Initial costs

While self-driving cars may produce significant societal cost-savings in the long-term, the initial cost of automated vehicles may be astronomical. Some experts estimate it could cost an additional $250,000 per vehicle to own a fully autonomous vehicle. Of course, as new technology matures, cost should come down. In the early stages, however, the barrier to entry may be too high for the general population.

4. Moral Machine dilemma

Another one of the disadvantages to self-driving cars is their lack of ability to make judgments between multiple unfavorable outcomes. For example, what if a self-driving car had to face a situation with only two possible options:

5. Machine error

Machine error must be taken into consideration when examining the pros and cons of driverless cars. While most agree self-driving cars will likely prevent more accidents from happening, it does not completely eliminate the risk of accidents caused by machine error.

-By Karan Gandhi

SE - IT

Career in UI/UX

UI/UX (User Interface/User Experience) is increasingly important in the 21st century because it has a direct impact on the success of digital products and services. Here are some reasons why UI/UX is critical in today's digital world:

User expectations: In today's digital age, users expect intuitive and user-friendly interfaces. A poorly designed interface can lead to frustration and a negative user experience, which can result in a loss of customers.

Increased competition: With so many digital products and services available, there is a lot of competition. Good UI/UX design can help companies differentiate themselves from their competitors and provide a better user experience, leading to increased customer loyalty.

Mobile devices: With the rise of mobile devices, UI/UX design has become even more critical. Mobile screens are smaller, and users expect fast and easy access to information. A well-designed mobile interface can make all the difference in providing a positive user experience.

Accessibility: UI/UX design is also essential for making digital products and services accessible to everyone, including those with disabilities. An accessible design can increase the reach and usability of a product or service, improving its overall impact.

Data-driven design: UI/UX design has become more data-driven in recent years, with designers using analytics and user feedback to optimize designs. This data-driven approach can lead to better user experiences and more effective digital products and services.

UI/UX is essential in the 21st century because it directly impacts the success of digital products and services. With user expectations on the rise, increased competition, and the importance of mobile devices and accessibility, UI/UX design has become more critical than ever.

UI/UX (User Interface/User Experience) design is a growing field in the tech industry that deals with the user's interaction with digital products. As technology becomes more prevalent in our daily lives, UI/UX designers play a vital role in creating user-friendly and visually appealing experiences. If you have recently completed your Engineering graduation in Information Technology or Computer Science or AIDS(Artificial Intelligence and Data Science), CSDS(Computer Science and Data Science) and are interested in pursuing a career in UI/UX, this article will guide you on how to get started.

Understand the basics of UI/UX design: Before diving into UI/UX design, it's essential to understand the fundamentals. Familiarize yourself with design principles, color theory, typography, and usability testing. Several online courses, tutorials, and blogs can provide you with the necessary knowledge.

Build a portfolio: Building a portfolio is crucial for showcasing your skills and attracting potential employers. Start by designing your projects, including wireframes, prototypes, and mockups. It's also advisable to include case studies that describe your design process, research, and user testing.

Participate in design challenges and competitions: Participating in design challenges and competitions can help you improve your skills and gain exposure. There are several online platforms like Behance, Dribbble, and 99designs that offer design challenges and competitions.

Attend networking events: Attend UI/UX design meetups, conferences, and events to network with other professionals in the field. Networking can help you gain insights into the industry, connect with potential employers, and find mentors.

Seek internships: Applying for UI/UX internships can provide you with practical experience and a chance to work alongside experienced professionals. Internships can help you understand the design process, gain insights into the industry, and develop your skills.

Keep up with the latest design trends: UI/UX design is a constantly evolving field, and it's essential to stay updated on the latest design trends and technologies. Subscribe to design blogs, follow industry leaders on social media, and attend webinars and workshops.

Master design tools: To become a UI/UX designer, you must be proficient in design tools like Sketch, Adobe XD, Figma, and InVision. Familiarize yourself with these tools and practice using them to create mockups, wireframes, and prototypes.

Collaborate with developers: UI/UX designers work closely with developers to ensure that designs are implemented correctly. Familiarize yourself with the development process and collaborate with developers to create a seamless user experience.

Pursuing a career in UI/UX design after completing Engineering graduation in Information Technology or Computer Science requires a combination of practical experience, design skills, and industry knowledge. By following the tips outlined above, you can develop the necessary skills and stand out as a UI/UX designer.

There are several online courses available for UI/UX designers, both free and paid, which can help you improve your skills and gain industry knowledge. Some of the most popular courses and certifications are:

UX Design Course - DesignLab

User Experience (UX) Design - Springboard

UI/UX Design Specialization - CalArts

Interaction Design Foundation (IDF) - various courses

UX Design Essentials - NN/g

Human-Computer Interaction - Georgia Tech

User Experience Design - Coursera

UI/UX Design Master Course - Udemy

UX Design Bootcamp - General Assembly

Some of these courses offer certificates upon completion, which can be beneficial for your career. However, it's important to note that a certification alone doesn't guarantee a job in UI/UX design. Employers value practical experience and a strong portfolio, so it's essential to work on building those in addition to taking courses.

UI/UX role in IT companies:

UI/UX design is critical in both product-based and service-based IT industries. Here are a few reasons why:

User-centered design: UI/UX design focuses on creating a positive user experience. In a product-based industry, a great user experience can lead to repeat purchases and positive reviews, while in a service-based industry, it can lead to increased customer satisfaction and loyalty.

Differentiation: In a competitive market, good UI/UX design can differentiate a company's products or services from those of its competitors. For example, a product with a better design can stand out in a crowded marketplace and attract more customers.

Cost savings: Poor UI/UX design can lead to costly rework and increased customer support costs. Good UI/UX design can help prevent these issues by creating a design that is intuitive, easy to use, and meets the user's needs.

Branding: UI/UX design can reinforce a company's brand and create a consistent look and feel across all of its products and services. This can help build trust with customers and make it easier for them to recognize and remember the company.

Innovation: Good UI/UX design can help drive innovation by identifying user needs and developing new features and products that meet those needs. In a service-based industry, this can lead to new and improved services that provide more value to customers.

In summary, UI/UX design is essential in both product-based and service-based IT industries. It can help companies create a positive user experience, differentiate their products or services, save costs, reinforce their branding, and drive innovation.

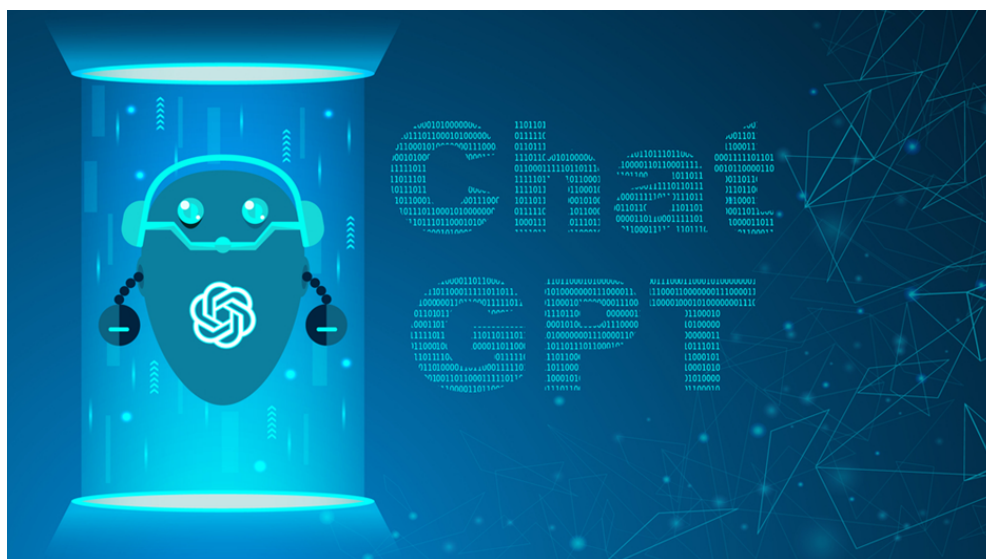-By Dr Madhavi Waghmare

INFT Dept.

Dean Student Affairs

VCET, Vasai

ChatGPT: A Glimpse Into The Power Of AI

The capabilities of this chatbot are shocking! What's next? ChatGPT is a chatbot developed by OpenAI that uses a variant of the GPT-3 (Generative Pre-trained Transformer 3) language model to generate human-like responses to user input. It is designed to be able to hold natural, engaging conversations with users on a wide range of topics. GPT-3 is a powerful language model that uses machine learning techniques to generate human-like text. It has been trained on a massive dataset of web text, allowing it to generate coherent and relevant responses to user input. ChatGPT is built on top of GPT-3 and is specifically designed for use in chatbot applications.

One of the key features of ChatGPT is its ability to generate responses that are tailored to the specific context of the conversation. It is able to understand the overall theme of the conversation and generate responses that are relevant to the current topic. This allows it to hold engaging and natural conversations with users, rather than simply providing generic responses or repeating pre-programmed phrases.

Another key feature of ChatGPT is its ability to learn from the conversations it has with users. As it converses with users, it can use machine learning techniques to improve its understanding of language and become more adept at generating appropriate responses. This allows it to continually improve over time and become a more effective chatbot. One potential use for ChatGPT is as a customer service chatbot, where it can assist customers with questions and problems related to a specific product or service. It could also be used as a general-purpose chatbot for social media platforms or messaging apps, allowing users to have natural conversations with a virtual assistant.

What Can You Create With ChatGPT?

1. Create Content

ChatGPT can be used for content creation, as it can easily write content based on a prompt. For instance, the AI tool can write a song based on a user's command. Moreover, ChatGPT can also help users to add a touch of elegance to their writing style and achieve their literary goals.

2. Generate AI Art

Since the introduction of DALLE-2, Midjourney, and other artistic AI tools, AI art generators have been at the forefront of the creation of artistic images. Moving ahead, OpenAI's ChatGPT has enormous potential in producing richly detailed Augmented Reality (AR) scenarios, when prompted.

3. Write Code and Debug

ChatGPT can process code, write code, and help developers debug codes as well. For instance, it can be used to generate SQL queries. Since knowledge of SQL is imperative for data scientists, using ChatGPT to enhance SQL skills can accelerate your career and take it to the next level.

4. Manage and Manipulate Data

Unstructured data is hard to sort, manage, and organize, making it redundant. ChatGPT comes to the rescue as it can convert unstructured data into a structured format by manipulating data. For instance, the tool can be used to add data to a table, make indexes, and understand JSON queries.

5. Explain and Tutor

It is interesting how well ChatGPT can explain words, code, and even physics. Consequently, ChatGPT will also have a huge impact on the education tech industry. Many edtech companies can now teach the fundamentals of a topic and make use of ChatGPT to offer students a platform to ask questions and clear their doubts.

- By Ms. Snehal Mhatre

INFT Dept

Asst . Professor

Cybersecurity Myths that You Should Know About

Even though there is increased concern regarding data security, some misconceptions and myths prevail. Organizations must ensure that they don't regard any misconceptions about cybersecurity to appropriately safeguard their sensitive information against cyber-attacks or threats.

Myths About Cybersecurity

1. Cyberthreats Don't Target Small Businesses

Often medium or small businesses might believe that their information is not of any value to cybercriminals and, thus, are saved from any data breaches. But this is not at all true. Cybercriminals might benefit more from hacking into a big corporation; however, they find it easier to hack into smaller businesses as they lack robust cybersecurity. This allows the hacker to extract any information and can force small businesses to shut down.

2. Antivirus or Anti-Malware is Enough

Companies feel that inserting antivirus or anti-malware software is enough to protect against cyber attacks. Even though having the two software is vital, hackers can find their way through these kinds of software easily. For more comprehensive data security, organizations need to include more complex cybersecurity solutions. They should be able to detect any threats before the hackers infiltrate their systems.

3. Cyberattacks Can Only be External

Beliefs about threats arising only from external sources are a big misconception. It is reported that insider threat has increased from $11.45 million in 2020 to $15.38 million in 2022, which is a 34% jump. Anyone from contractors and employees to business partners can be responsible for cyberattacks internally. Therefore businesses should be mindful of who has access to the sensitive data and should track how the data is being used.

4. Cybersecurity Solutions are Expensive

2021 witnessed the biggest spike in a data breach in 17 years, valued at $4.24 million. This amount generated is barring the cost companies face on the grounds of reputation and customer loss. Therefore making an investment in a robust cybersecurity solution is vital for all organizations if they want to protect themselves from greater expenses incurred from data breaches.

Understanding the myths around cybersecurity is quintessential for organizations of any size and industry. Cybercriminals attack all companies and if the business targeted does not have a robust cyber defense, then those companies will face a downfall.
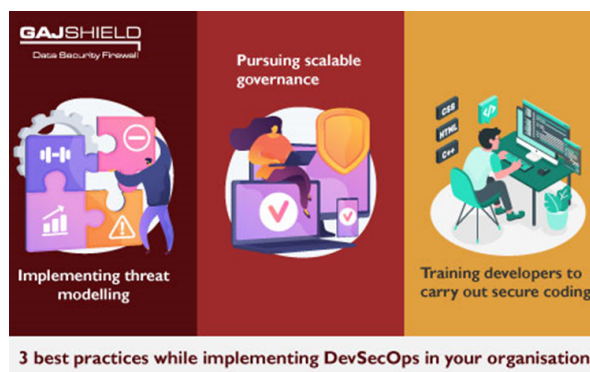
After quelling these myths, you need a solid and reliable data security infrastructure to protect your systems and data from threats, and Gajshield's intelligent firewall systems and access management tools, amongst other solutions, can be perfect for you.

-By Rohit Thakur

SE - IT

Best practices while implementing DevSecOps in your Organization

Incorporating DevSecOps enables you to build software applications in a secured manner. This term stands for implementing a holistic approach to data security right from the beginning to the very end of your software development life cycle. While you implement DevSecOps, certain best practices must be adopted to optimize the process.

3 best practices while implementing DevSecOps in your organisation

1. Implementing threat modeling

Threat modeling involves identifying all the potential vulnerabilities in your IT architecture before (and during) the DevSecOps process. This is a theoretical approach that involves treating network vulnerabilities as distinctive threats similar to malware and phishing. This approach lets you take all the necessary precautions while your developers create code and build your applications. Threat modeling slows down your CI/CD pipeline, but that is a minor trade-off for the security it provides for your DevSecOps implementation.

2. Pursuing scalable governance

Using the governance-as-code mechanism while developing software applications lets you automate and scale data security during DevSecOps.

3. Training developers to carry out secure coding

Developers need to be trained to know and avoid instances in which they create code in an insecure way. Additionally, it will enable your development, security, and operation teams to break out of data silos and make the software development process even more collective in nature.

To help you stay ahead of the curve, we've compiled a list of 15 DevOps security best practices and challenges.

1. Secure your application development process

The first step to securing your DevOps pipeline is to ensure that your application development process is secure. This means ensuring that only authorized developers have

access to your code repositories and that all code changes are reviewed and approved by a qualified reviewer before being merged into the main branch. It also helps to have developers that you trust to do the job properly and to observe cybersecurity best practices throughout. Consulting places like rightpeoplegroup.com makes finding these kinds of professionals much more straightforward.

2. Protect your production environment

Your production environment is where your application will ultimately be deployed and used by your customers. As such, it's important to ensure that this environment is as secure as possible.
One way to do this is to segment your production environment into separate tiers, each with its own level of access and security controls. This way, even if one tier is compromised, the others will remain protected.

3. Implement least-privilege principles

In general, it's best to follow the principle of least privilege when it comes to granting access to your DevOps resources. This means giving users only the permissions they need to perform their job and no more. The reason this is so important to follow is that your employees constitute your biggest cybersecurity threat. This is not always for nefarious reasons, but often simply because they do not have the knowledge or understanding to keep your business digitally secure at all times.

- By Bhagyesh Shinkar

TE - IT

FACULTY ACHIEVEMENTS

- Dr. Ashish V. Vanmali awarded with EduTech Leadership Award in 11th World Education Congress held on 7th July 2022

- Dr. Madhavi Waghmare & Ms. Vaishali Shirsath published book on Software Engineering For Computer Engineering, Third Year (Sem V) in Nirali Publication

- Dr. Madhavi Waghmare & Ms. Vaishali Shirsath published book on Software Engineering For Information Technology, Third Year (Sem V) in Nirali Publication

- Dr. Madhavi Waghmare & Ms. Vaishali Shirsath published book on Computer Network For Computer Engineering, Second Year (Sem III) in Nirali Publication

- Dr. Madhavi Waghmare & Ms. Vaishali Shirsath published book on Theoritical Computer Science For Computer Engineering, Third Year (Sem V) in Nirali Publication

- Dr. Madhavi Waghmare & Ms. Vaishali Shirsath published book on Automata Theory For Information Technology, Second Year (Sem IV) in Nirali Publication

- Ms. Vaishali Shirsath published book on Data Warehouse and Mining For Computer Engineering, Third Year (Sem V) in Nirali Publication

- Mr. Sainath Patil - Patent published at "Deutsche Patent" German Agency "A shortest path finding system to eliminate the network overhead during the communication", Nov 2022

- Project titled "Optimized Wi-Fi based Control System for Pond Aerators in Shrimp Farming" secured 2nd Rank in Avishkar under the guidance of Ms. Anagha Patil

- Ms. Anagha Patil, Author of "Artificial Intelligence and Data Science -II", ITC701, Sem VII, University of Mumbai, July 2022 for Tech-Neo Publication

- Ms. Anagha Patil, Author of "Cryptography and Sysetm Security", CSC602, Sem VI, University of Mumbai, Jan 2023 for Tech-Neo Publications

- Ms. Anagha Patil, Author of "Data Warehousing and Mining", ECC604,Sem VI, University of Mumbai, Jan 2023 for Tech-Neo Publications

- Ms. Anagha Patil, Published paper "A Comprehensive Review on Social Botnet Detection Techniques," 2022 International Conference on Augmented Intelligence and Sustainable Systems (ICAISS), Trichy, India, 2022, pp. 950-957, doi: 10.1109/ICAISS55157.2022.10010877.

STUDENT'S ACHIEVEMENTS
TECHNICAL EVENTS

No.	Name	Year	Rank	Event
1.	Tushar Mittal, Dhruvil Mehta & Shreyas Manoti	BE	2nd Position	Avishkar
2.	Vishal Gupta, Omkar Jadhav, Manaswi Jadhav & Shlok Shetty	SE	1st Position	VNPS'22
3.	Abhishek Jani, Zaid Khan, Jayesh Khandare & Saurabh Jagtap	SE	2nd Position	VNPS'22
4.	Abhishek Jani, Shreya Parchurkar	TE	1st Position	IEEE Poster Presentation
5.	Kedar Malap, Tanuj Bordikar & Saurabh Jagtap	TE	2nd Position	Hackathon 2022
6..	Jayesh Wadhe	TE	1st Position	Code-O-Fiesta
7.	Kushal Sankhe, Sarvmbh Sawant & Viditi Vartak	BE	1st Position	Oscillations 2023
8.	Tejas Kolwankar, Akshay Hegde & Nilesh Yadav	BE	1st Position	Oscillations 2023
9.	Shravani Gavali, Anish Dalvi, Vaishnavi Deokar & Harsh Churi	TE	1st Position	Oscillations 2023
10.	Aakash Bhandari, Fawaz Shaikh, Shobhit Singh & Aman Yadav	TE	2nd Position	Oscillations 2023
11.	Abhishek Jani, Zaid Khan & Jayesh Khandare	TE	1st Position	Oscillations 2023
12.	Aditya Shah, Karan Gandhi & Sahil Chalke	SE	2nd Position	Oscillations 2023

STUDENT'S ACHIEVEMENTS
CULTURAL & SPORTS EVENTS

No.	Name	Year	Rank	Event
1	Siddhi Vijay Chavan	FE	Runner up	Cricket (Avahan'23)
2	Abhishek Jani, Manaswi Jadhav	TE	Runners up	Duet Singing (Zeal'23)
3.	Rakesh Zore, Parth Patil, Kshitij Sonawane	TE SE SE	Runners up	NMIMS (Cricket)
4.	Divya Chaudhari(C) Harshita Madane Mrunmayi Patankar Shravani Gavli Aditi Khambe Shruti Lawand	BE BE BE TE TE SE	Runners up	Tug of war
5.	Harshita Madane(C), Divya Chaudhari Insha Mulla Harshita Madane Khushi Kashyap Mrunmayi Patankar Divya Sakre	BE	Winners (Classwise)	Cricket (Avahan'23)
6.	Isha Kule(C) Divya Sakre Divya Chaudhari Insha Mulla Harshita Madane Mrunmayi Patankar Mrunali Chogule Kajal Mahajan Aditi Khambe Shravani Gavli Pallavi Thakur Khushboo Mishra	BE BE BE BE BE BE BE BE TE TE TE SE	Runners Up (Departmental)	Kabaddi (Avahan'23)

STUDENT'S ACHIEVEMENTS
CULTURAL & SPORTS EVENTS

No.	Name	Year	Rank	Event
7.	Vaibhav Deshmukh(C) Naman Pandey Swajeet Chavan Aniket Korgaonkar Yogesh Jain Asim Churihar Chetan Kamble Rakesh Zore Kshitij Sonawane Parth Patil	BE BE BE BE BE BE BE TE SE SE	Runners Up (Departmental)	Cricket (Avahan'23)
8.	Khushboo Mishra , Aniruddha Rawool	SE SE	Winners	Carrom Mixed Doubles (Avahan'23)
9.	Shreya Parchurkar	TE	Runner Up	Solo dance (Zeal'23)
10.	Khushi Kashyap, Viditi Vartak	BE BE	Runners Up	Master Chef (Zeal'23)
11.	Omkar Jadhav	TE	Runner Up	Marathi Extempore (Litfest'23)
12.	Omkar Jadhav	TE	-	College Reporter (Maharashtra Times)
13	Insha Mulla	BE	Runner Up	English Extempore (Litfest'23)
14	Insha Mulla	BE	Runner Up	Dialogue Writing (Litfest'23)
15	Insha Mulla	BE	Winner	IEEE - Think aloud

STUDENT'S ACHIEVEMENTS
CULTURAL & SPORTS EVENTS

No.	Name	Year	Rank	Event
16.	Harshita Madane(C) Insha Mulla Mrunmayi Patankar Divya Sakre Jainil Shah Naman Pandey Chetan Kamble Shashank Nadankar Isha Kule Govind Bhattad Khushi Kashyap Divya Chaudhari Manthan Sarfare Harshal Patil Isha Modak	BE	Winners	Street play (Zeal'23)
17.	Siddhi Kolwankar(C) Divya Sakre Supriya Poojary Divya Chaudhari Meghna Ushinkar Mrunali chougule Harshita Madane Mrunmayi Patankar Insha Mulla	TE BE BE BE BE BE BE BE BE	Runners up (Departmental)	Volleyball (Avahan'23)
18.	Insha Mulla	BE	Runners up	Faceoff 10 (Litfest'23)

PLACEMENTS

Company Name	Offers
LTI	15
TCS	14
Citius Cloud	16
CapGemini	6
OMP	3
Zeus Learning	4
Mastek Ltd	2
Media.net	1
NeoSoft	1
Sogolytics	1
Content Stack	1
	Total = 64

TOPPER'S LIST

BE		
SR NO.	NAME OF THE STUDENTS	CGPI
1	Madhvani Soham Bhargav	9.16
2	Jadhav Granthali Dinesh	9.05
3	Deorukhkar Jayesh Milind	8.96
4	Pandya Harsh Maheshkumar	8.91
5	Bari Ruchi Prakash	8.81
6	Khator Dhruv Ramakant	8.77
	Total no. of Students=73	Result=98.63%

TE		
SR NO.	NAME OF THE STUDENTS	CGPI
1	Kolwankar Tejas Jeevan	9.40
2	Kadam Aaditi Sarjerao	9.40
3	Churihar Mohd Asim	9.04
4	Hegde Akshay Ganpati	8.80
5	Jain Yogesh Narendra	8.75
6	Bhalala Vaibhav	8.73
	Total no. of Students=81	Result=97.53%

SE		
SR NO.	NAME OF THE STUDENTS	CGPI
1	Shah Vatsal Harish Reena	9.3
2	Malap Kedar Rajendra Prajakta	9.20
3	Jani Abhishek Darshankumar Kavita	9.16
4	Dalvi Anish Subhash Sadiccha	9.090
5	Borse Dipak Balu Sitabai	9.085
6	Deokar Vaishnavi Vijay Kalpana	9.04
	Total no. of Students=75	Result=81.33%

ALL ABOUT OUR EVENTS

DEPARTMENT OF
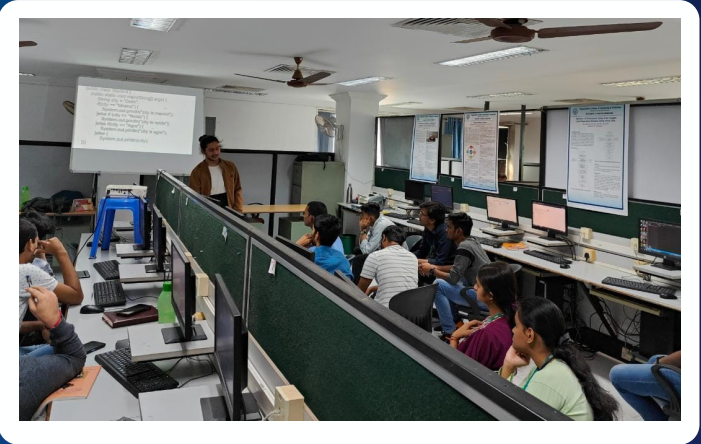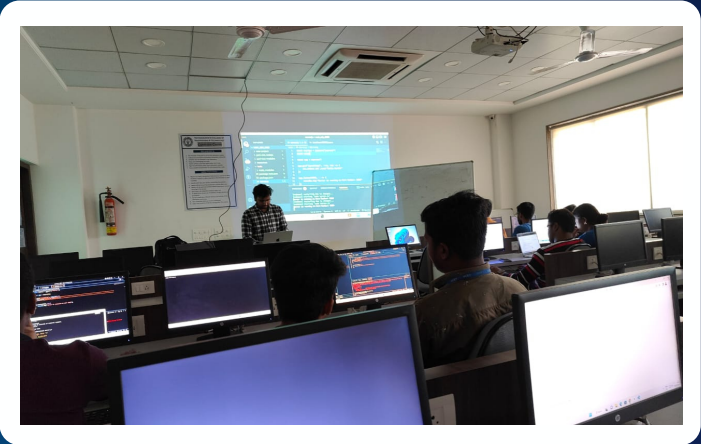INFORMATION TECHNOLOGY

EVENT PICTURES

I-TECH COMMITTEE

All Attendees of our SDP

SDP ON JAVA & MERN STACK
ORGANISED BY IT DEPARTMENT

Visit to Process Precision Instruments

Visit to AMUL

INDUSTRIAL VISIT's

ELIXIR'22
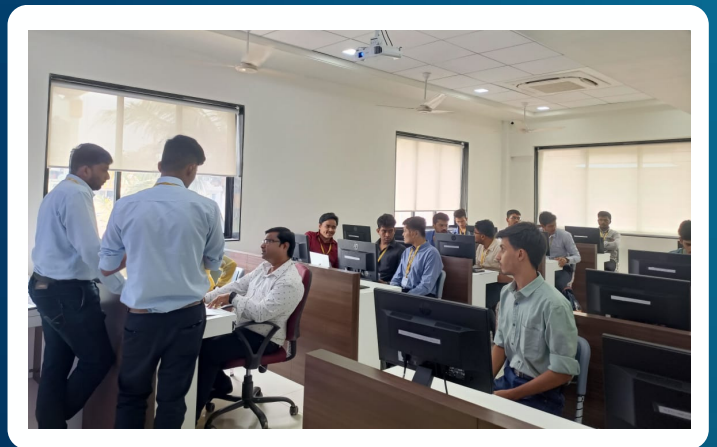## PRODUCT SHOWCASE

HACKATHON'22

VNPS' 22
NATIONAL LEVEL PROJECT PRESENTATION

Runner's Up - Avishkar

AVISHKAR '22 & ANVESHAN '23

OSCILLATIONS '23
TECHNICAL PAPER PRESENTATION

AVAHAN '23

ZEAL '23

I-TECH

MAGAZINE