VOLUME 10 ISSUE 2

NEW HORIZON COLLEGE OF ENGINEERING

Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC

Accredited by NAAC with 'A' Grade. Accredited by NBA

INFORMATION SCIENCE AND ENGINEERING

NEWSLETTER

I - NEWS

JANUARY-JUNE 2025

ABOUT THE DEPARTMENT

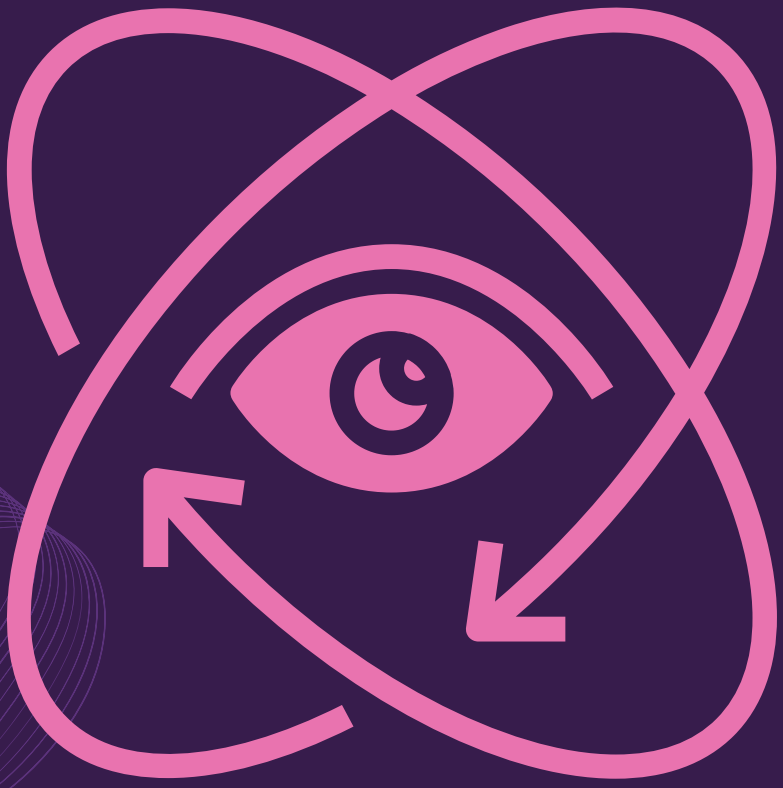
Information Science and Engineering department focuses on current Information Technology Trends, and Domain Specific Applications.

The program facilitates the evolution of skills in students to help them attain a higher degree of knowledge, global competency and Excellence, for the betterment of the society.

The Department of Information Science and Engineering at NHCE was established in the year of 2001 and offers graduate, post graduate and PhD programs. The four year B.E degree equip the students to meet day-today Technological advancements of the ever dynamic IT field through adept training on various subjects of curriculum of Information Science and engineering and beyond. The department offers B.E program through autonomous scheme from the year 2015. The department has a very good team of highly qualified and talented faculty members including Professors, Associate Professors and Assistant Professors.

VISION

To emerge as a Department of eminence in Information Science and Engineering in serving the Information Technology industry and the nation by empowering students with a high degree of technical and practical competence.



MISSION

To strengthen the theoretical, practical and ethical dimensions of the learning process by fostering a culture of research and innovation among faculty members and students.

To encourage long-term interaction between the academia and industry through their involvement in the design of curriculum and its hands-on implementation.

To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extracurricular activities.

MESSAGE FROM PRINCIPAL

It gives me great pleasure to give my best wishes to i-News, a Newsletter from the Department Of Information Science and Engineering Of New Horizon College Of Engineering, Bengaluru. The students and faculties of the department are always proactive in taking initiative in organizing all kinds of events.

I congratulate all achievers, contributors and editorial board for bringing out such an informative newsletter.

I hope this newsletter reflects all activities Of the department and inspires Others to do their best

MESSAGE FROM HOD

Welcome to i-News, the pulsating heartbeat of the ISE Department at New Horizon College of Engineering, Bengaluru. Our dedicated team of teachers and students have crafted this newsletter to showcase our remarkable achievements and vibrant activities. Within these pages, you'll discover a world of opportunities for students to engage in curricular, co-curricular, and extra-curricular activities through our various clubs. We celebrate milestones, share captivating projects, and highlight the spirit of our department. To our students, seize the gift of today and make it extraordinary. Congratulations to our faculties and editors for creating an exciting and interesting issue. Join us on this captivating journey as we shape the future together. Welcome to i-News, where possibilities come alive.

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INFORMATION SCIENCE AND ENGINEERING

NHBYTES

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INFORMATION SCIENCE AND ENGINEERING

FEBRUARY

GUEST TALK-BREAKING BORDERS-EXPANDING HORIZONS IN INTERNATIONAL EDUCATION

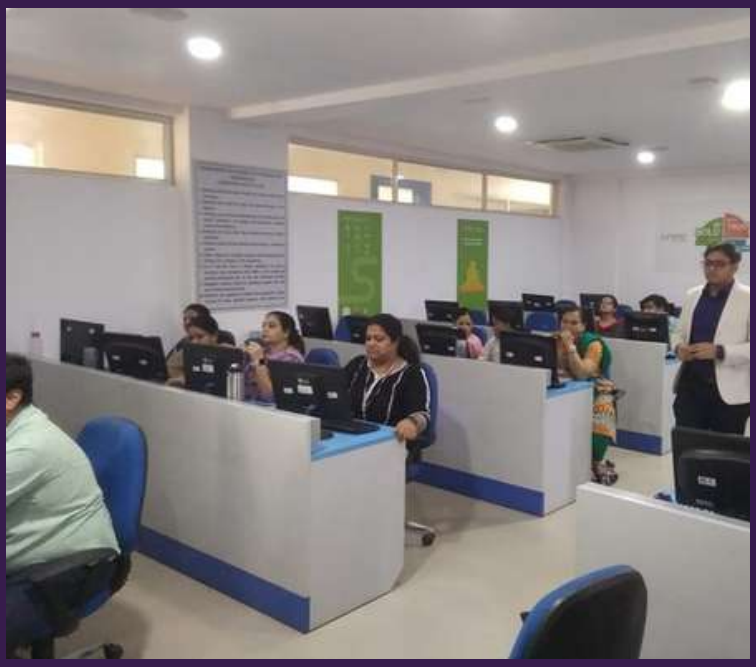
The Department of Information Science & Engineering at New Horizon College of Engineering hosted a Guest Talk titled "Breaking Borders-Expanding Horizons in International Education" on Friday, February 14, 2025, at 10:00 am. The event took place in the ISE Department, Chhatrapati Shivaji Block, NHCE. Ms. Shivani, an 8th-semester student, commenced the event with a welcome note, followed by a workshop introduction from Dr. Vandana C P, Head of the ISE Department. The participants of the event were 8th-semester students.

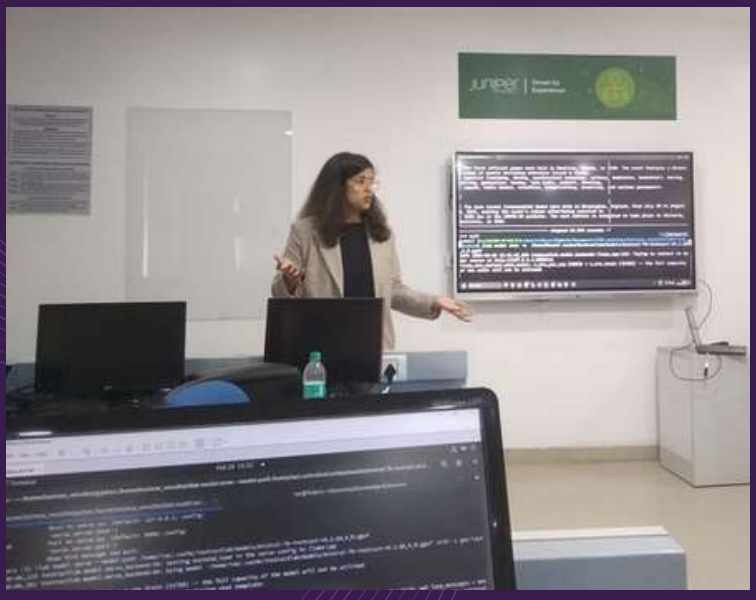
The Guest talk aimed to give students insights into international education, application procedures, scholarships, and career prospects. Students, faculty members, and experts in the field attended the event.

Topics Covered

1. Benefits of Studying Abroad
2. Application Process
3. Scholarships and Financial Aid
4. Visa and Immigration Process
5. Challenges and Adaptation

FDP-GENERATIVE AI: 5G AND BEYOND - NEXT GEN COMPUTING PARADIGMS





Department of ISE organized Two days of FDP on “Generative AI: 5G and Beyond- Next Gen Computing Paradigms" in association with IBM for the faculty members of New Horizon College of Engineering from 27-Feb to 28-Feb-2025 at Department of ISE, NHCE. Mr. Sachin Mudholkar, Generative AI COE Squad Leader, IBM India and his team, Mr. Yash Vardhan Singh, Lead Data Scientist and AI Expertise, and Ms. Khushboo Tak, Senior Data Scientist, took the sessions. The sessions were very informative and engaging, and they will also help the faculty of NHCE to implement innovative teaching for the course related to AI. The session was attended by around 35 faculty from NHCE.

This 2-day workshop (27-28 Feb 2025) covers Generative AI fundamentals, foundation models, AI agents, and hands-on labs. Topics include prompt engineering, RAG, fine-tuning, telco AI, 5G use cases, and IBM's InstructLAB. Led by experts Sachin Mudholkar, Yash Vardhan Singh, and Khushboo Tak, it blends theory with practical sessions.

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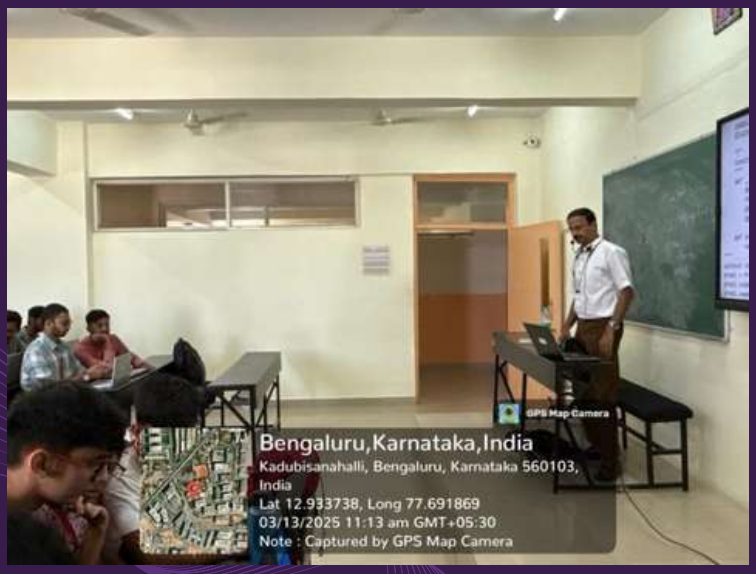
MARCH

SOCIAL OUTREACH PROGRAM -LEARNING WITH GAMIFICATION

On March 7, 2025, the Department of Information Science and Engineering organized a social outreach program titled "Learning with Gamification." Ms. Neha Jadhav, Ms. Shruthi G R, and 15 fourthsemester ISE students visited Varthur Government High School in Varthur, Bengaluru. The program aimed to engage students through interactive games and activities. For the boys, a dodgeball game was organized. This game involved running, jumping, and overall physical activity, helping them develop quick movements, agility, and present-moment awareness. A chit-game was conducted for the girls. Each participant picked a chit containing an unknown topic. This game encouraged them to use their articulation skills to form different perspectives and opinions, fostering a space for sharing fun ideas and experiences. After the session was successfully completed, the faculty coordinators gifted the school two cartons of colored and white chalk as a token of appreciation.

WORKSHOP ON PROTOTYPE/PROCESS DESIGN AND DEVELOPMENT: EMPOWERING INNOVATION AND MARKET-READY SOLUTIONS

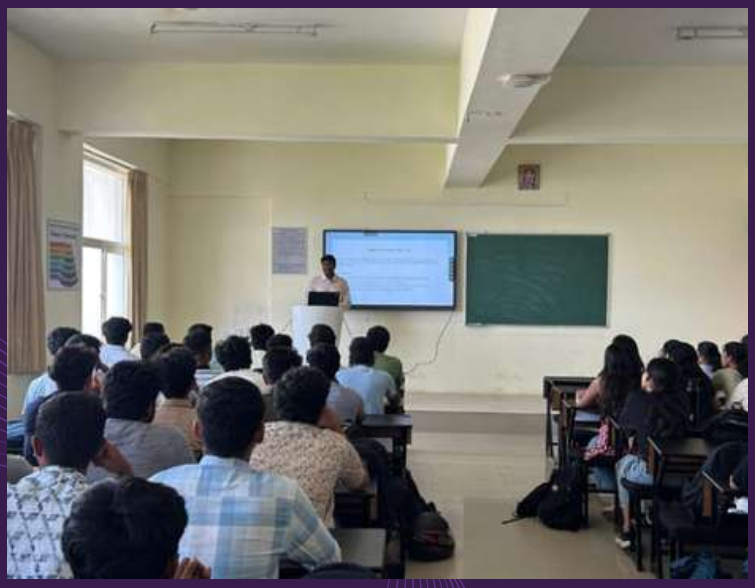


The NHCE IIC, in collaboration with the Information Science and Engineering Department, conducted a workshop on Prototype/Process Design and Development from March 12 to 13, 2025. Led by Mr. Raghu Prasad K.S., CEO of Kaushalya Technologies, the workshop aimed to provide participants with a solid foundation in product and process innovation through hands-on experience and industry-leading practices. It fostered collaboration, teamwork, and creative problem-solving, enabling participants to gain a thorough understanding of commercialization strategies and design market-ready solutions. At the end of the event, attendees developed the confidence to tackle the complexities of product development while promoting innovation and driving strategic growth.

Objective:

This workshop equipped participants with essential skills in product/process development, fostering innovation and teamwork. Through hands-on learning and industry best practices, attendees gained expertise in problem-solving and commercialization strategies, enabling them to design market-ready solutions effectively.

EXPERT TALK ON "BUILDING SCALABLE SOLUTIONS ON AWS"



Key Points Covered:

AWS Scalability Workshop: Covers EC2 Auto Scaling, Lambda, RDS, DynamoDB, ELB, CloudFront, and Route 53 for dynamic scaling, load balancing, and low-latency networking. Explores microservices (ECS/EKS), decoupling (SNS/SQS), caching (ElastiCache), monitoring (CloudWatch), automation (CloudFormation), security (IAM, WAF), and cost optimization (Spot Instances).

On 24th March 2025, the Department of Information Science and Engineering hosted an expert talk on "Building Scalable Solutions on AWS", presented by Mr. Anil P, Cloud Solution Architect at SAP Labs.
The session began with an introduction to cloud computing and industry expectations for cloud programming. Key topics included the role of a Cloud Architect, Storage, and Database Management.

The instructor discussed elastic computing with EC2 Auto Scaling and AWS Lambda for resource optimization and database scaling using Amazon RDS, DynamoDB, and Aurora. Load balancing and networking techniques like ELB, CloudFront CDN, and Route 53 were highlighted for efficient Traffic Management. Microservices were explored with ECS, EKS, API Gateway, and event-driven architectures using SNS/SQS. Caching through ElastiCache and CloudFront was emphasized for performance improvements.

The session further covered monitoring tools like CloudWatch and strategies for security and cost optimization, including IAM roles, encryption, AWS WAF, and spot instances.

EXPERT TALK ON TIME SERIES ANALYSIS-DATA DRIVEN PREDICTIONS

On March 26th 2025, the Department of Information Science & Engineering, hosted an expert talk titled "Time Series Analysis, Forecasting, and Auto-correlation in High-Dimensional Spaces: Insights for Healthcare and Economics," delivered by Dr. Jobin Thomas, Assistant Professor, Leap-RV University, Bangalore. The session introduced time series analysis, forecasting techniques, and auto-correlation in high-dimensional data, focusing on applications in healthcare and economics. Methods such as ARIMA, exponential smoothing, and LSTMs were discussed alongside challenges in high-dimensional datasets. Real-world applications were highlighted, including disease outbreak prediction, patient monitoring, and economic forecasting. Practical demonstrations of time series forecasting using Python and machine learning tools enriched the session.

Objective of the Talk:
Time series fundamentals, auto-correlation in high-dimensional data, and real-world applications in healthcare and economics. Participants will learn statistical and ML techniques for forecasting.

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INFORMATION SCIENCE AND ENGINEERING

APRIL

EXPERT TALK ON TIME SERIES ANALYSIS-DATA DRIVEN PREDICTIONS

The Department of Information Science and Engineering hosted a TEDx Talk titled as "AI That Connects the Digital and Physical Worlds" on April 11th, 2025. Ms. Anima Anandkumar, a professor at Caltech and Director of Machine Learning Research at NVIDIA, discussed the limitations of traditional AI in simulating complex physical phenomena and introduced neural operators, AI models trained on detailed physical data. She highlighted real-world applications such as high-resolution Weather Forecasting, Medical Device Design, and Energy Production. Ms. Anandkumar envisions AI accelerating scientific discovery, reducing costs, and creating realistic digital twins, emphasizing AI's transformative potential in bridging digital computations with real-world systems

Key Highlights:

- **Limitations of Traditional AI**: Struggles with simulating complex physical phenomena despite idea-generation capabilities.
- **Neural Operators**: AI models trained on physical data to simulate intricate systems (e.g., fluid dynamics, weather).

OUTREACH PROGRAM - CREATIVE AND CURIOUS MINDS: A DAY OF ART AND LEARNING

The Department of Information Science and Engineering hosted an event titled "Creative and Curious Minds: A Day of Art and Learning" on April 24th 2025, as part of an outreach program at Jana Seva Orphanage, Subramayapura, Bengaluru. Coordinated by Ms. Neha Jadhav, Ms. Chandana M, and 20 4th Semester ISE students, the event aimed to combine engaging activities with educational support for the children.

A lively game, "Draw a Tail for the Cat" (Blindfolded), brought out laughter and teamwork as children attempted to draw a tail on a cat illustration. A drawing and coloring session encouraged artistic expression and motor skill development. The program also included a stationery donation drive, providing essential items like books and kits to promote creativity and learning.

This memorable day integrated fun with meaningful contributions, fostering empowerment among the children. The smiles and enthusiasm displayed by the participants reflected the success of the event, emphasizing the value of nurturing creativity and providing resources to support educational growth. It was an enriching experience for everyone involved.

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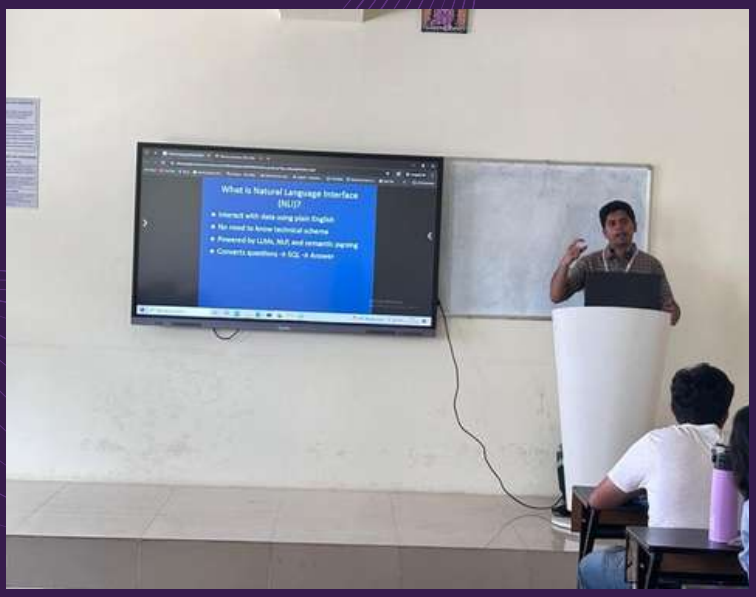
MAY

EXPERT TALK ON NATURAL LANGUAGE-DRIVEN DATABASE INTERACTION



On 7th May 2025, the Department of Information Science and Engineering organized an expert talk on "Natural Language-Driven Database Interaction," delivered by Mr. Bhargav Gorpade, Decision Scientist at Fractal Analytics. The session focused on how natural language processing (NLP) is being integrated with database technologies to allow users to interact with databases using plain English instead of traditional SQL queries. Mr. Gorpade began by discussing the evolution of human-computer interaction and the growing need for intuitive interfaces that minimize technical complexity. He provided an overview of Natural Language Interfaces to Databases (NLIDB), explaining their architecture and how they convert user input into structured database commands. The talk also addressed key challenges in NLIDB development, such as handling language ambiguity, understanding context, and mapping natural language to database schemas. Various technological approaches were explored, including rule-based systems, machine learning techniques, and transformer-based models like BERT and GPT. The speaker demonstrated tools such as OpenAI Codex, ChatGPT for SQL generation, and Microsoft Power BI's natural language features. Real-world applications were highlighted across domains like business intelligence, healthcare, education, and customer support. Looking ahead, Mr. Gorpade discussed future possibilities including integration with voice assistants, multilingual support, and real-time query optimization. The session was highly informative and engaging, offering participants valuable insights into how AI is transforming database interactions to be more accessible and efficient.

GUEST TALK ON THE CHANGING LANDSCAPE OF MOBILITY AND THE INFLUENCE OF DIGITAL PLATFORMS

The Department of Information Science and Engineering had organized a guest talk on the 12th of May 2025 for 4th-semester students. Mr. Sumanthkumar R, Head – Go to Market at Bosch Digital Platforms, Bengaluru, was the keynote speaker. The session focused on the rapidly evolving mobility landscape, driven by digital platforms, sustainability, and user-centric innovation.

Key trends discussed included the rise of shared mobility, the adoption of electric and autonomous vehicles, and the growing role of data and personalization in transportation services. The speaker emphasized how digital platforms are transforming the way people move, interact, and access mobility solutions.

The event also highlighted the importance of user feedback and community participation in shaping future mobility systems. Collaboration between private companies, government bodies, and local communities was identified as essential for building inclusive and efficient transport networks.

Students gained valuable insights into the challenges and opportunities in the mobility sector, including the need for responsible Data Management, Privacy Protection, and Equitable Access. The session concluded with a call to action for future engineers to contribute to sustainable and innovative mobility solutions.

ACTS OF KINDNESS AND WISDOM: A SOULFUL DAY AT THE GOSHALA

Knowledge Session with Guruji

One of the highlights of our visit was the insightful session conducted by Guruji. He shared the significance of feeding cows in our tradition, weaving in stories from ancient scriptures and the Bhagavad Gita. Through his words, we learned that cows are considered sacred and symbolize selfless service, nurturing, and abundance. Guruji's narratives illuminated the deeper meaning behind our actions and inspired us to incorporate these values into our daily lives. Additionally, Guruji delved into other stories from the Bhagavad Gita, emphasizing principles of dharma, devotion, and compassion. His teachings left a profound impact, encouraging us to reflect on our roles in creating a harmonious society

On May 28th, 2025, The Department of Information Science and Engineering organized a heartfelt outreach program titled "Feeding Kindness: An Outreach Day at the Goshala" at the ISKCON Temple Goshala in HBR Layout. The serene morning began with students engaging in the compassionate act of feeding cows, fostering a deep sense of connection with nature and the values of kindness and service.

The group then participated in Darshana, a spiritual practice that brought a sense of peace and reflection, enhanced by the tranquil surroundings of the temple. A key highlight of the visit was an enlightening session with Guruji, who shared the spiritual and cultural significance of cows in Indian tradition, drawing from ancient scriptures and the Bhagavad Gita. His teachings emphasized values such as selfless service, compassion, and dharma, leaving a lasting impression on the participants.

The outreach program proved to be a journey of spiritual enrichment and self-discovery. Participants left with a renewed commitment to kindness and community service. The Department extends its sincere gratitude to the ISKCON Goshala team for their warm hospitality and to Guruji for his inspiring guidance.

Acknowledgments:

We extend our heartfelt thanks to the ISKCON Temple Goshala team for their guidance and support during our visit. Special thanks to Guruji for his invaluable teachings and for enlightening us with the wisdom of the scriptures. This outreach program was a reminder that small acts of kindness can create ripples of positivity, and we hope to carry forward this spirit in all our future endeavours.

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ARTICLES

APPLICATIONS OF QUANTUM COMPUTING

Quantum computing is redefining the boundaries of what's computationally possible, and its impact on computer science is both profound and far-reaching. Traditional computing relies on bits that exist in a binary state (0 or 1), while quantum computing uses qubits, which can exist in multiple states simultaneously due to superposition and entanglement. This fundamental difference unlocks new capabilities for solving complex computational problems. This allows quantum computers to tackle complex problems that are currently beyond the capabilities of even the most powerful supercomputers.

Quantum computing has the potential to transform various industries. In healthcare, it can dramatically speed up drug discovery by simulating molecular interactions at the quantum level, leading to faster development of new treatments. In cybersecurity, quantum computers may eventually break widely used encryption algorithms, prompting the development of quantum-resistant cryptography. On the other hand, quantum technologies can also offer stronger, more secure communication systems using quantum key distribution (QKD).

In the field of algorithms and computational complexity, quantum computing introduces new paradigms. Quantum algorithms like Shor's algorithm allow for efficient factorization of large numbers, which poses a challenge to current encryption techniques. Likewise, Grover's algorithm can search unsorted databases quadratically faster than any classical algorithm, offering improvements in data search, pattern matching, and optimization tasks.

Cryptography is another major area being transformed. Classical public-key systems like RSA and ECC are vulnerable to quantum attacks. This has spurred research into post-quantum cryptography, which aims to develop encryption methods that can resist quantum decryption efforts.

In artificial intelligence and machine learning, quantum computing shows potential to accelerate model training and enhance optimization processes. Quantum-enhanced machine learning algorithms can manage high-dimensional data and complex probability distributions more effectively, paving the way for smarter and faster AI systems.

APPLICATIONS OF QUANTUM COMPUTING

Data structures and database systems can also benefit. Quantum databases could enable faster query responses, improved data compression, and advanced retrieval techniques using quantum search mechanisms.

Moreover, quantum computing is influencing the evolution of programming languages and compilers. New languages like Q# (by Microsoft), Qiskit (IBM), and Cirq (Google) are being developed specifically to write and execute quantum algorithms, introducing computer science students and professionals to a whole new paradigm of computation.As quantum computing technology matures, it is poised to significantly reshape foundational areas of computer science—from security and computation to AI and big data—making it one of the most exciting frontiers in computing today.

SWEET SUBHASHREE
SR. ASSISTANT PROFESSOR, ISE

CRACKING THE QUANTUM CODE: LIGHT AND GLASS ARE SET TO TRANSFORM COMPUTING

In a major leap forward for quantum technology, European scientists are developing next-generation quantum computers that are entirely based on **light and glass**. The initiative—known as **QLASS** (Quantum Light and Structured Substrates)—aims to create quantum devices that use photons, rather than electrons, to perform calculations, while employing **glass chips** instead of silicon.

Why Use Glass and Light?

The central idea behind this innovation is that **photons** can carry quantum information with minimal energy loss. By embedding light pathways directly into high-purity glass using **ultrafast femtosecond lasers**, researchers can create stable, three-dimensional photonic circuits. These offer significantly lower signal loss, greater coherence, and improved scalability compared to traditional silicon-based quantum components.

The glass chip technology being developed allows quantum computing at room temperature, which avoids the need for large cryogenic systems required by other architectures. These chips are also more energy efficient and environmentally friendly.

Who Is Involved?

The QLASS project is being coordinated by Politecnico di Milano in Italy and includes a broad partnership:

- **Ephos** – an Italian startup producing laser-written glass waveguides
- **Pixel Photonics (Germany)** – creating high-efficiency single-photon detectors
- **Schott AG (Germany)** – supplying ultra-pure glass materials
- **Sapienza University of Rome** – developing quantum light sources
- **CNRS and University of Montpellier (France)** – modelling quantum software and algorithms
- **Unitary Fund** – supporting software development

Together, these institutions are building a full-stack photonic quantum device capable of supporting real-world applications by 2026.

Potential Applications

The devices being developed are designed for tasks like:

- **Optimizing battery design**
- **Accelerating drug discovery**
- **Developing new materials**
- **Simulating quantum systems**

They are particularly suited for variational quantum algorithms and other hybrid approaches where classical and quantum processors collaborate.

CRACKING THE QUANTUM CODE: LIGHT AND GLASS ARE SET TO TRANSFORM COMPUTING

Strategic and Environmental Benefits

This European innovation supports the continent's digital sovereignty goals and is aligned with the EU Chips Act. Because the entire supply chain (from materials to design and manufacturing) is European or U.S.-based, the project also strengthens geopolitical resilience in advanced technologies.

Moreover, glass-based quantum chips have a lower carbon footprint, consume less energy, and rely on more sustainable fabrication processes compared to conventional semiconductor methods.

MYNENI CHANDANA,
ASST.PROFESSOR,
ISE, NHCE.

THE AI BEHIND CHATBOTS: HOW MACHINES ARE LEARNING TO TALK

From virtual assistants like Siri and Alexa to customer service bots on websites and apps, chatbots have become a familiar part of our digital world. But behind their friendly greetings and quick responses lies a complex web of artificial intelligence (AI) technologies that are teaching machines how to understand and respond to human language. This article explores how chatbots work, the AI that powers them, and why they're becoming essential in modern communication. Chatbots are software programs designed to simulate human conversation. Early versions were rule-based, relying on pre-written scripts and keyword matching. While helpful, they lacked true understanding and often produced rigid or incorrect responses. Today's chatbots, however, are powered by a branch of AI known as **Natural Language Processing (NLP).** NLP allows machines to interpret the meaning, tone, and intent behind a user's message, enabling more natural and human like interactions.

At the heart of most modern chatbots is **Machine Learning (ML)**—a subset of AI where algorithms learn from data. Chatbots are trained on vast amounts of conversational data, learning patterns in language so they can generate appropriate and context-aware responses. For example, when a user asks, "What's the weather like today?", a well trained chatbot understands the question, fetches the latest data, and responds in a conversational manner. One of the biggest advancements in chatbot technology came with the development of **transformer-based models,** such as OpenAI's GPT (Generative Pre-trained Transformer). These models are capable of understanding long-range context, generating coherent sentences, and even holding multi-turn conversations. Unlike older models, they don't just pick responses—they generate them, often creating replies that are nearly indistinguishable from human language.

THE AI BEHIND CHATBOTS: HOW MACHINES ARE LEARNING TO TALK

Chatbots are being widely used across industries. In customer service, they reduce wait times and provide 24/7 support. In education, they act as tutors or learning assistants. In healthcare, they help patients with symptom checking or appointment scheduling. The ability of chatbots to scale and personalize interactions makes them invaluable in a fast-moving digital economy.

Despite their success, chatbots are not without limitations. They can misinterpret ambiguous language, struggle with emotional nuance, and may give incorrect or biased information if not properly trained. As a result, developers must carefully curate training data and implement feedback mechanisms to continuously improve chatbot performance. Ethical considerations, such as privacy, consent, and transparency, are also crucial in chatbot design.

Looking ahead, the future of chatbot technology is exciting. With advancements in AI, we can expect chatbots to become more emotionally intelligent, multilingual, and even voice-enabled. Integration with AR/VR platforms, real-time translation, and adaptive personality settings are all on the horizon.

For students and tech enthusiasts, learning about the AI behind chatbots opens the door to fields like data science, NLP, and human-computer interaction. As machines continue to learn how to talk, they're also learning how to understand us better—and that's a conversation worth having.

ROSEMARY CHACKO
ASSISTANT PROFESSOR

THE RISE OF AGENTIC AI: THE FUTURE OF WORK IS AUTOMATED

Executive Summary
Agentic AI represents a transformative shift in the landscape of artificial intelligence. Unlike traditional AI, which requires explicit prompts or direction, agentic systems possess the ability to perceive, plan, act, and adapt with minimal human oversight. This evolution is rapidly accelerating the automation of knowledge-based tasks across multiple industries. This document explores the development of agentic AI, its operational capabilities, and its implications for the future of work.

1. Introduction: From Tools to Autonomous Agents

Over the past decade, AI has evolved from narrow, task-specific applications to more intelligent, autonomous systems. Recent advancements have led to the emergence of Agentic AI—self-directed systems that can perform complex tasks across digital environments with little to no user intervention.

Agentic AI systems can operate independently: initiating actions, executing multi-step processes, integrating with APIs, and making context-aware decisions. These agents represent the next logical step in automation and are increasingly capable of replacing or augmenting a wide range of job functions.

2. Defining Agentic AI

Agentic AI refers to autonomous AI systems capable of managing workflows, making decisions, and interacting with digital tools on behalf of users. Key characteristics include:

- Autonomy: Operates without constant human input
- Multi-step reasoning: Can plan and execute task sequences
- Tool integration: Interfaces with external software, APIs, and data sources
- Memory and adaptation: Retains knowledge and improves performance over time

These systems simulate human-like cognitive workflows, enabling businesses to offload a range of operational responsibilities.

THE RISE OF AGENTIC AI: THE FUTURE OF WORK IS AUTOMATED

3. Timeline of Evolution

Phase -Description

- Pre-2020 Rule-based systems and narrow AI handled isolated tasks
- 2020–2023 Emergence of generative AI (e.g., GPT models) requiring human prompts
- 2023–2025 Rise of autonomous agents (e.g., AutoGPT, BabyAGI) capable of chaining tasks
- 2025 onward Scalable agentic platforms automating end-to-end business processes

Agentic AI is no longer a research concept—it is now operational and integrated into real-world enterprises.

4. Impact on Job Functions

Industry-Automated Functions

- Customer Support - Handling tickets, responding to inquiries, managing workflows
- Software Engineering - Writing, debugging, deploying, and maintaining code autonomously
- Marketing - Generating content, managing campaigns, analyzing performance metrics
- Finance - Budgeting, forecasting, auditing, and fraud detection
- Legal - Document review, contract generation, compliance checks
- Healthcare - Scheduling, diagnostics assistance, data interpretation, and reporting

Agentic AI is particularly effective in roles requiring consistency, scalability, and data-intensive decision-making.

THE RISE OF AGENTIC AI: THE FUTURE OF WORK IS AUTOMATED

5. Enablers of Agentic AI

- Ubiquity of APIs: Most modern applications are programmable, allowing agents to manipulate them like human users.
- Task Environment Integration: Agentic AI can interface with spreadsheets, browsers, databases, and communication tools seamlessly.
- Memory and Feedback Loops: Advanced models can reflect on outcomes, learn from feedback, and retry failed actions autonomously.
- Foundation Models: Large Language Models (LLMs) act as the cognitive engine powering reasoning and decision-making.

These technologies combine to form intelligent agents capable of enterprise-level functionality.

6. Human Role in an AI-Driven Future

Despite its capabilities, Agentic AI does not eliminate the need for human expertise. Rather, it shifts the human role from executor to overseer. The future workforce will be tasked with:

- Supervising and aligning agent outputs
- Providing ethical and strategic guidance
- Training and fine-tuning AI behavior
- Innovating new use cases for agentic systems

Jobs emphasizing emotional intelligence, ethical judgment, creativity, and long-term planning are expected to remain in demand.

7. Conclusion

Agentic AI is rapidly advancing toward mainstream adoption. As these systems continue to improve, their ability to handle complex, multi-layered operations will redefine the nature of work itself. Organizations must prepare not only to integrate agentic systems but also to restructure teams, redefine job descriptions, and reskill employees.

The question is no longer whether Agentic AI will take over tasks—it is how quickly organizations can adapt to its presence.

G S VETRI
USN: 1NH23IS049

AI & YOU: HOW ARTIFICIAL INTELLIGENCE IS SHAPING STUDENT LIFE

Artificial Intelligence is no longer just a buzzword. It's quietly becoming a student's best friend. Whether it's helping you with homework at midnight, organizing your study schedule, or translating a tough textbook into simpler language, AI is playing a bigger role in student life than ever before. Every student learns differently. Some prefer videos, others like reading. Some take time to grasp a topic, while others move ahead quickly. AI-powered learning platforms understand these differences. They track how you learn, spot your strengths and weak points, and adjust lessons to match your pace. That means no more rushing through confusing topics or getting bored with things you already know.

Think of it as your own personal tutor, always available. Stuck on a math problem late at night? Don't panic. Tools like ChatGPT, Socratic, and Photomath can walk you through the solution, step by step. The goal isn't to do your work for you, but to help you understand how to do it better next time. Even for essays or research projects, AI tools can help you organize your ideas, fix grammar, and improve your writing style. It's like having an editor, coach, and assistant all in one. AI is also helping bridge gaps between languages, regions, and abilities. If English isn't your first language, translation tools powered by AI can instantly make content more understandable. For students with visual or learning difficulties, AI-based tools like text-to-speech and screen readers make learning more inclusive and accessible. With just a phone and an internet connection, students from rural areas can now access the same resources as those in major cities.

That's a big step forward. Between lectures, assignments, and hobbies, students have a lot to juggle. AI can help you stay organized and calm. Some apps can create study plans, set reminders, and even generate quick summaries of long notes, saving time and boosting focus. There are also AI-powered mental health tools that offer emotional support and simple strategies to help you cope when things feel overwhelming. So, AI isn't just making you smarter — it's also helping you feel better.

AI & YOU: HOW ARTIFICIAL INTELLIGENCE IS SHAPING STUDENT LIFE

The world is moving fast, and AI is a big part of where things are headed. By interacting with it now — through chatbots, online courses, or creative tools — you're already building skills that will matter in your future career. More and more industries are looking for people who understand how to work with AI. But even as it becomes more common, it's important to remember that AI can't replace your creativity, values, or decision-making. It's just a tool. The real power still lies with you. AI is here to stay, and instead of fearing it, students today have the opportunity to work with it, learn from it, and grow because of it. Use it wisely. Let it support your goals, not replace your efforts. Whether you're aiming to ace your finals or launch your own idea, AI can be a great ally — but the journey is still yours to lead.

ADITYA PV 1NH22IS007

AI IN HEALTHCARE: WHEN MACHINES START CARING

A New Era of Healing

Imagine a world where your doctor doesn't just rely on years of experience and instinct — but also on the intelligence of a machine that has learned from millions of medical cases. A world where your disease could be detected even before symptoms appear. Welcome to the age of Artificial Intelligence in healthcare — where technology and empathy are beginning to walk hand in hand.

For decades, AI was a word bandied about in research labs and conferences. Nowadays, it's in our hospitals, research institutions, even in our pockets — quietly transforming the way we live medicine.

What Exactly Is AI Doing in Healthcare?

At its heart, AI in medicine is about leveraging machines to learn from enormous amounts of medical information and help with tasks that previously needed human intelligence — such as diagnosing disease, planning treatments, or even performing surgery. But it's not all math and machinery. It's precision, speed, and saving lives.

Real-World Wonders: How AI is Already Helping

Smarter Diagnoses

Artificial intelligence programs now can read X-rays, MRIs, and CT scans with unprecedented accuracy — even catching patterns that experienced physicians may not see. Google's DeepMind, for example, can diagnose more than 50 diseases of the eye as well as a leading ophthalmologist. That isn't science fiction — it's already a reality in clinics.

Speedier Drug Discovery

Historically, creating a new medicine might take 10–15 years. With AI, scientists can model how a drug would work in the body, so scientists can bypass years of trial and error. The outcome? Faster, cheaper, and more effective medicines.

Tailor-Made Treatments

AI can recommend treatment strategies according to one's individual genetic profile, history of diseases, and daily habits. This personalized medicine puts patients on regimens more likely to succeed — and less likely to harm them.

AI IN HEALTHCARE: WHEN MACHINES START CARING

Robotic Surgery
Ever heard of a robot conducting heart surgery? It's true — and it's accurate. Surgical systems powered by artificial intelligence such as the da Vinci robot guide human surgeons with microscopic accuracy, minimizing risk and recovery time.

Your Pocket-Sized Health Buddy
Platforms such as Ada and Buoy prompt you to answer questions about your symptoms and send you instructions on what to do next — a doctor's appointment, but on your schedule. Chatbots powered by artificial intelligence are now the digital-era first responders.

Why This Matters
AI is not just about speeding things up or making them flashier. It's about making healthcare more human — by increasing the time doctors have to care, and the power patients have to know. It lowers mistakes, enhances results, and can bring quality healthcare to even the farthest regions of the globe.

But Hold On — It's Not All Perfect
There are significant issues we simply can't overlook.
Data Privacy: Your medical records are very personal. Who owns your medical information? Is it secure? These are things we must continue to ask ourselves.

Bias in Algorithms: If biased data is used to train AI, it could make biased recommendations — such as incorrectly diagnosing individuals from underrepresented populations.

AI IN HEALTHCARE: WHEN MACHINES START CARING

Trust and Responsibility: AI doesn't replace doctors — it should empower them. At the end of the day, patients still need the warmth of human care, not just a cold machine's recommendation.

Looking Ahead

The future? It's exciting. We're talking about digital twins of your body for testing treatments before trying them. Real-time mental health monitoring. AI nurses that can monitor elderly patients round the clock.

But to really make all this happen, we require collaboration — between doctors, engineers, ethicists, and above all, patients.

Final Thoughts: The Human Touch

AI can be smart, but healing has always and will always be very human. Technology can direct us, assist us, and even astonish us. But it's the human touch that provides healthcare with its soul.

In this partnership between humans and machines, we're not just building smarter hospitals. We're building a future where everyone, everywhere, gets the care they deserve.

SV ARADYA (1NH22IS142)

AYURAKSHA: HEALTHCARE AT YOUR FINGERTIPS

A New Hope for Rural Health

Imagine living in a small village, hours away from the nearest hospital. When sickness strikes, getting timely care can feel impossible. But what if you could consult a certified doctor right from your phone, order medicines online, and even have a mobile clinic come to your doorstep? That's the promise of AyuRaksha — a smart telemedicine platform on a mission to make quality healthcare available to everyone, everywhere in India.

What Exactly Is AyuRaksha?

At its heart, AyuRaksha is a digital healthcare system that lets patients connect with doctors through video or in-person appointments, receive secure e-prescriptions, and manage their health records — all in one place. It's built for everyone: patients, doctors, pharmacies, and administrators, each with their own dashboard to keep things organized and simple.

But AyuRaksha goes beyond just online appointments. It's designed to break down barriers that keep people from getting the care they need, especially in rural and underserved areas.

How It's Changing Lives

Free Consultations with Health Seva

Medical bills shouldn't stop anyone from getting help. That's why AyuRaksha offers Health Seva, slots for free consultations that give people from low-income backgrounds a chance to see a doctor without worrying about costs.

AI That Listens to You

Feeling unwell but not sure what it could be? AyuRaksha's built-in AI symptom checker helps you figure out what might be wrong and whether you need to see a doctor. It's like a smart friend who knows a lot about health.

Mobile Health Vans

For places with no clinics nearby, AyuRaksha makes it easy to book a mobile health van. These vans come equipped with medical tools and trained staff, bringing essential healthcare services right to remote villages.

Support for All Languages and Ages

The platform is available in multiple languages, with voice assistance and big, clear text that even elderly patients can navigate easily. It's truly designed so no one gets left behind.

AYURAKSHA: HEALTHCARE AT YOUR FINGERTIPS

Safer Prescriptions and Easy Payments
Doctors upload prescriptions in secure, read-only formats that can't be tampered with. Payments for appointments or medicines are done through trusted gateways, so people can pay confidently from home.

More Than Just Technology
AyuRaksha isn't about replacing hospitals — it's about reaching the millions who rarely get to one. By partnering with government schemes like Ayushman Bharat, it ensures even the poorest families can afford care. And with pharmacies plugged into the platform, getting the right medicines is just a few clicks away.

What's Next?
Looking ahead, AyuRaksha plans to link with wearable devices like smartwatches to track heart rate, sugar levels, and more, sending data straight to your doctor. It also wants to use advanced AI to predict health issues before they become serious, and even set up AI-powered chatbots to answer health questions 24/7.

In the End, It's All About People
Technology can be amazing — it can analyze symptoms, send alerts, and schedule vans. But true healthcare is still very human. It's the reassurance in a doctor's voice, the smile of a nurse, and the feeling of being cared for. With AyuRaksha, we're using technology to bring more of that human care to people who need it most, no matter where they live.

KUSHAL K N (1NH22IS075)

BRAIN-COMPUTER INTERFACES: A GLIMPSE INTO MIND CONTROL?

Imagine a world where you could send an email, control a video game, or operate a robotic arm—without lifting a finger. This concept, once confined to the pages of science fiction, is fast becoming reality due to advancements in a cutting-edge technology called Brain-Computer Interfaces (BCIs). BCIs establish a direct link between the human brain and external digital devices, allowing the brain to issue commands without involving the body's usual pathways like muscles or nerves. The potential of this technology is nothing short of revolutionary, promising to reshape how humans interact with machines.

At the core of BCI technology is the ability to interpret the brain's electrical activity and convert it into actionable digital signals. These signals are detected using two primary methods: non-invasive techniques like EEG sensors placed on the scalp, and invasive methods involving electrodes surgically implanted into the brain. Once recorded, the brain's electrical signals are processed by complex algorithms that translate thoughts into computer instructions. Tech giants such as Neuralink, Synchron, and Kernel are heavily investing in this field, unveiling early prototypes that have already demonstrated astonishing capabilities—like enabling people to play games or move cursors on a screen using their thoughts alone. While the long-term possibilities of BCIs are vast, their most immediate and impactful use lies in the field of medicine. For individuals suffering from paralysis, spinal cord injuries, or neurodegenerative diseases, BCIs offer a renewed sense of autonomy.

By harnessing the power of thought, patients could potentially control prosthetic limbs, navigate wheelchairs, or interact with communication devices—completely hands-free. Moreover, experimental BCI systems are already showing promise in translating neural signals directly into speech or text, giving hope to those who have lost their ability to communicate due to illness or injury. As research continues to advance, BCIs may soon move from laboratories into everyday life, unlocking new ways for humans to connect with technology—and each other.

Beyond their life-changing applications in medicine, Brain-Computer Interfaces open the door to an entirely new realm—one that treads a fine line between innovation and intrusion. As researchers and developers push the boundaries of what BCIs can achieve, interest is rapidly growing in cognitive enhancement. Imagine being able to boost your memory, maintain razor-sharp focus, or absorb information at unprecedented speeds, all through neural technology. The entertainment and gaming industries are also gearing up for this shift, envisioning immersive, mind-controlled experiences that could transform how we play, learn, and interact with digital content.

BRAIN-COMPUTER INTERFACES: A GLIMPSE INTO MIND CONTROL?

There's growing unease about the potential misuse of neural data—by corporations targeting consumers with hyper-personalised ads, or by governments engaging in surveillance. Without strict ethical guidelines and legal safeguards, the same technology that offers empowerment could be turned into a tool for control. The implications are not just theoretical—they're increasingly plausible.

Ultimately, Brain-Computer Interfaces represent a significant leap in how we relate to technology—and to ourselves. They promise profound benefits, especially for those with physical or neurological limitations, by restoring communication and mobility through thought alone. But the rise of such intimate human-machine interaction brings risks that must not be ignored. If we are to responsibly integrate BCIs into society, we must strike a careful balance between innovation and regulation. In navigating this new neural frontier, we are not merely developing new gadgets—we are redefining the boundaries of human capability.

By: - THARAKESHWAR S
USN: 1NH22IS140

ARE WE READY FOR AI COMPANIONSHIP?

As artificial intelligence continues to evolve at a remarkable pace, a question that once belonged solely to the realm of science fiction is now pressing itself into modern discourse: Are we truly ready for AI companionship? From chatbots that remember our preferences to robots that simulate empathy, technology is rapidly developing the capacity to fulfill emotional roles in our lives. Once dismissed as futuristic fantasy, AI companions are now being marketed as personal assistants, therapeutic tools, and even emotional partners.

At the core of AI companionship is the integration of machine learning, natural language processing, and increasingly, affective computing—the ability of a system to recognise and respond to human emotions. These technologies work in tandem to create digital entities that can learn from user interactions, adapt to our communication styles, and even respond in ways that feel emotionally intelligent. Over time, these systems become more than just responsive—they become familiar. They can greet you by name, remember your daily habits, and offer comforting words during stressful moments. In a world where loneliness and disconnection are on the rise, especially in urban and digitally-driven societies, AI companionship seems like a logical —if not inevitable—development.

But while the technology is impressive, the implications are complex. Critics have raised valid concerns about the depth and quality of relationships that can be formed with non-human companions. Can something built from algorithms truly offer the kind of emotional richness that a human relationship does? Or does it simply mimic connection so convincingly that we're willing to accept the illusion? The fear is that as AI grows more lifelike and emotionally responsive, people may begin to prefer these artificial relationships to real ones—particularly because they are easier to manage, free of conflict, and endlessly validating.

This raises a deeper concern: the potential erosion of human-to-human connection. If individuals begin to rely heavily on AI companions for emotional support, will that weaken their ability to form or maintain genuine relationships with others? Social skills, empathy, patience, and emotional vulnerability are cultivated through human interaction—often through uncomfortable or unpredictable moments. In contrast, AI provides a safe, controlled environment that asks little in return. Over time, this could discourage users from engaging with the messier, more demanding aspects of real human relationships.

Authenticity also becomes a central ethical question. AI can simulate empathy by recognising patterns in tone, expression, and context, but it does not feel. Its responses are calculated, not heartfelt. While that may be sufficient in some scenarios—such as mental health apps or digital assistants—it becomes more problematic when people begin to form deep emotional attachments to these systems. What happens when someone believes their AI truly "cares" about them? Is that a harmless illusion, or a dangerous deception that could distort emotional expectations?

ARE WE READY FOR AI COMPANIONSHIP?

On the other hand, AI companionship is not without its merits. For individuals facing severe isolation—such as the elderly, people with disabilities, or those in long-term care—AI companions can offer a sense of presence and routine. In therapeutic settings, AI tools can provide support between sessions, track mental health patterns, and help users articulate difficult emotions. When used thoughtfully, they can enhance well-being, not replace it.

The key may lie in how we integrate these technologies into our lives. If AI companions are treated as supportive tools—enhancing, but not replacing, human connection—they could serve a valuable role. However, if they begin to take the place of meaningful human relationships, we may face unintended psychological and social consequences. In conclusion, AI companionship is no longer a futuristic idea—it's becoming part of our present. The technology is evolving, the applications are expanding, and society is being challenged to consider what it means to form a bond with something non-human. Whether this becomes a beneficial supplement to human connection or a substitute for it depends on how thoughtfully we approach the emotional boundaries between user and machine. The question isn't just are we ready for AI companionship?—it's what kind of companionship are we prepared to accept, and at what cost?

By: - THARAKESHWAR S
USN: 1NH22IS140

VOLUME 10 ISSUE 2

NEW HORIZON
COLLEGE OF ENGINEERING

INFORMATION SCIENCE AND ENGINEERING

ACHIEVEMENTS

ACHIEVEMENTS

DEVCRAFT 24-HOUR HACKATHON-IIT INDORE

We are thrilled to announce that the students from the ISE department, representing Team Stardusts, achieved an outstanding victory by securing 1st place in the DevCraft 24-hour hackathon held at IIT Indore on March 14-15, 2025.

Team Members:
Dushyanth S (1NH22IS042)
Anees Ahmed Baig (1NH22IS015)
Sathwik S (1NH22CD098)
Sai Suyoga (1NH22CD099)

Their innovative solutions and exceptional teamwork set them apart in this intense competition, showcasing their technical prowess and creativity. This achievement not only highlights their dedication and hard work but also brings pride to the ISE department. Congratulations to Team Stardusts for their remarkable success!

ACHIEVEMENTS

STACK FUSION FEST 2025 HACKATHON-REVA UNIVERSITY

We are happy to announce that our talented students have achieved an impressive 3rd place at the Reva University's Stack Fusion Fest 2025 Hackathon

Team Members:
Ravi Shiragaonkar (1NH22IS125)
Aadarsh Babu (1NH22IS003)
Rahul Kumar Yadav (1NH22CD130)
Anil Kumar Meda (1NH22CD066)

Congratulations to the team for their outstanding performance and dedication!

ACHIEVEMENTS

NATIONAL LEVEL 24-HOURS ROBOTHON 2025

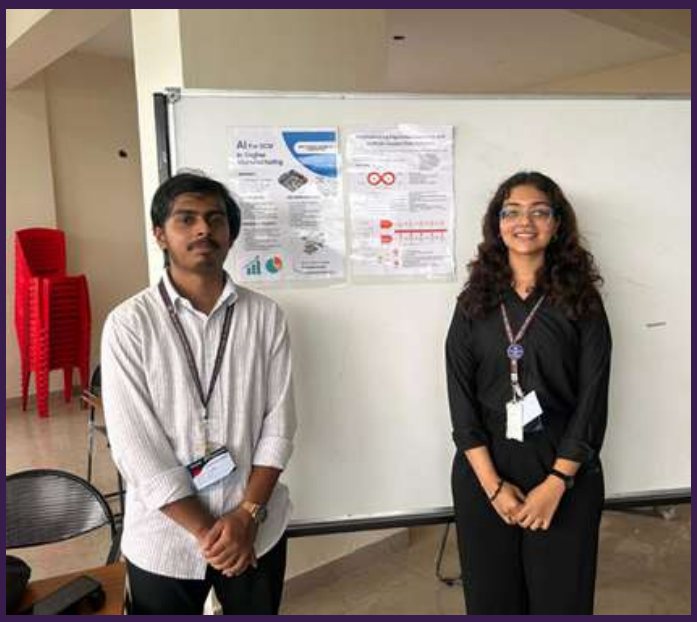
We are thrilled to announce the outstanding victory of Team Hawkeye at the prestigious National Level 24-hours, Robothon 2025, hosted by Jyothi Institute of Technology in collaboration with e-Yantra, IIT Bombay! Competing against 75 highly skilled teams from across the nation, our team showcased exceptional innovation, technical expertise, and problem-solving abilities, securing the coveted 1st place in this intense robotics challenge.

Their remarkable achievement was recognized with a grand cash prize of ₹40,000, a testament to their dedication, teamwork, and mastery at Robotics and Automation. The powerhouse team behind this triumph consists of four brilliant minds from ISE and ECE.

Kaushik JT (1NH22IS065)
Anirudh Wagge (1NH22IS017)
Ashutosh Kumar (1NH23EC021)
Gagan Chowdary (1NH23EC056)
This phenomenal victory marks a significant milestone in their journey, inspiring future innovators and reinforcing the impact of robotics in technological advancements.

ACHIEVEMENTS

TECHNOTSAV 2025



We are thrilled to announce that Darshan D Madiwalar (1NH22IS033) from ISE and Vaishnavi D Salunkhe (1NH22ME047) from Mechanical Engineering showcased their brilliance at TECHNOTSAV 2025, hosted by Cambridge Institute of Technology in collaboration with INAE.

Their innovative project, “AI for Enhancing Supply Chain Management in Engine Manufacturing,” emerged as the Best Idea Presentation, surpassing 40 competing teams with its impactful vision and technical ingenuity.

As a testament to their achievement, the duo was honored with a cash prize of ₹2,000 during the grand National Technology Day celebration, recognizing their dedication to driving AI-driven advancements in manufacturing. Their success underscores the power of interdisciplinary collaboration and innovation, setting a high standard for aspiring technologists.

ACHIEVEMENTS

ANVESHANA 2025 – INTER-COLLEGIATE PROJECT EXPO

RNS INSTITUTE OF TECHNOLOGY

Autonomous Institution Affiliated to VTU, Recognized by GOK, Approved by AICTE
(NAAC 'A+' Grade Accredited, NBA Accredited (UG - CSE, ECE, ISE, EIE and EEE)
Channasandra, Dr. Vishnuvardhan Road, Bengaluru - 560 098
Ph:(080)28611880/1 URL: www.rnsit.ac.in

Dr. R N Shetty
Founder

Department of CSE (DATA SCIENCE)

IEEE BANGALORE SECTION

ANVESHANA – 2025

IEEE Information Theory Society Bangalore Chapter

Certificate of Achievement

This certificate is presented to Mr./~~Ms.~~ Darshan D Madiwalar
of New Horizon College of Engineering for having secured
II Place in ***Anveshana 2025,*** *An Inter-collegiate Project Expo,* jointly organized by the
Department of CSE (Data Science) and ***IEEE – ITS, Bangalore Chapter,*** on 28th April 2025.

Dr. Premananda B S
Chair, IEEE ITS Bangalore Chapter

Dr. Mohan H S
HoD, CSE(DS)

Dr. Ramesh Babu H S
Principal

Dr. M K Venkatesha
Director

Our student, Darshan D Madiwalar (USN: 1NH22IS033) from ISE 6A has secured 2nd Place in Anveshana 2025 – An Inter-Collegiate Project Expo, held on 28th April 2025 at RNS Institute of Technology. This prestigious event was jointly organized by the Department of CSE (Data Science) and IEEE – ITS, Bangalore Chapter, and witnessed participation from more than 35 teams across various institutions.

Darshan's outstanding performance earned him a cash prize of ₹3000, showcasing innovation, technical excellence, and competitive spirit. Well done, Darshan! Your achievement brings pride to the Department and serves as an inspiration to your peers.

EDITORIAL TEAM

DR. VANDANA C P

Faculty Coordinator

DIVYA K V

SUBHI SRIVASTAVA

ARCHANA DAS

Students

SHUBHOSHISH ROY

LIKITH K

THARAKESHWAR S

VOLUME 10 ISSUE 2

DREAMERS, DOERS, THINKERS!

Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade. Accredited by NBA

The Trust is a Recipient of Prestigious Rajyotsava State Award 2012 Conferred by the Government of Karnataka.
Awarded Outstanding Technical Education Institute in Karnataka