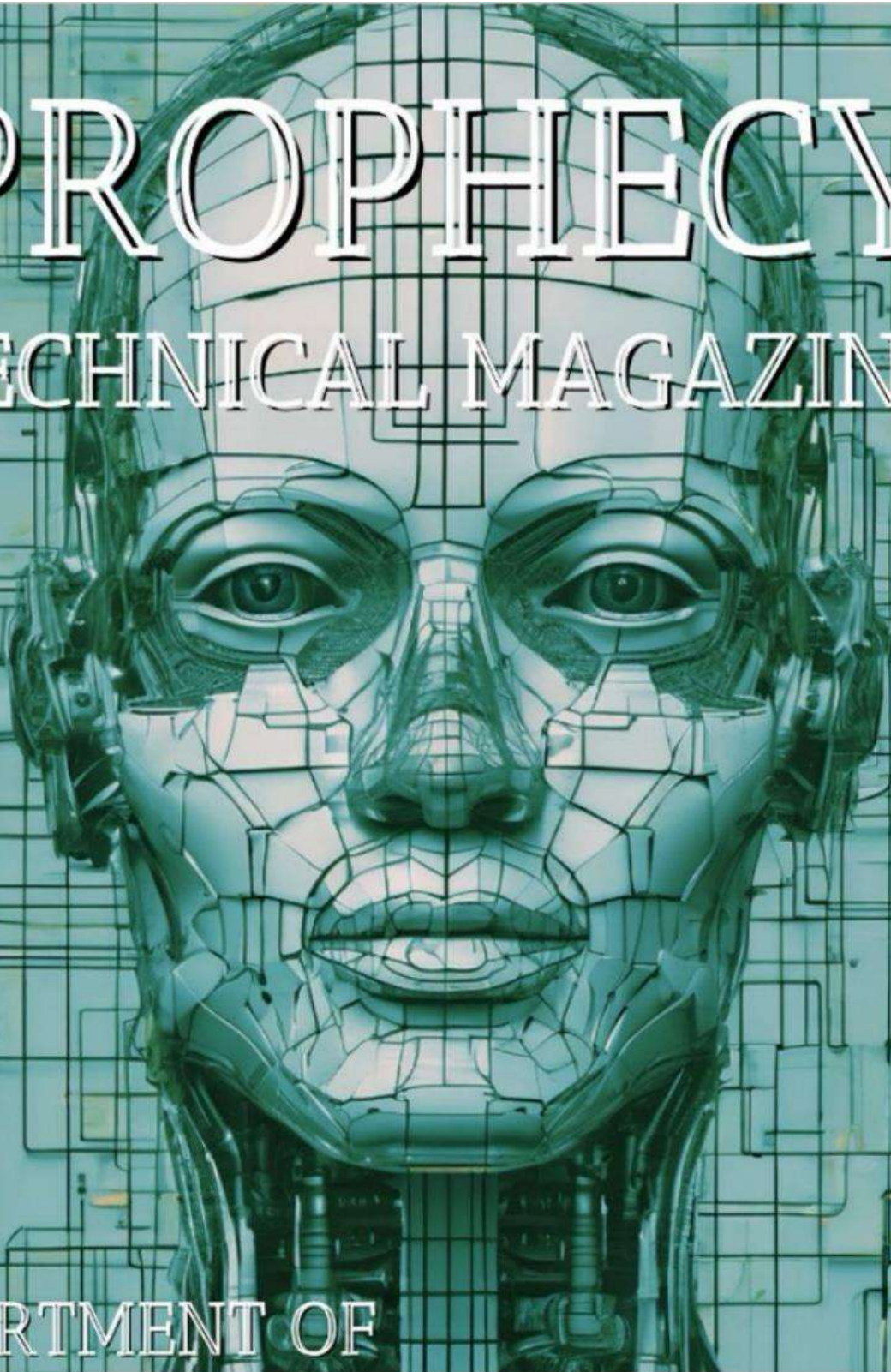


PROPHECY

TECHNICAL MAGAZINE



DEPARTMENT OF

COMPUTER SCIENCE & ENGINEERING

Academic Year - 2023-2024



MBITS

**MAR BASELIOS INSTITUTE
OF TECHNOLOGY AND SCIENCE**
ENGINEERING & POLYTECHNIC COLLEGE

NAAC ACCREDITED, KTU AFFILIATED, NELLIMATTOM P.O, KOTHAMANGALAM, ERNAKULAM, KERALA, INDIA, PIN : 686693

PHONE : 0485 - 2857801 - EMAIL ID : INFO@MBITS.AC.IN





SI	CONTENTS	PAGE NO.
1	EDITORIAL BOARD	3
2	ABOUT THE DEPARTMENT	5
3	MESSAGE FROM HOD	8
4	CYBORGS	10
5	ARTICLES	16

EDITORIAL BOARD

Faculty Coordinators



Welcome to the latest issue of **PROPHECY!** This edition highlights the creativity and hard work of our students and staff, showcasing diverse talents and perspectives. We explore key themes celebrating the achievements within our community. Thank you to all contributors for making this issue possible; we hope you find it inspiring and engaging.

- MINTU THOMAS

This issue showcases the exceptional talents and hard work of our students and staff, presenting a rich tapestry of ideas and creativity. A sincere thank you to everyone involved; your contributions have made this publication extraordinary.

- Dr. SARA RENJITH



Student Coordinators

Each piece reflects the hard work and passion that our students have poured into their contributions. I am incredibly proud of the collaborative spirit that has driven this publication. The effort and enthusiasm of our contributors have been truly inspiring, and it is their dedication that has made this issue so special.

- SHEENA S SAIJU



As you turn the pages of this magazine, I hope you are as inspired and moved by the content as I have been. Each piece is a testament to the creativity, intellect, and passion of our students, and I am confident that this edition will leave a lasting impression on our readers. Thank you for taking the time to engage with our work.

- BASIL V ELDHO

D

In tune with the Vision and Mission statements, dept. of CSE aims to disseminate quality education in the evolving fields of Computer Science & Engineering. We support

E

students to become professional engineers and entrepreneurs to solve real world problems. Our dedicated

P

and qualified faculty members deliver theoretical and practical sessions effectively along with proper guidance on academic projects. State of the art laboratory facilities with

A

more than 400 computers are provided with adequate licensed software packages. Qualified and experienced technical staff members are strength of our dept. The

R

department has recorded consistent improvements in academic results, placements and consultancy projects. Students are trained in developing their technical,

V

leadership, managerial and interpersonal skills by involving them in organizing various activities under CYBORGS,

CSE dept. association, and Computer Society of India (CSI) student chapter.

M

The computer science and engineering department offers programs that integrate both computer science and

E

engineering principles. These programs typically provide students with a broad range of skills and knowledge in both

N

fields, allowing them to design, develop, and maintain complex computer systems and software. Students may

V

have the opportunity to specialize in a particular area of interest such as cyber security, artificial intelligence, machine learning, robotics, or data science.



◆ *To empower the students to be competent computer professionals.*



- ◆ *Cartel with quality education in the concept of computer science to solve real-world problems.*
- ◆ *Support students to become professionally and morally adept engineers.*
- ◆ *Educate younger generation in the evolving fields of computer science and technology.*

Program Outcomes (POs)

Graduates will be able to

1. Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. [**Engineering knowledge**]
2. Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. [**Problem analysis**]
3. Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. [**Design/Development of solutions**]
4. Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. [**Conduct investigations of complex problems**]
5. Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. [**Modern tool usage**]
6. Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. [**The engineer and society**]
7. Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. [**Environment and sustainability**]
8. Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. [Ethics]
9. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. [**Individual and team work**]
10. Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. [**Communication**]
11. Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. [**Project management and finance**]
12. Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. [**Life-long learning**]

MESSAGE FROM HOD CSE

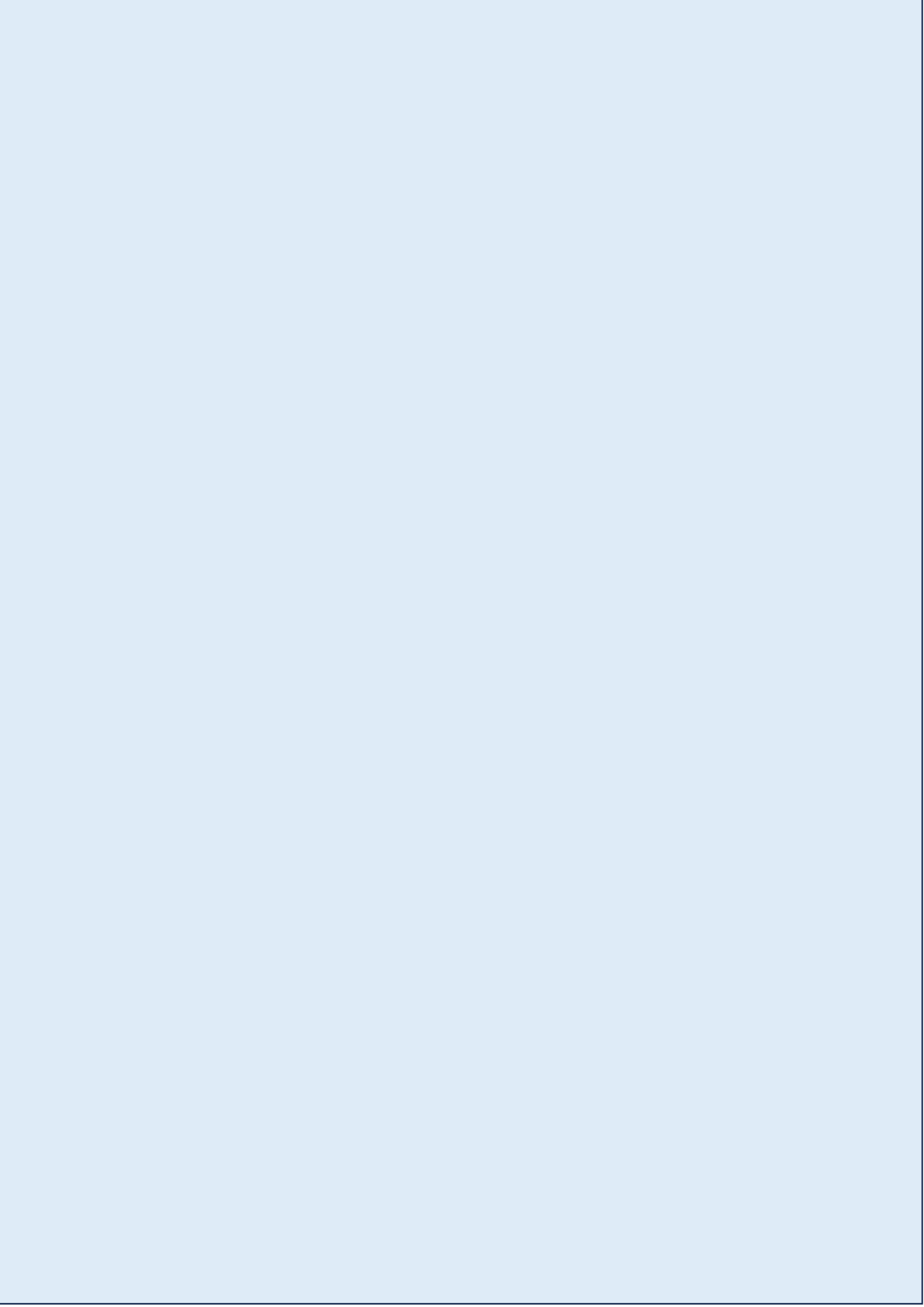
Dear Students, Faculty, and Staff,

I'm thrilled about the new academic year and the prospects it presents as Head of the Department of Computer Science & Engineering. Our department is vital to the future moulding of our ever-changing field. Our goal is to help our students become innovative, critical thinkers, and collaborative members of society.

We've succeeded in extracurricular activities, research, and academics despite obstacles. We've added 180 students to our B.Tech class and started a new 60-student Computer Science & Engineering (Data Science) program. In both national and international competitions, our students excel, and our faculty members publish ground-breaking research.

As we move forward, I want to inspire everyone to seize opportunities, increase their knowledge, and have a constructive influence. Learning is a journey that never ends, and together we will continue to uphold our tradition of excellence and innovation. I want to thank everyone of our staff, instructors, and students for their hard work. Cheers to a successful and exciting school year ahead.

MIDHUN MATHEW
Head of the Department
Computer Science & Engineering
MBITS





CYBORGS

BOARD OF MEMBERS

2023-2024

FACULTY COORDINATORS



TEENA SKARIA
ASSISTANT PROFESSOR



NISREEN M ALI
ASSISTANT PROFESSOR

STUDENT COORDINATORS



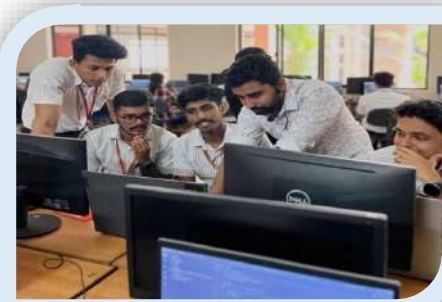
PAUL K MATHEW



BHAVYA LAKSHMI P

CSE Department Association - CYBROGS

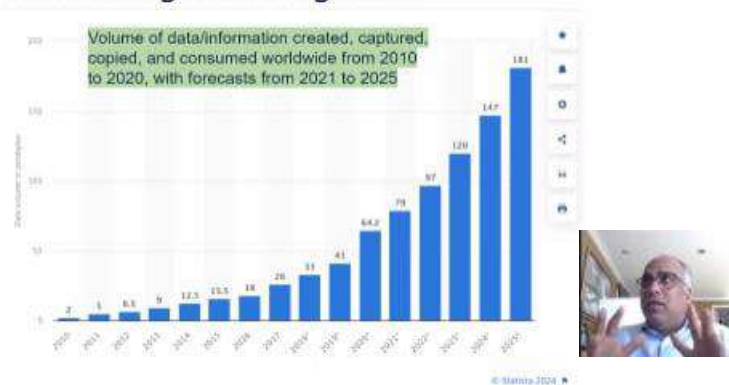
CYBROGS , the Computer Science and Engineering Association of MBITS ,was started in 2011 ,and is coordinating all the activities of CSE department for the betterment of students and staff .CYBROGS conducted a workshop session on Game Development in unity on 20th and 21st of November 2023 by Mr .Prabin Krishna, Senior game programmer, Ysec IT software, Bangalore, Karnataka. Asst. Prof. Midhun Mathew, HOD of CSE, gladly welcomed the chief guest, faculties and the students to the inaugural function.



Big Data Processing

On 23rd March 2024, Er. Sebi Paul, Senior Software Engineer Manager at HERE Technologies, Germany, conducted an insightful session on Big Data Processing via Zoom from 7:00 pm to 8:00 pm. This session, attended by 100 participants, explored various facets of handling large-scale data, emphasizing its impact and applications. Despite the virtual format, Er. Sebi Paul engaged the audience effectively, sharing practical insights and industry perspectives. The event provided a valuable opportunity for participants to deepen their understanding of Big Data strategies and technologies, enhancing their knowledge in this rapidly evolving field.

A timeline of digital data growth



Workshop On Idea Submission for Young Innovators

On 15th March 2024, Felix Johny, a student of S6 CSE at MBITS, led a workshop on Idea Submission for the Young Innovators Program 6.0. The session took place at 10:30 am and was attended by 60 enthusiastic participants. The workshop aimed to inspire and guide young innovators in developing and submitting their ideas effectively. Felix Johny, leveraging his academic background and passion for innovation, facilitated discussions and provided valuable insights to foster creativity and practical problem-solving among the attendees. This event served as a platform for aspiring innovators to refine their ideas and prepare for future submissions in the program.



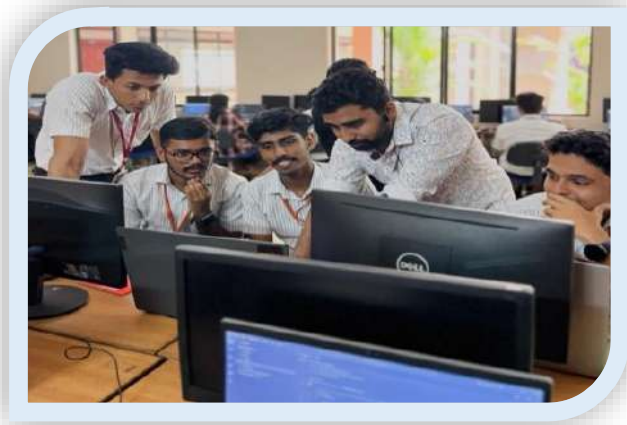
Workshop On Programming in C

On January 23rd and 24th, a comprehensive workshop on "Programming in C" was conducted at [MBITS College]. The workshop was facilitated by a team of professors including Asst. Prof. Jimson Varghese from the EEE Dept., Asst. Prof. Jinto Mathew from the ECE Dept., Asst. Prof. Teena Skaria and Asst. Prof. Sara Renjith from the CSE Dept. The workshop, held from 9:00 am to 4:00 pm each day, engaged 53 participants in deepening their understanding of C programming fundamentals and advanced concepts. The event aimed to equip attendees with practical skills and knowledge essential for effective programming, fostering a conducive learning environment for enhancing their proficiency in this foundational programming language.



Game Forge - A Game Development Session

On November 20th and 21st, 2023, Mr. Prabin Krishna M from Ysec IT Software at Zed Tec Park, Electronic City, Bangalore, conducted a dynamic session titled "Game Forge - A Game Development Session." This intensive workshop took place from 9:30 am to 4:00 pm on both days and engaged 32 participants. Mr. Prabin Krishna M, leveraging his expertise in game development, guided the attendees through various stages of game creation, covering topics from concept ideation to technical implementation. The session provided a hands-on learning experience, enabling participants to explore game design principles, programming techniques, and project management skills crucial for game development. Overall, the workshop facilitated a creative and interactive environment for aspiring game developers to learn and enhance their abilities in this exciting industry.



Skill Sharing on C Program

On November 14th, 2023, Jibin Wilson, the Student Representative from the CSE Department, conducted a skill-sharing session on "C Programming." The session took place from 8:00 pm to 9:00 pm on Google Meet and was attended by 41 participants. Jibin Wilson, leveraging his knowledge and passion for programming, shared practical insights and tips on mastering the fundamentals of the C programming language. Overall, the event was a valuable opportunity for attendees to enhance their skills in C programming, facilitated by a fellow student who understands the learning needs of their peers.



Kerala Piravi

On November 1st, 2023, the CSE Association at MBITS College organized an event to celebrate "Kerala Piravi," the birth anniversary of the state of Kerala. The event took place from 12:30 pm to 1:30 pm at MBITS College. It likely featured cultural presentations, discussions on Kerala's history, traditions, and contributions to society, focusing particularly on aspects relevant to the Computer Science and Engineering Association.



ARTICLES

Renewed Focus on AI Technology: Shaping the Future

Artificial Intelligence (AI) is rapidly reshaping industries and societies worldwide, marking a pivotal moment in technological advancement. This article explores the renewed focus on AI technology, highlighting key trends, challenges, and transformative potentials that are shaping our future.

The Evolution of AI: From Theory to Practical Application

Artificial Intelligence has evolved from a theoretical concept to a practical tool driving innovation across diverse domains. Today, AI applications encompass machine learning, natural language processing, computer vision, and robotics, among others. These advancements have spurred unprecedented opportunities in healthcare, finance, transportation, and beyond, revolutionizing how businesses operate and how individuals interact with technology.

Key Trends in AI Development

1. Ethical AI and Responsible Innovation

The ethical implications of AI have come to the forefront, prompting researchers and developers to prioritize responsible innovation. Ensuring fairness, transparency, and accountability in AI algorithms is critical to building trust among users and stakeholders. Ethical AI frameworks encompass principles such as privacy preservation, bias mitigation, and the development of explainable AI (XAI) systems to enhance interpretability.

2. Advancements in Machine Learning and Deep Learning

Machine learning algorithms, particularly deep learning, have driven significant breakthroughs in AI capabilities. These algorithms excel in tasks such as image recognition, speech synthesis, and natural language understanding. The evolution of neural networks and reinforcement learning techniques continues to expand the boundaries of what AI can achieve, powering applications from autonomous vehicles to personalized medicine.

3. AI at Scale: Big Data and Computational Power

The proliferation of big data and advancements in computational power have catalyzed AI innovation. AI systems rely on vast datasets to train and refine models, leveraging cloud computing and distributed systems for scalable processing. The synergy between AI and big data analytics enables organizations

to extract actionable insights, optimize operations, and drive competitive advantage in the digital economy.

Challenges and Opportunities Ahead

While AI holds immense promise, several challenges must be addressed to realize its full potential:

- **Ethical Dilemmas:** Balancing technological advancement with ethical considerations remains a pressing challenge. Addressing biases in AI algorithms, ensuring data privacy, and promoting inclusivity are crucial for ethical AI deployment.
- **Skill Shortages:** There is a growing demand for AI talent capable of developing, implementing, and maintaining sophisticated AI systems. Bridging the skills gap through education and upskilling programs is essential to meet industry demands.
- **Regulatory Frameworks:** Establishing robust regulatory frameworks is necessary to govern AI deployment, ensuring compliance with ethical standards and protecting consumer rights.

Future Outlook: Towards an AI-Driven World

Looking ahead, AI technology is poised to continue its transformative impact on society, driving innovation, economic growth, and societal progress. From personalized healthcare solutions to smart cities and sustainable agriculture, AI holds the potential to address global challenges and improve quality of life.

In conclusion, the renewed focus on AI technology underscores its role as a catalyst for innovation and a driver of positive change. By navigating challenges, seizing opportunities, and embracing ethical guidelines, we can harness AI's potential to create a more connected, intelligent, and equitable world.



ELDHO SHAJU

Practical Use Cases for Quantum Computing

Quantum computing represents a revolutionary leap in computational power, promising to solve complex problems that are currently intractable for classical computers. While still in its infancy, quantum computing has already demonstrated potential across several practical use cases. Let's explore some of these applications:

1. Optimization Problems

Quantum computing excels at solving optimization problems due to its ability to explore multiple solutions simultaneously. This capability can be applied to various fields such as logistics, supply chain management, and financial portfolio optimization. Quantum algorithms like Quantum Annealing and Variational Quantum Algorithms (VQAs) offer potential speed-ups over classical methods in finding optimal solutions.

2. Cryptography and Security

Quantum computing has implications for cryptography, both in breaking existing cryptographic schemes (due to its ability to quickly factor large numbers, which underpins RSA encryption) and in developing quantum-resistant cryptography (such as lattice-based cryptography). Quantum key distribution (QKD) protocols offer secure communication channels immune to eavesdropping, leveraging quantum principles for enhanced security.

3. Drug Discovery and Material Science

Quantum computers can simulate molecular interactions with high accuracy, enabling faster drug discovery processes and material design. Quantum simulations can model complex chemical reactions and molecular structures, providing insights into new drug compounds, catalysts for chemical reactions, and materials with specific properties.

4. Machine Learning and AI

Quantum computing holds promise in enhancing machine learning algorithms by accelerating tasks such as pattern recognition, clustering, and optimization. Quantum-enhanced machine learning algorithms could lead

to more efficient data analysis and predictive modeling, particularly in fields where large datasets and complex patterns are involved.

5. Climate Modeling and Weather Forecasting

Quantum computers can simulate complex climate models and weather patterns more accurately and efficiently than classical computers. This capability can improve weather forecasting accuracy, analyze climate change impacts, and optimize energy consumption strategies for sustainability.

6. Financial Modeling and Risk Analysis

Quantum computing can analyze financial data and perform risk assessments at a scale and speed that surpasses classical computing capabilities. This includes portfolio optimization, risk management, and real-time trading strategies that can react to market fluctuations faster than current systems.

7. Supply Chain and Logistics

Quantum algorithms can optimize supply chain logistics by efficiently solving complex routing and scheduling problems. This includes minimizing transportation costs, optimizing inventory management, and improving overall operational efficiency across global supply chains.

8. Particle Physics and Quantum Field Theory

Quantum computers can simulate quantum systems, allowing physicists to explore fundamental questions in particle physics and quantum field theory. Quantum simulations can model particle interactions, study quantum materials, and validate theoretical models with greater precision.

Future Directions

As quantum computing technology matures, its potential applications will expand further. Practical implementations will require continued research into developing error-corrected quantum processors, improving qubit coherence times, and scaling up quantum algorithms to handle larger problem sizes.

In conclusion, while quantum computing is still in its early stages, its potential to revolutionize industries and scientific fields is undeniable.

Collaborations between researchers, industry leaders, and policymakers will be crucial in realizing the full potential of quantum computing and translating theoretical advancements into practical solutions that benefit society at large.



GOKUL G NAIR

