



KALINGA
UNIVERSITY



MINDROID

Exploring Excellence

VOLUME 4, ISSUE 2 (July 2025 - December 2025)



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**CONSOLIDATED
MESSAGES
FOR MINDROID**

MESSAGE FROM

Prof. G. S. Tomar

Chairperson

IEEE MP Section



It gives me immense pleasure to extend my warmest congratulations to the IEEE Kalinga University Student Branch on the release of **Volume 4, Issue 2 of MINDROID**. This magazine continues to serve as a shining testament to the branch's steadfast commitment to academic distinction, technological advancement, and the overall growth of its members.

The dedication and creativity of the editorial team and contributors in presenting such an insightful and engaging publication deserve the highest praise. **MINDROID** not only showcases the talent, achievements, and innovative spirit of our student community but also upholds the ideals of professionalism and ingenuity that IEEE stands for.

I deeply appreciate the Student Branch for consistently fostering a culture of exploration, teamwork, and lifelong learning. With each edition, this magazine educates, inspires, and encourages peers across the IEEE network to expand horizons and contribute meaningfully toward technological progress.

Every issue of **MINDROID** reflects the promise and potential of tomorrow's engineers and technologists. Such initiatives strengthen the visibility of our Section and amplify IEEE's collective voice in driving global innovation and change.

My heartfelt appreciation goes to the entire editorial team for their vision, persistence, and tireless efforts in bringing this edition to fruition. May your journey continue to set new benchmarks for student-led publications and nurture a thriving ecosystem of innovation and leadership.

Wishing you many more milestones and greater success ahead.

Warm regards,

Chairperson, IEEE Madhya Pradesh Section



MESSAGE FROM

ASHISH DANIEL. S

Director

GEMS Polytechnic College, Aurangabad, Bihar



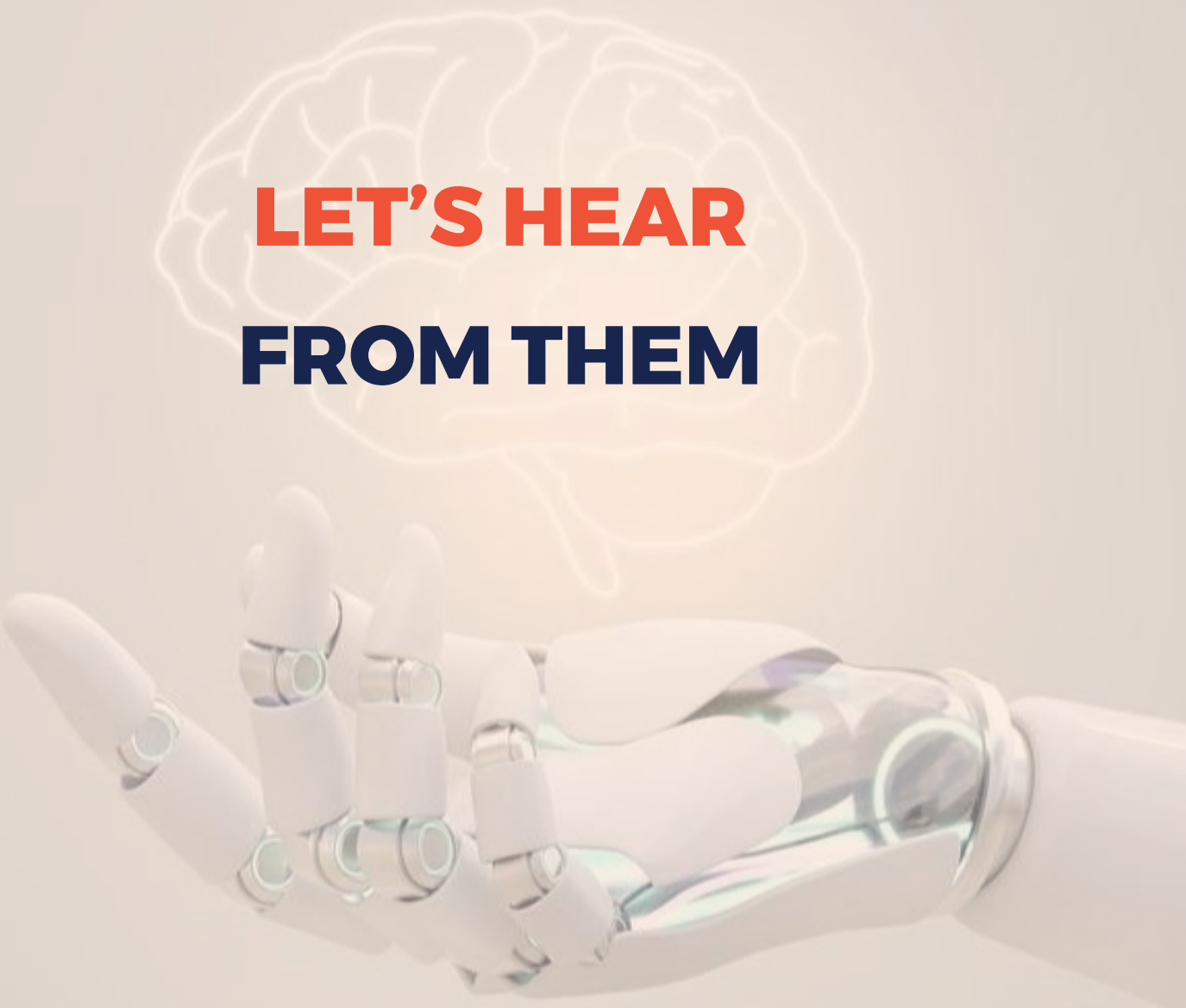
It is with great pride and appreciation that I extend my warm congratulations to the editorial team and contributors on the release of this edition of **MINDROID**. The magazine continues to stand as a vital intellectual platform for aspiring engineers and researchers to articulate original ideas, disseminate research outcomes, and engage critically with the rapidly evolving domains of science and technology.

In today's era, marked by advancements in artificial intelligence, data-driven systems, sustainable engineering, and interdisciplinary innovation, the role of student-led technical publications has never been more significant. **MINDROID** effectively bridges the gap between academic learning and research-oriented thinking by encouraging students to move beyond curriculum boundaries and engage with real-world technological challenges various events.

What sets **MINDROID** apart is its commitment to original thought, technical rigor, and real-world relevance. The contributions in this issue seamlessly integrate theory with practice, fostering critical thinking, ethical research, and problem-solving essential competencies for today's engineers. As engineering continues to shape society, students are encouraged to view research not merely as an academic pursuit, but as a powerful tool for impact and service. May **MINDROID** continue to inspire innovation, collaboration, and excellence for the greater good.

I extend my best wishes to the entire team for continued success. May **MINDROID** keep serving as a beacon of knowledge, inspiration, and innovation empowering future engineers and researchers to think critically, act responsibly, and contribute meaningfully to society.



A white robotic hand with visible joints and a glowing green light emanating from the palm is positioned at the bottom of the frame. Above the hand, a glowing yellow outline of a human brain is centered. The background is a soft, light beige gradient.

**LET'S HEAR
FROM THEM**

It gives me immense joy to convey my heartfelt congratulations to the IEEE Student Branch of Kalinga University on the successful release of **MINDROID, Volume 4, Issue 2**. This edition is a true reflection of the students' unwavering dedication, intellectual depth, and spirit of collaboration in bringing it to life.

The consistent growth of **MINDROID** as a platform for thoughtful dialogue and innovative perspectives is highly praiseworthy. Its rich content not only highlights the academic and technical prowess of our students but also adds valuable insights to the ongoing discussions on emerging technologies and scientific advancements.

This accomplishment stands as a clear testament to the vision, perseverance, and collective effort of the editorial team and contributors. I am confident that **MINDROID** will continue to inspire as a meaningful medium for knowledge sharing, creativity, and scholarly excellence.

Once again, I congratulate the IEEE Student Branch on this remarkable achievement and extend my best wishes for greater success in all future initiatives.



Dr. Rajeev Kumar
Chairman
Kalinga University



Dr. Sandeep Arora
Chancellor
Kalinga University

It is with immense delight that I convey my heartfelt congratulations on the publication of **MINDROID, Volume 4, Issue 2**, presented by the dedicated and visionary members of the IEEE Kalinga University Student Branch. This edition truly embodies the intellectual energy, innovative mindset, and steadfast commitment to excellence shown by our vibrant student community.

Over the years, **MINDROID** has grown into a distinguished platform for sharing original ideas, groundbreaking research, and progressive technological perspectives. This new issue proudly carries that tradition forward—featuring thought-provoking content that reflects the dynamic progress of science, engineering, and innovation.

I sincerely value the outstanding teamwork, creativity, and determination that have brought this edition to fruition. The magazine not only highlights academic and technical excellence but also nurtures a spirit of curiosity, discovery, and growth among the engineers and leaders of tomorrow.

My best wishes go to the editorial board, contributors, and the entire IEEE Student Branch for yet another remarkable achievement. May **MINDROID** continue to shine as a source of knowledge, inspiration, and innovation within the IEEE community and far beyond.

MINDROID has continually established itself as a premier platform for sharing forward-looking ideas, pioneering research, and the latest technological developments within the IEEE community. The newly released **Volume 4, Issue 2** promises to deliver a compelling and thought-provoking collection of scholarly articles, highlights of IEEE initiatives, member achievements, and feature content that reflects the academic brilliance and creative spirit of our student members.

The successful publication of this magazine serves as a strong affirmation of our collective dedication to advancing knowledge, nurturing innovation, and contributing to the dynamic progress of science and technology. Each issue not only demonstrates the technical expertise of its contributors but also reinforces the spirit of collaboration that lies at the heart of IEEE.

I wholeheartedly congratulate the IEEE Kalinga University Student Branch for its commitment and accomplishment in bringing this edition to fruition. May **MINDROID** continue to enlighten, inspire, and raise the benchmark for student-driven innovation across the IEEE network.



Dr. Sandeep Gandhi
Registrar
Kalinga University

I sincerely applaud the IEEE Kalinga University Student Branch for its unwavering commitment to excellence in compiling and publishing **MINDROID**. The creativity, determination, and teamwork displayed by the editorial board and contributors are truly praiseworthy. Their collective efforts have resulted in a magazine that not only upholds the highest standards of academic and creative quality but also reflects the progressive vision of the IEEE community.

I encourage all students, faculty, and members of our academic circle to actively engage with **MINDROID**—to share their ideas, gain knowledge, and be inspired by the wealth of perspectives and innovative thoughts it offers. This publication continues to serve as a dynamic platform that nurtures curiosity, fosters critical thinking, and highlights the transformative role of technology in shaping society.

On behalf of the institution, I extend my warmest congratulations and best wishes for the success of **MINDROID, Volume 4, Issue 2**. May it keep flourishing as a source of innovation, learning, and intellectual exchange in the years to come.

MINDROID continues to serve as a dynamic platform for our budding engineers and researchers to express their ideas, showcase original research, and engage deeply in the ever-evolving discourse of science and technology. Each edition stands as a reflection of the persistent dedication, creativity, and intellectual enthusiasm of our students and their mentors.

This esteemed technical magazine—brought to life through the collaborative efforts of the IEEE Kalinga University Student Branch—embodies the spirit of innovation, teamwork, and academic distinction that defines our university. It stands as a proud symbol of what can be accomplished through vision, cooperation, and a shared drive for advancement.

I wholeheartedly congratulate the editorial team, contributors, and every member of the IEEE Kalinga University Student Branch for successfully publishing **MINDROID, Volume 4, Issue 2**. Your efforts not only strengthen our academic landscape but also inspire a wider community of thinkers and achievers. As we celebrate this milestone, let us acknowledge the remarkable work behind it and draw inspiration from the creativity and discoveries it presents. May **MINDROID** continue to enlighten, empower, and elevate us all in our collective journey toward excellence.



Dr. R. Shridhar
Vice-Chancellor
Kalinga University



Dr. Vijayalaxmi Biradar
SMIEEE, Secretary &
Chairperson IEEE WIE AG
MP Section, Branch
Counsellor, IEEE KU SB
Director IQAC,
Kalinga University



IEEE KU SB **ACTIVITIES**

JULY 2025 TO DECEMBER 2025

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SL No.	Name of the Events	Date
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2	Workshop On Quality Conference	25 th – 26 th July 2025
3	3 rd World Conference on Communication and Computing (IEEE WCONF 2025)	25 th – 27 th July 2025
4	5-Day Block Coding Bootcamp: Hands on Training for Young coders	18 th – 22 nd August 2025
5	IEEE MOVE Outreach India: Promoting Climate Change and Sustainability	30 th August 2025
6	STEM Awareness Session at Blossom School	2 nd September 2025
7	Introduction to IEEE Student Chapter	4 th September 2025
8	IEEE MOVE Outreach India: Promoting Climate Change and Sustainability	8 th September 2025
9	Cybersecurity Extravaganza 2025 For School Students	26 th – 27 th September 2025
10	Inauguration of IEEE Student Branch at IPS Academy, Indore	26 th September 2025
11	Six-Day FDP on AR/VR/MR: Differences & Its Application Areas	6 th – 11 th October 2025
12	STEM Exploration at NH Goel World School	5 th – 7 th November 2025
13	Inauguration of IEEE Student Branch at SJMIT	21 st November 2025
14	STEM Showcase at Anand Mela 2025	22 nd November 2025
15	STEM Demonstration at Career Guidance Session	24 th December 2025

5-Day FDP on Next-Gen STEM Teaching with Python and Intelligent Machines

- **Start Time:** 30th June 2025 09:30 AM IST
- **End Time:** 04th July 2025 03:40 PM IST
- **Venue:** Geethanjali College of Engineering & Technology, Hyderabad, Telangana

The 5-Day Faculty Development Program on “Next-Gen STEM Teaching with Python and Intelligent Machines” was held from 30th June to 4th July 2025 at Geethanjali College of Engineering and Technology, Hyderabad. Jointly organised by the IEEE Kalinga University Student Branch, Bharat Drone Systems (BDS) Education, and IEEE Madhya Pradesh Section, the program aimed to upskill faculty in next-generation STEM pedagogy.

Participants were trained in Python programming, block-based coding, and the use of intelligent educational tools such as mBot, Codey Rocky, HaloCode, CyberPi, and educational drones. The sessions combined theoretical learning with hands-on activities focused on robotics, IoT, AI integration, and project-based learning.

The 5-Day Faculty Development Program began on 30th June 2025 with an introduction to robotics, block-based coding, and the installation and use of mBlock 5 software, including basic programming with sprites. On the second day, participants explored Codey Rocky, focusing on movement, sensor control, IoT applications, and correlating block codes with Python. The third day centred on mBot, covering assembly, programming, and integration with Arduino C. On the fourth day, educators engaged with HaloCode, CyberPi, and the Znatok Kit, applying AI and IoT concepts through hands-on coding. The final day featured an introduction to drone programming using the AirBlock Drone, an overview of the Znatok Arduino Kit, participant assessments, feedback sessions, and a felicitation ceremony.



Event Poster



Inaugural Ceremony



Faculty Engaged in the Session



Group Photograph



The FDP Organising Team with Chairman Dr. Rajeev Kumar Sir



The FDP Organising Team with Vice Chancellor Dr. R. Shridhar

Workshop on Quality Conference

- **Start Time:** 25th July 2025 10:00 A.M. IST
- **End Time:** 26th July 2025 05:00 P.M. IST
- **Venue:** Seminar Hall, Kalinga University

The “Workshop on Quality Conference” was organised by the IEEE Madhya Pradesh Section on 25-26 July 2025 at Kalinga University, Naya Raipur, with support from IEEE Region 10.

The workshop equipped participants, especially aspiring IEEE conference organisers, with a comprehensive understanding of IEEE conference quality standards and operational best practices. It covered the end-to-end process of organising high-quality academic conferences aligned with IEEE guidelines.

Key focus areas included:

- Planning timelines, sponsorship models, and budgeting
- Forming technical program committees and managing peer review
- Ensuring ethical research and avoiding plagiarism
- Publishing proceedings with IEEE Xplore compatibility
- Enhancing visibility through indexing and digital branding

The speakers were:

- **Prof. (Dr.) G. S. Tomar**, Chair, IEEE MP Section
- **Mr. H.K. Biradarpatil**, NCE, Bengaluru
- **Dr. Vijayalaxmi Biradar**, Director IQAC, Kalinga University
- **Dr. Chanakya Jha**, Director Planning, SGI Pune

The workshop combined expert lectures, hands-on sessions, and interactive Q&A. It concluded with certification, a group photo, and a city tour that promoted informal networking among participants.



Event Poster



Participants focused during the session



Session by Dr. Chanakya Jha



Session by Dr. Vijayalaxmi



Session by Mr. H. K. Biradarpatil



Faculty Interacting During the Session



Session by Dr. G. S. Tomar



Group Photograph



Visit to the Tribal Museum

3rd World Conference on Communication and Computing (IEEE WCONF 2025)

- **Start Time:** 25th July 2025 10:00 A.M. IST
- **End Time:** 27th July 2025 5:00 P.M. IST
- **Venue:** Auditorium, Kalinga University
- **Sponsored by:** Anusandhan National Research Foundation (ANRF), Govt. of India
- **Technically Sponsored by:** IEEE Madhya Pradesh Section

The 3rd IEEE World Conference on Communication & Computing (WCONF 2025) was successfully held from 25th to 27th July 2025 at Kalinga University, Naya Raipur, establishing itself as a premier platform for researchers, professionals, and students. The conference focused on emerging trends in communication and computing technologies, fostering innovation, collaboration, and academic exchange.

WCONF 2025 featured 217 online paper presentations and one offline presentation, highlighting cutting-edge research by national and international experts. The event included insightful keynote sessions, panel discussions, and technical paper presentations on diverse themes such as 5G technology, artificial intelligence, Internet of Things (IoT), quantum computing, and other advanced areas. A significant highlight was the participation of 100 students from Geethanjali College of Engineering & Technology, Hyderabad, along with eight online participants from various regions, reflecting the conference's wide academic outreach.

The conference was held in collaboration with Geethanjali College of Engineering and Technology, Hyderabad, and New Delhi Institute of Management, New Delhi. It was technically co-sponsored by the IEEE Madhya Pradesh Section and supported by the Anusandhan National Research Foundation, ensuring a high standard of academic quality. The event successfully bridged the gap between academia and industry by enabling meaningful interactions with leading experts and enhancing participants' understanding of the latest technological advancements.

Organised by the IEEE Student Branch of Kalinga University, WCONF 2025 served as a valuable platform for students, researchers, and professionals to present their research, exchange ideas, and expand their professional networks. The conference concluded as a significant academic milestone, reinforcing its contribution to advancing communication and computing technologies.



Event Poster



Address by Chief Guest Dr. G. S. Tomar



During the Inaugural Ceremony



Keynote Session by Mr. Hyder Ali Khan



Release of Conference Proceedings



Welcome Note by General Chair Dr. Vijayalaxmi



Address by Patron Dr. Sandeep Gandhi



Address by Patron Dr. R. Shridhar



Group Photo

5-Day Block Coding Bootcamp: Hands-on Training for Young Coders

- **Start Time:** 18th Aug 2025 12:00 P.M. IST
- **End Time:** 22nd Aug 2025 02:00 P.M. IST
- **Venue:** Bharat Mata Sr. Secondary School, Naya Raipur

The IEEE Kalinga University Student Branch, in collaboration with Bharat Drone System (BDS), organised a 5-Day Block Coding Bootcamp at Bharat Mata Senior Secondary School from 18th to 22nd August 2025. The workshop was supported by the TryEngineering STEM Grant and funded by the IEEE Computer Society, aiming to provide practical STEM education to school students.

A total of 53 participants enthusiastically took part in the program, which blended theory with engaging hands-on activities. The bootcamp began with an introduction to STEM concepts, robotics, and sensors, followed by interactive sessions using Codey Rocky and mBot robots programmed through mBlock 5. On the fourth day, students were introduced to CyberPi and explored IoT applications, expanding their knowledge of emerging technologies.

The final day featured project demonstrations, assessments, and a certificate distribution ceremony, celebrating the students' achievements. Throughout the five days, participants developed creativity, innovation, and problem-solving skills, gaining essential exposure to 21st-century technological tools.



Event Poster



Students learning interesting Robotics Concepts



Students Exploring mBlock



Certificate Distribution



Students Testing the Robot



Group Photograph

IEEE-MOVE Outreach India: Promoting Climate Change & Sustainability

- **Start Time:** 30th Aug 2025 11:00 A.M. IST
- **End Time:** 30th Aug 2025 12:00 P.M. IST
- **Venue:** Govt. High School, Kuhera, Naya Raipur

The IEEE Kalinga University Student Branch, in collaboration with IEEE SIGHT and supported by the IEEE India Council, organised the IEEE-MOVE Outreach India Program on 30th August 2025 at Government High School, Kuhera. The initiative aimed to raise awareness about climate change and promote sustainability through experiential STEM education.

Students were introduced to innovative STEM kits featuring practical models such as wind vanes, solar-powered street lights, anemometers, vibration detectors, and geological fault-and-fold demonstrations. These hands-on activities provided valuable insights into renewable energy, disaster preparedness, and sustainable practices.

The program began with a welcome address followed by an awareness session on the role of renewable energy and sustainable living. This was followed by live demonstrations of the STEM kits, where students actively participated and explored real-world applications of science and technology.

By blending STEM learning with climate action, the event empowered young learners with the knowledge and skills needed to contribute towards a greener, resilient, and sustainable future, aligning with IEEE's mission of advancing technology for humanity.



Event Poster



Introduction Session



Students Exploring STEM Kit



During the Session



Student Exploring Wind Vane

STEM Awareness Session at Blossoms School

- **Start Time:** 02nd Sep 2025 10:00 A.M. IST
- **End Time:** 02nd Sep 2025 12:00 P.M. IST
- **Venue:** Blossoms School, Naya Raipur

A hands-on *STEM Awareness Session* was organised on 2nd September 2025 at *Blossoms School, Naya Raipur (Mana Basti)* by the IEEE Kalinga University Student Branch in collaboration with Bharat Drone System (BDS). The initiative aimed to introduce students of Classes 6 to 10 to the fascinating world of *Science, Technology, Engineering, and Mathematics (STEM)*, fostering curiosity, creativity, and future-ready skills. The one-hour interactive session focused on *educational robotics, drone technology, and block-based programming* using mBlock 5. The program commenced with a warm welcome, followed by an insightful address by Dr. Vijayalaxmi, Director IQAC, who emphasised the role of STEM education in nurturing innovation, critical thinking, and problem-solving abilities among young learners.

Students actively engaged in hands-on demonstrations with Codey Rocky and mBot robots, exploring the fundamentals of robotics and automation. Experts from BDS captivated the audience with a *live drone demonstration*, illustrating real-world applications of modern technology. The session also featured an interactive Q&A round that encouraged students to share their thoughts and clarify their doubts. The event concluded with a *vote of thanks* and a *group photo session*, leaving students inspired to explore emerging technologies and future career paths in STEM. The initiative successfully aligned with IEEE Kalinga University's vision of promoting *technological literacy* and advancing the *United Nations Sustainable Development Goals (SDGs)* through education and innovation.



Event Poster



Session by Dr. Vijayalaxmi



Introduction Session



Students Exploring mBot

Gateway to Innovation – Orientation and Introduction to IEEE Student Chapter

- **Start Time:** 4th September 2025 11:30 A.M. IST
- **End Time:** 4th September 2025 01:30 P.M. IST
- **Venue:** SJM Institute of Technology, Chitradurga, Karnataka

On 4th September 2025, the Departments of ECE, EEE, and CSE at SJM Institute of Technology organized the event “Gateway to Innovation – Orientation and Introduction to IEEE Student Chapter” in the Sir M V Seminar Hall. The event aimed to introduce students to the IEEE Student Chapter and promote innovation, research, and professional development among future engineers.

The proceedings began with a welcome address that emphasized the significance of IEEE in fostering technical excellence and career growth. Dr. Vijayalaxmi, Director IQAC, Kalinga University, Naya Raipur, delivered the keynote address, underscoring the role of IEEE in advancing academic and technological innovation.

An orientation session followed, detailing the benefits of IEEE membership and the numerous opportunities available for students to engage in research, projects, and competitions. The session also featured success stories from former IEEE members to inspire and encourage participation.

The event concluded with an interactive Q&A session, a vote of thanks, and a group photograph. Conducted under the guidance of Principal Dr. Bharath P B and supported by the faculty, the program provided an excellent platform for students to connect with IEEE and explore innovative pathways.



Event Poster



During the Orientation Program



Expert Address by Dr. Vijayalaxmi



Faculty Members listening to the Benefits of IEEE

IEEE-MOVE Outreach India: Promoting Climate Change & Sustainability

- **Start Time:** 8th September 2025 10:00 A.M. IST
- **End Time:** 8th September 2025 11:00 A.M. IST
- **Venue:** Govt. High School, Palaud, Naya Raipur

The IEEE Kalinga University Student Branch, in collaboration with IEEE SIGHT and supported by the IEEE India Council, organised the IEEE-MOVE Outreach India Program on 8th September 2025 at Government High School, Palaud. The initiative aimed to raise awareness about climate change and promote sustainability through experiential STEM education.

Students were introduced to innovative STEM kits featuring practical models such as wind vanes, solar-powered street lights, anemometers, vibration detectors, and geological fault-and-fold demonstrations. These hands-on activities provided valuable insights into renewable energy, disaster preparedness, and sustainable practices.

The program began with a welcome address followed by an awareness session on the role of renewable energy and sustainable living. This was followed by live demonstrations of the STEM kits, where students actively participated and explored real-world applications of science and technology.

By blending STEM learning with climate action, the event empowered young learners with the knowledge and skills needed to contribute towards a greener, resilient, and sustainable future, aligning with IEEE's mission of advancing technology for humanity.



Event Poster



Introduction Session



Students learning about Hydel Power



Group Photograph

Cybersecurity Extravaganza 2025

- **Start Time:** 26th September 2025 09:30 A.M. IST
- **End Time:** 27th September 2025 12:30 P.M. IST
- **Venue:** Kalinga University, Naya Raipur

The IEEE Education Society MP Chapter, in association with IEEE Kalinga University Student Branch and the IEEE Madhya Pradesh Section, organised a two-day Cybersecurity Extravaganza 2025 on 26th and 27th September, 2025, at Kalinga University, Naya Raipur. Aimed at students from Classes 8 to 12, the event attracted participation from over 200 enthusiastic school students. The program featured a series of interactive workshops, expert talks, and hands-on sessions focused on safe browsing, password management, phishing detection, and ethical hacking fundamentals.

The event was graced by distinguished speakers who enriched the sessions with their expertise. Dr. Vijayalaxmi, Director IQAC, Kalinga University, addressed the students on Careers in Cyber Security, while Mr. Nishith Agrawal (DSP, Cyber Cell Raipur) conducted an engaging session on Basics of Ethical Hacking and Cybercrime Prevention.

In alignment with the UN Sustainable Development Goals (SDGs) 4, 9, 16, and 17, the initiative aimed to empower young minds to become responsible and vigilant digital citizens. The first day commenced with the inaugural ceremony and keynote address, followed by interactive workshops on cybersecurity awareness, phishing detection, and malware prevention. Day 2 offered hands-on training sessions in ethical hacking, cybercrime prevention, and real-world case studies. The event concluded with expert interactions, student feedback, and a certificate distribution ceremony, marking the successful completion of an inspiring and educational experience.



Event Poster



Inauguration of Event



Session by Dr. Vijayalaxmi



Session by DSP Nishith Agrawal



Group Photograph

Inauguration of IEEE Student Branch at IPS Academy Indore

- **Start Time:** 26th September 2025 09:00 A.M. IST
- **End Time:** 26th September 2025 05:00 P.M. IST
- **Venue:** IPS Academy, Indore

IPS Academy Indore inaugurated its IEEE Student Branch on 26th September 2025, marking a key milestone in strengthening the institute's technical and innovative ecosystem. The inauguration was supported by the IEEE Student Branch of Kalinga University, whose mentorship played an essential role in establishing the new branch.

The event aimed to introduce students to the wide range of academic, professional, and research opportunities offered by IEEE. Through this new branch, IPS Academy students will gain access to technical workshops, conferences, webinars, project forums, and global networking platforms, helping them build expertise in emerging technologies and develop strong leadership skills.

Faculty members, dignitaries, and student representatives participated in the ceremony, reflecting a shared vision for academic advancement. With this launch, IPS Academy is set to nurture an active IEEE community, empowering students to transform innovative ideas into impactful technological contributions.



Event Posters



Group Photograph



Felicitation Moment During the Inauguration Ceremony

Six-Day FDP on AR/VR/MR: Differences & Its Application Areas

- **Start Time:** 06th October 2025 09:30 A.M. IST
- **End Time:** 11th October 2025 05:00 P.M. IST
- **Venue:** Seminar Hall, Kalinga University, Naya Raipur

The Faculty Development Program (FDP) on “AR/VR/MR: Differences and Its Application Areas” organised by the Internal Quality Assurance Cell (IQAC), Kalinga University, Naya Raipur, and sponsored by the AICTE Training and Learning (ATAL) Academy, New Delhi, was conducted from 6th to 11th October 2025 in offline mode. The six-day program was designed to provide faculty members, research scholars, and government professionals with advanced knowledge and practical experience in Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR). It focused on integrating these immersive technologies into teaching, research, and curriculum development, aiming to enhance student engagement, experiential learning, and innovative pedagogical practices.

The FDP featured a distinguished lineup of speakers from Kalinga University who shared their expertise on diverse aspects of immersive technologies. **Mr. Aditya Ravi Shankar** introduced the participants to AR/VR/MR Concepts and Fundamentals, while **Mr. Ayush Singh** discussed the role of AR/VR in the Medical Field. **Mr. Chandradhar Cherukuvada** presented on AR/VR/MR Technical Incline, and **Dr. Avinash Sharma** explored The Future of Metaverse in India and the Next Generation. **Dr. Sandeep Kumar Sood** addressed VR for Social, Emotional, and Mental Health Issues, whereas **Dr. Vijayalaxmi** focused on User Experience Design (UXD). **Mr. Surya Prakash Kuchimanchi** provided an Overview of AR/VR and Its Real-World Enterprise Applications, **Ms. Pradnya Mungi** presented on Augmentastics, and **Mr. Shivaraj Ramgiri** facilitated a session on AR/VR Design Content.

Through a series of expert lectures, interactive discussions, and hands-on demonstrations, the FDP successfully promoted academic excellence, interdisciplinary collaboration, and skill enhancement. The sessions offered participants an in-depth understanding of the core principles, distinctions, and applications of AR, VR, and MR technologies in education, research, industry, and innovation. By bridging theory with practice, the program empowered educators and researchers to apply immersive technologies effectively in their professional domains, thereby fostering innovative teaching approaches and strengthening global academic competitiveness.



Event Poster



Expert Lecture on AR/VR/MR Concepts



Exploring VR Headsets



Session by Dr. Vijayalaxmi



Group Photograph



Collaborative Learning Activity by Participant

STEM Exploration at NH Goel World School

- **Start Time:** 05th November 2025 09:00 A.M. IST
- **End Time:** 07th November 2025 08:00 P.M. IST
- **Venue:** N.H. Goel World School, Vidhan Sabha Road, Raipur

The STEM Exploration 2025 exhibition, held on the sidelines of the 1st National Teachers Science Conclave at NH Goel World School from 5th to 7th November 2025, offered an engaging three-day journey into the world of Science, Technology, Engineering, and Mathematics (STEM). Running from 9:00 AM to 8:00 PM, the event was designed to spark curiosity, creativity, and innovation among students through interactive learning and real-world applications.

The exhibition showcased a range of cutting-edge technologies and learning tools, including the mBot, Codey Rocky, electronics kits, drones, and AR/VR sets. These interactive displays allowed students to explore how robotics, coding, electronics, and virtual reality function in everyday life. By operating the devices and participating in live demonstrations, students gained a deeper understanding of how emerging technologies are shaping the future.

Through its dynamic exhibits and experiential approach, STEM Exploration 2025 successfully promoted awareness about the importance of STEM education. It encouraged young learners to think critically, solve problems creatively, and connect classroom concepts with real-world innovations—making the event both educational and inspiring.



Students Engaging with STEM exhibits



Live Demonstration of STEM Tools



Interactive Learning at the STEM Stall



Public Interaction During STEM Activities



Learning Booth Team

Inauguration of IEEE Student Branch at SJMIT

- **Start Time:** 21st November 2025 09:00 A.M. IST
- **End Time:** 21st November 2025 05:00 P.M. IST
- **Venue:** SJM Institute of Technology, Chitradurga, Karnataka

SJM Institute of Technology, Chitradurga, inaugurated its IEEE Student Branch on 21st of November 2025, marking a key milestone in strengthening the institute's technical and innovative ecosystem. The inauguration was supported by the IEEE Student Branch of Kalinga University, whose mentorship played an essential role in establishing the new branch.

The event aimed to introduce students to the wide range of academic, professional, and research opportunities offered by IEEE. Through this new branch, SJMIT students will gain access to technical workshops, conferences, webinars, project forums, and global networking platforms, helping them build expertise in emerging technologies and develop strong leadership skills.

Faculty members, dignitaries, and student representatives participated in the ceremony, reflecting a shared vision for academic advancement. With this launch, SJMIT is set to nurture an active IEEE community, empowering students to transform innovative ideas into impactful technological contributions.



Inauguration Ceremony



Inaugural Ceremony Proceedings



Group Photograph

STEM Showcase at Anand Mela 2025

•**Start Time:** 22nd November 2025 10:00 A.M. IST

•**End Time:** 22nd November 2025 04:00 P.M. IST

•**Venue:** Kalinga University, Naya Raipur

Kalinga University successfully organised the *Science Working Model Competition 4.0* along with *Anand Mela* on 22nd November 2025, creating a lively atmosphere of learning, creativity, and enjoyment. Students, faculty members, and visitors participated enthusiastically, making the event a memorable celebration. As part of this occasion, the IEEE Kalinga University Student Branch set up a dedicated STEM Education Stall, which emerged as one of the major attractions and played an important role in spreading awareness about modern, hands-on learning approaches.

The STEM stall was designed to introduce students and teachers to the importance of STEM education and future-ready skills. Various tools such as Cody Rocky, mBot, Cyber-Pi, Robotics Kits, VR headset, the Znatok 390 Electronics Kit, and drones were showcased. Students actively participated by operating robots, trying VR experiences, and learning the basics of drone control. These hands-on activities helped them understand STEM concepts in an engaging and enjoyable way.

One of the biggest attractions of the stall was the Buzzer Game, which tested students' concentration and coordination and created a fun, competitive environment. The stall received an excellent response from students, teachers, parents, and visitors, with many showing interest in enrolling in the Summer Camp. Teachers appreciated the practical demonstrations, and attendees praised the initiative for inspiring young minds. Overall, the STEM stall greatly contributed to the success of the event by promoting curiosity, innovation, and the importance of practical, technology-driven education.



STEM Activity Stall



Demonstration of Various Kits



Students Exploring Robots and Other Accessories



Visitor Participating in the Buzzer Game

STEM Demonstration at Career Guidance Session

- **Start Time:** 24th December 2025 12:00 P.M. IST
- **End Time:** 24th December 2025 02:00 P.M. IST
- **Venue:** Kalinga University, Naya Raipur

The Internal Quality Assurance Cell (IQAC), along with the IEEE Student Branch of Kalinga University, organised a comprehensive STEM Demonstration Program for school students of Class XI and XII as part of its academic outreach and quality enhancement initiatives. The program aimed to move beyond conventional classroom learning by providing students with practical exposure to emerging technologies that are shaping the future of science and engineering. Through live demonstrations of educational robotics platforms such as Codey Rocky, mBot, and CyberPi, students were introduced to fundamental concepts of coding, robotics, automation, and artificial intelligence. These demonstrations clearly illustrated how programming logic, sensors, and control systems interact to perform real-world tasks, making complex technological ideas easier to understand.

In addition to robotics, drone demonstrations were conducted to familiarise students with basic flight principles, control mechanisms, and the growing applications of drone technology across various industries. The interactive sessions encouraged students to ask questions, observe closely, and develop a deeper interest in hands-on learning and problem-solving.

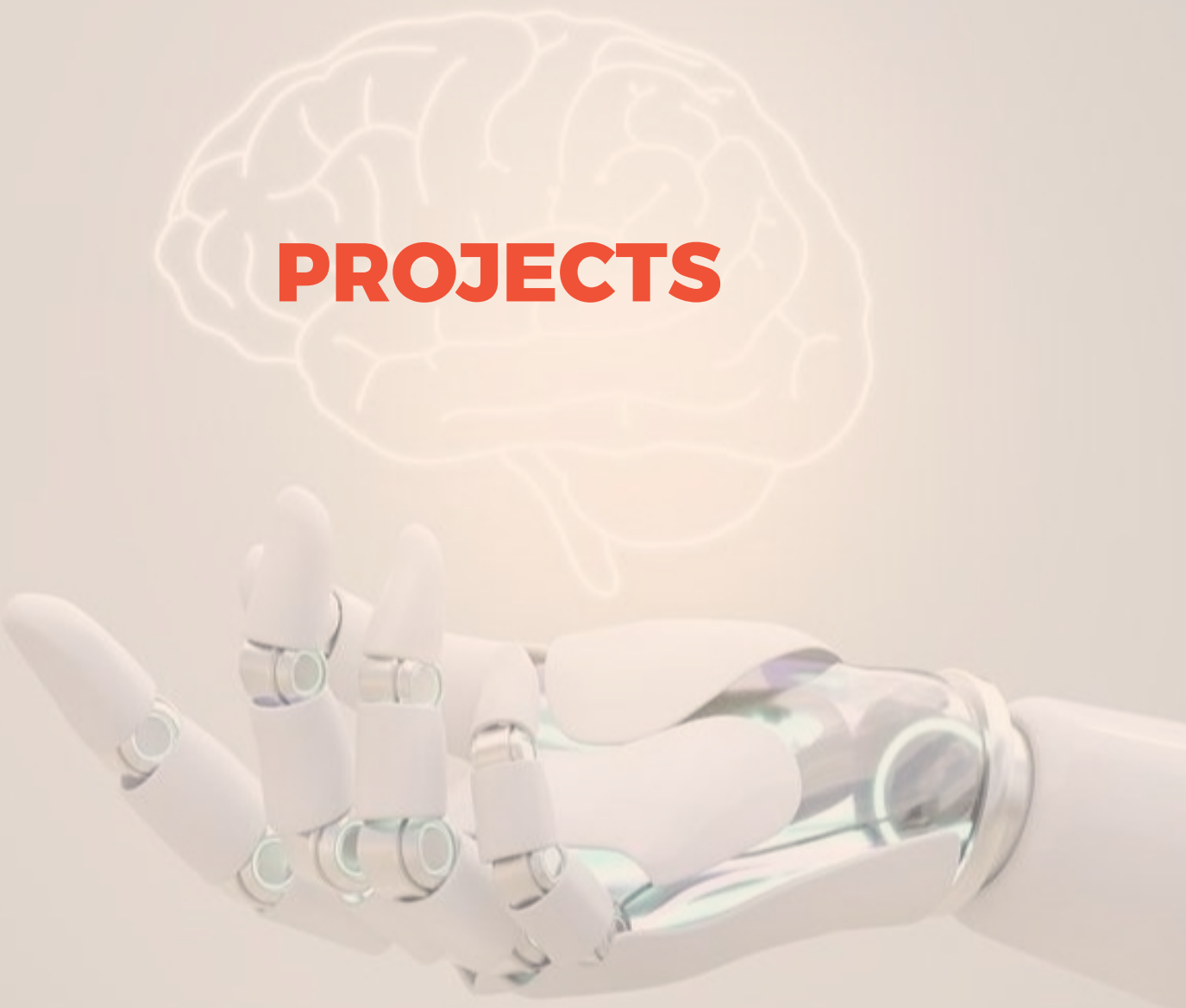
A guided campus tour was also arranged, allowing participants to explore academic blocks, advanced laboratories, and innovation facilities at Kalinga University. This exposure provided students with valuable insights into university-level education, research culture, and technological infrastructure. Overall, the STEM Demonstration Program significantly enhanced students' understanding of STEM disciplines, stimulated curiosity and innovative thinking, and promoted experiential learning. The initiative reaffirmed IQAC's commitment to fostering quality education and strengthening community engagement through meaningful academic outreach.



Introduction about STEM



Student Exploring Codey Rocky

A futuristic white robotic hand with glowing green joints is shown holding a glowing yellow outline of a human brain. The word "PROJECTS" is written in bold red capital letters across the center of the brain outline.

PROJECTS

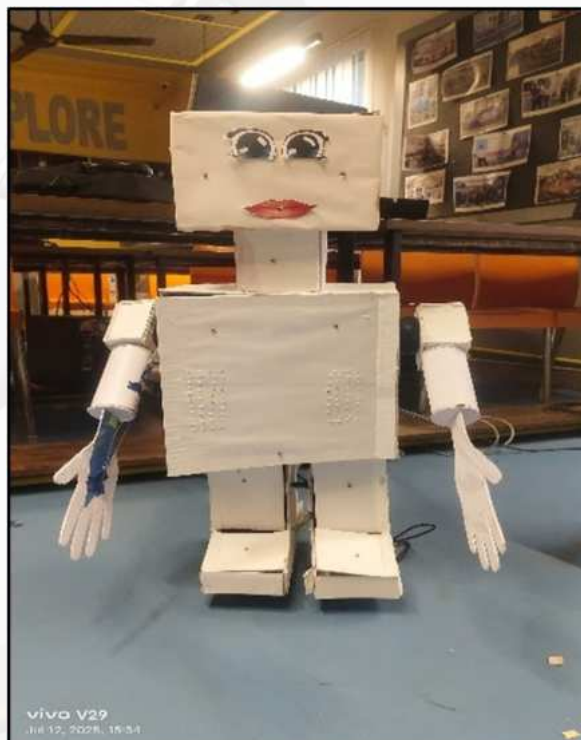
SenseiBot

SenseiBot is an innovative interactive humanoid robot created to address one of the most important yet delicate aspects of child education—personal safety awareness. Developed with strong institutional backing from Kalinga University, the project highlights the university's dedication to socially responsible innovation and student-driven research. Guided by a genuine concern for child welfare, members of the IEEE Kalinga University Student Branch invested their technical expertise, creativity, and commitment to design SenseiBot as a practical response to a real-world social need.

Inspired by the role of a mentor or “Sensei,” the robot blends guidance with modern robotics to provide children with a safe, friendly, and engaging learning environment. Unlike conventional teaching approaches that may feel awkward or intimidating, SenseiBot uses a unique light-based interaction method. Children simply point a flashlight toward specific areas on the robot, where built-in light sensors activate pre-recorded voice messages that explain concepts such as good touch and bad touch. This method eliminates the need for physical contact, ensuring the learning process remains respectful, culturally sensitive, and emotionally secure.

SenseiBot is powered by an Arduino microcontroller, DF Mini Player, and servo motors, enabling synchronised voice feedback and gentle, human-like movements that help maintain attention and improve understanding. Its portable, durable, and child-friendly humanoid design makes it suitable for use in schools, homes, and community centres. The system also supports customizable educational content, including different languages and voice styles, allowing it to adapt to diverse age groups and regions.

Beyond personal safety education, SenseiBot serves as a tool for social impact and early STEM exposure. By fostering awareness, reducing stigma, and encouraging children to understand personal boundaries and seek help, it transforms safety education into an interactive and confidence-building experience. With future enhancements such as intelligent personalisation, mobile app integration, and expanded learning modules, SenseiBot reflects Kalinga University's vision of combining compassionate education with innovative technology, driven by socially conscious students.





Awards and Recognition

[IEEE R10 WIEC] "WIE Designs" Infographics 2025 - Winner Announcement (Round 2) [\[Block X\]](#)



Awards_no-reply <awards@ieee.org>
to r10

1:08PM (3 minutes ago)



Dear Applicants to the 2025 IEEE R10 WIE Committee Call for "WIE Design" Infographics 2025 - Round 2,

Hello, and thank you again for preparing many wonderful designs for the first call for infographics sharing the message that:

- Men and women can join IEEE WIE
- WIE membership is **FREE** for IEEE student, graduate student, and life members

We are delighted to announce that the winner for this round is:

Design #9 submitted by Koda Aayushi (IEEE Kalinga University Student Branch Women in Engineering Affinity Group, Madhya Pradesh Section)

(winning design viewable until September 30, 2025)

We will display a banner of the winning design at the IEEE R10 WIEC session of R10 HTC 2025 to be held in Chiba, Japan and gift the banner to the winning WIE group at the end of the year. We will also reimburse up to USD\$50 for the winning group to print their own banner, flyers, stickers, etc. of the winning design for their own events.

All applicants are welcome to submit new infographic designs for the third and final round of judging to be done this month (for the banner to be displayed at R10 TENCON HTC 2025):

<https://wie.ieee.org/2025-call-for-infographics/>

Thank you again for your participation and a big congratulations to the winner.

On behalf of IEEE Region 10 Women in Engineering Committee Chairs:

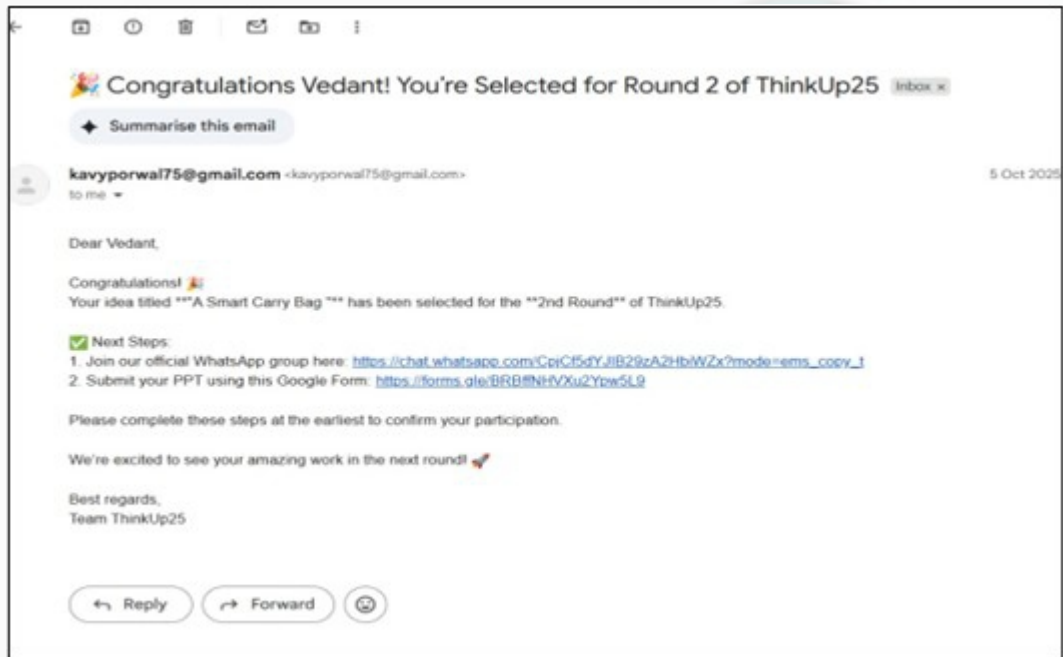
Pauline N. Kawamoto (North Asia)

Warunika Hippola (South Asia and Pacific)

This email is a service from IEEE.



Design of the IEEE KU SB Selected in round 2 of "IEEE R10 WIE Call for Infographics"



Vedant Raj's proposal on Smart Carry Bag advances to Round 2 of "ThinkUp25"



WIE Big Idea Pitch Competition Participation Certificate awarded to Team CareBot



WIE Big Idea Pitch Competition Participation Certificate awarded to Team VitaCore



WIE Big Idea Pitch Competition Participation Certificate awarded to Team Acuarobos





Letters of Appreciation received from Bharat Mata Sr. Sec. School for the successful completion of the 5-Day Block Coding Bootcamp from 18th to 22nd August 2025



IEEE Kalinga University Student Branch received the Outstanding Student Branch Award 2025 by the IEEE India Council for its exceptional contributions to student development and technical excellence



The IEEE Kalinga University Student Branch proudly received the 2025 IEEE Regional Exemplary Student Branch Award, recognising its consistent excellence, impactful activities, and strong leadership



BIRAC Achievement Certificate awarded for the successful completion of the Women Leadership in STEM Program 2024

Dear Vijayalaxmi laxmi Biradar,

Welcome to **IEEE-Eta Kappa Nu**! You have distinguished yourself by technical excellence, exemplary character, positive attitude, and dedication to service. Your membership in HKN recognizes and celebrates these traits, and connects you with a global community dedicated to enhancing the engineering profession for students and professionals alike.

Eta Kappa Nu is much more than a lifetime membership; your induction ceremony marks the beginning of many rewarding opportunities for uplifting students and engaging with your new community. Professional members play an important role in the health of IEEE-HKN.

- In just a few minutes, you can follow IEEE-HKN on social media ([LinkedIn](#), [YouTube](#), [Facebook](#)) to stay informed of conferences, see student activity, and help promote activities across your network.
- Join the HKN Board and Staff in [making a monetary donation to HKN](#); our contributions help support chapter activities, the Student Leadership Conference and other operations worldwide.
- Connect with [HKN University Chapters](#). Alumni are valuable allies to Chapters as speakers, industry representatives at networking events, mentors, liaisons between students and IEEE Sections and Societies. We can help connect you with Chapters seeking your expertise.
- Engage with one of the [HKN Board's committees](#): organizing conferences, liaising with industry and technical society partners, and contributing articles for [The BRIDGE](#) are just a few activities that the board works on year-round.
- Be an ambassador of HKN by connecting us to your current professional volunteering efforts both within IEEE and beyond to help us to identify and promote partnership opportunities.

When shared, your expertise and spirit can have a profound impact on our society and its members. We're excited for you to get involved in HKN and have opportunities to fit any amount of availability. Please visit the [HKN Volunteer webpage](#) for a short list of current volunteer needs and to indicate your interest in lending a hand.

Once again, congratulations, and welcome to IEEE-HKN!

Sincerely,

Sean Bentley
2025 IEEE-HKN President

If you have an IEEE Account, manage your IEEE communications preferences [here](#). Users without an IEEE Account can access the [Privacy Portal](#) to view selected preferences and policies.

Dr. Vijayalaxmi Inducted into IEEE Eta Kappa Nu (HKN) in recognition of academic excellence, leadership, and service to the engineering community



Successfully completed the IEEE course “Thinking like a Leader: The TILL System,” earning Continuing Education Units (CEUs)



Successfully completed the IEEE course on Community Engagement in Sustainable Development Projects, earning Continuing Education Units (CEUs)



Honoured by IEEE Women in Engineering for contributions as Program Co-Chair of the 2025 IEEE WIE ILC

Completion of Foundation & Advanced Level Innovation Ambassador Training



Offered by :

**Institution's Innovation Council,
Ministry of Education, Govt. of India**

Students of Kalinga University successfully completed the Innovation Ambassador (IA) Training Foundational Level, conducted by the Ministry of Education's Innovation Cell (MIC), Government of India

ARTICLES



OmniToken: A Unified Tokenization Framework for the Future of NLP

Tokenization is the foundation of Natural Language Processing (NLP), yet existing approaches remain fragmented across models and languages. OmniToken introduces a unified, modular tokenizer engine capable of supporting BPE, WordPiece, SentencePiece, and hybrid tokenization strategies in a single framework.

Modern AI systems demand multilingual processing, context-awareness, and efficient model deployment – challenges OmniToken solves by offering a standardised API and dynamic backend switching. This innovation ensures seamless adaptation across research, industry applications, and resource-constrained environments.

OmniToken enhances consistency in AI pipelines, accelerates experimentation, and improves robustness for real-world text, including multilingual content, code, and emoji data. Its flexible configuration enables both academic research and production systems to adopt state-of-the-art tokenisation effortlessly.

This library is open-source on PyPI and GitHub, supporting global collaboration toward next-generation language understanding. Researchers, students, and industry developers can leverage OmniToken to explore and enhance tokenization strategies while contributing to an evolving ecosystem for universal NLP processing.



Kalyana Krishna Kondapalli
CEO
Mytecz India Private Limited

AI-Driven Secure Bed Allocation

Ecosystem for Smart Hospitals

The future of healthcare lies in intelligent automation and trust-driven hospital operations. Our AI-Driven Secure Bed Allocation Ecosystem optimizes real-time hospital bed assignment using predictive analytics, patient priority routing, and blockchain-enhanced transparency. This innovation addresses critical healthcare challenges such as emergency response delays, manual administrative errors, and uneven bed utilisation.

By combining AI forecasting models with a secure distributed ledger, hospitals gain automated and auditable decision-making capabilities. The system prioritises urgency, medical needs, and resource availability, ensuring fair and efficient patient allocation, especially during crisis situations such as pandemics.

This research has also led to a UK-granted patent, demonstrating global relevance and innovation in intelligent health systems. The solution is scalable across public and private healthcare networks, making it valuable for smart city health infrastructure and next-generation e-governance initiatives.

With a focus on patient-centric care, transparency, and operational efficiency, this ecosystem sets a foundation for ethical, automated, and resilient healthcare delivery.



Kalyana Krishna Kondapalli
CEO
Mytecz India Private Limited

Smart Minds, Caring Machines:

Exploring AI's Impact on Mental Health

The sphere of mental health care is being revolutionised by the introduction of Artificial Intelligence (AI), which has a different approach to the assessment, treatment, and support of people. Through highly sophisticated machine learning and data analysis, AI is able to analyse speech, face, and online activity to detect the first signs of anxiety, depression, or stress. Virtual counsellors and AI-based chatbots offer ongoing emotional support: help and therapeutic communications to individuals who are not comfortable with face-to-face interactions. The tools can minimise social stigma and increase the availability of mental health services, especially in rural areas or in resource-restricted settings. Also, AI can assist mental health practitioners in monitoring patient progress, predicting possible risks, and proposing evidence-based treatment approaches. It is crucial to protect the information of the users and uphold the ethics of AI. On the whole, it is possible to state that the responsible use of AI can significantly enhance the sphere of mental health care, making it more individualised, more accessible, and more efficient. It can build on emotional health and establish a more inclusive method of mental health care in the modern digital society.



Dr. Saroj Nayyar

Assistant Professor, Faculty of Education
Kalinga University, Naya Raipur

AI Integration: Paving the Way for a Smarter Electronics World

The convergence of Artificial Intelligence (AI) and electronics is ushering in an era of unprecedented capability, transforming inert devices into proactive, intelligent systems. This integration is the core driver for a truly "smarter" electronics world, moving beyond basic automation to sophisticated, adaptive decision-making.

At its heart, AI allows electronic devices to learn from data, recognise complex patterns, and execute tasks with minimal human intervention. This is achieved through the deployment of lightweight, efficient machine learning models often executed at the edge (on the device itself) to ensure low latency and privacy. Key areas of integration include:

- **Predictive Maintenance:** Sensors gather operational data, which an on-device AI analyses to predict component failure before it occurs, maximising uptime in industrial or consumer electronics.
- **Contextual Awareness:** In IoT (Internet of Things) devices, AI enables sophisticated contextual awareness. A smart thermostat, for instance, learns individual routines and environmental factors to optimize energy use, rather than simply following a fixed schedule.
- **Enhanced Human-Machine Interfaces (HMI):** AI-powered natural language processing and computer vision enable electronics to understand complex vocal commands and gestures, creating intuitive and seamless user experiences.

The future of electronics lies in continued AI integration, fostering innovations in robotics, Internet of Things (IoT), and 6G communication systems. As AI continues to evolve, it will enable electronics to become more intelligent, adaptive, and human-centric—paving the way toward a sustainable and smarter digital ecosystem.



Dr. Neeta Nathani

Professor, Department of Electronics & Communication Engineering,
Gyan Ganga Institute of Technology and Sciences, Jabalpur, M.P.

Cross Pollination of DNA Polymorphism: Gene Profiling by Artificial Intelligence of STR Markers.

Artificial Intelligence (AI) has been applied to genetic studies, and it has altered the study of DNA polymorphism in a profound way, particularly when using Short Tandem Repeat (STR) as the genetic markers. These are the markers that have been known to be highly variable and reliable and are very important in genetic profiling, forensic science and population genetics. Conventional approaches to the analysis of such complicated genetic data can be time-consuming and can be affected by human error; however, nowadays, AI technologies and machine learning algorithms provide efficient solutions to the analysis of complex data in a quick and accurate manner. By using AI to work with the STR data, researchers are able to easily identify subtle genetic variations, examine the structure of populations and identify genetic connections with better precision. The more sophisticated tools, including neural networks and clustering algorithms, are used to reveal the concealed patterns in the genetic data, which increases the pace and reliability of findings. All in all, the combination of AI and the analysis of the STR markers is a significant innovation in the field of molecular genetics. This is a more precise, scalable and efficient method of analysis and opens up new perspectives on the study of genetic diversity, personalised medicine, and biased forensic analysis.



Ms. Samiksha Nayyar

Assistant Professor, Department of Forensic Science
Bharti Vishwavidyalaya, Durg, Chhattisgarh

UN Sustainable Development Goals: Interconnected for betterment of future

Abstract: The UN Sustainable Development Goals (SDGs) provide a global blueprint for creating a fair, healthy, and sustainable future by 2030. These goals are interconnected, where progress in one area can advance or strain another. For instance, improving education (SDG 4) supports poverty reduction (SDG 1), yet expanded digital learning may increase energy demand (SDG 7), influencing climate action (SDG 13). Recognising such linkages is essential for balanced development.

Keywords: Artificial Intelligence, SDGs, sensors, IoT

Introduction: Artificial intelligence strengthens these connections by analysing complex systems and guiding efficient solutions. In agriculture, AI-supported monitoring of soil, water, and crop health enables precise irrigation, nutrient delivery, and early pest detection. This reduces waste, conserves resources, and improves yields, supporting sustainability and resilience.

AI-enabled renewable energy systems further reinforce multiple SDGs:

SDG 1: Optimised grids lower costs and improve access.

SDG 2: Stable energy supports cold chains and irrigation.

SDG 3: Reduced fossil fuel use lowers pollution and improves healthcare reliability.

SDG 4: Schools gain dependable power for digital learning.

SDG 5: Energy access reduces domestic burdens and supports women-led enterprises.

SDG 6: Efficient pumping and purification systems.

SDG 8-9: Green jobs and stronger infrastructure.

SDG 11-14: Cleaner cities, lower emissions, and healthier ecosystems.

SDG 17: Enhanced collaboration across sectors.

AI thus acts as a unifying catalyst for integrated SDG progress.



Ishaan Mathur

UG Scholar

UIT RGPV Bhopal

The NSS Difference: Empowering Youth Through Service

The National Service Scheme (NSS) is a dynamic bridge connecting academic learning with genuine social responsibility. As an NSS program Officer, I have been privileged to witness the profound transformation in our youth as they engage in impactful service. The soul of our movement is encapsulated in its powerful motto: "Not Me, But You." This ethos instantly inspires volunteers to cultivate core values like empathy, resilient leadership, and deep civic consciousness.

NSS activities are designed to be practical incubators for essential life skills. Through tangible efforts—organising blood donation camps, spearheading village sanitation drives, leading awareness rallies, and executing modern digital literacy campaigns—students master teamwork, compassion, and resilience. Our integration of technology, aligning seamlessly with the vision of Digital Bharat, amplifies our outreach and efficiency manifold.

The NSS movement goes far beyond creating temporary volunteers; it actively nurtures responsible citizens and changemakers dedicated to fostering inclusive growth. For every aspiring engineer, educator, or innovator, social sensitivity is as crucial to success as technical proficiency. The spirit of NSS powerfully reaffirms that our true measure of progress lies not in individual achievement, but in the sustained collective welfare of the community.



Dr. Harsha Sharma

Assistant Professor

NSS Program Officer

Kalinga University, Naya Raipur

Strategic Innovation: The Key to Sustainable Business Success

In today's competitive and fast-evolving business world, strategic innovation has become the cornerstone of long-term organisational success. It goes beyond product development—it redefines business models, customer engagement, and operational efficiency. Companies that integrate innovation with strategy are better equipped to anticipate market trends, adapt to technological shifts, and deliver exceptional value to stakeholders.

Strategic innovation involves a proactive approach to problem-solving and decision-making. Leaders must foster a culture that encourages experimentation, learning from failure, and cross-functional collaboration. When employees are empowered to think creatively and take ownership, innovation becomes an organisational habit rather than a periodic initiative.

Moreover, sustainability and innovation now go hand in hand. Businesses that align their growth strategies with environmental and social responsibility build stronger reputations and customer loyalty. In an era where change is the only constant, organisations that embed innovation into their strategic DNA not only survive but thrive.

In essence, strategic innovation transforms vision into value and leaders into pioneers.



Mr. Anshul Sharma

Assistant Professor

ASMA Institute of Management, Pune, Maharashtra

The Smartest Way to Learn: AI's New Help in School

The latest and most exciting change in schools is how extra-smart AI tools are making learning totally new. These tools go way past simple lessons. They act like a live, helpful coach right on your screen. Imagine you are stuck on a very tricky problem. Now, you can point your phone at the math or science diagram, and the AI gives you spoken directions right away, guiding you through each step. It doesn't just give the answer; it asks you small, simple questions to make sure *you* figure it out. This is called "Guided Learning," and it makes things hard to click much faster. For teachers, this new AI is a huge time-saver. It can instantly take a teacher's notes or textbook pages and automatically make quizzes, study guides, or flashcards for the whole class. It also gives detailed feedback on student work almost instantly, which means the teacher does not have to spend hours grading. This lets teachers use their time better, talking to students, cheering them on, and helping them with bigger, creative projects. In short, modern AI is here to make sure learning is personal, fast, and much less stressful for everyone.



Prof. (Dr.) Lubhawani Tripathi

Professor, Faculty of Education
Kalinga University, Naya Raipur

Reclaiming the Field: Prioritising Sports Over Screens

We face a real challenge today: the smartphone screen is pulling us away from the sports field. Students are spending too much time looking down and not enough time stepping out. As a result, we are missing out on the best lessons life can teach us. The truth is, true strength and lasting friendship are not found in apps—they are built on the court and the track.

Sports give you things a screen never can. When you play, you learn how to handle tough moments and how to keep going when things are hard. That is called resilience, and it helps you in every part of your life. You learn real teamwork, not just clicking a button, but working side-by-side with others to win. This is why we need to make a simple choice every day: put down the phone, pick up the ball. Your time spent being active is the best investment you can make in your health, your mind, and your future success. Let's choose action, health, and real connection over digital distraction.



Dr. Sanjeev Kumar Yadav

Assistant Professor, Physical Education
Kalinga University, Naya Raipur

The Power of Effective Management in Shaping Organisational Success

Effective management is the foundation of every thriving organisation. Beyond supervising tasks, it focuses on inspiring people, aligning goals, and nurturing a culture of accountability and growth. A skilled manager blends strategic thinking with empathy, ensuring both organisational success and employee well-being are prioritised.

In today's fast-changing business world, shaped by technology and global competition, management must move from control to collaboration. Empowering teams, fostering creativity, and encouraging continuous learning are core principles of modern leadership. Strong communication, time management, and decision-making abilities further enhance an organisation's adaptability and overall performance.

Ethical leadership plays a critical role in building trust and credibility. When managers lead with integrity and transparency, they create a dependable environment where individuals feel valued and motivated to excel. Such trust not only strengthens internal relationships but also elevates the organisation's reputation among external stakeholders. Ultimately, effective management is about leading with vision, motivating with purpose, and executing plans with precision. It transforms challenges into opportunities, drives innovation, and ensures sustainable success in an ever-evolving business landscape.



Mr. Om Sharma

ASMA Institute of Management
Pune, Maharashtra

AI in Drug Discovery: A New Era in Pharmacy

Artificial Intelligence (AI) is changing the way we discover and develop new medicines. Earlier, making a single drug used to take many years and a lot of money. But today, AI can study thousands of chemical compounds in just a few minutes and suggest which ones might work as effective medicines.

With the help of AI, researchers can also predict how a drug will react in the human body, which helps in reducing side effects and saves time in lab testing. AI is already helping in finding better treatments for diseases like cancer, Alzheimer's, and diabetes.

For pharmacy students and professionals, this is an exciting time. AI doesn't replace humans – it supports them by making research faster and more accurate. The combination of human knowledge and machine learning is shaping the future of healthcare. The day is not far when every new drug will have the touch of artificial intelligence behind it.



Anuj Kumar

B.Pharm Student

Kalinga University, Naya Raipur

Combating Air Pollution through AI-Powered Smog Control Systems

Delhi's worsening air pollution has become one of the most pressing environmental and health challenges in India. Similar conditions once existed in Beijing, China, where smog levels were among the world's highest. China successfully tackled this crisis using AI-powered Smog Control Systems and smart environmental monitoring networks.

These systems combine IoT-based air sensors, satellite data, and machine learning models to predict pollution peaks in advance. The collected data guides real-time decisions — automatically restricting industrial emissions, controlling traffic flow, and activating large-scale smog towers and electrostatic air purifiers.

Beijing also deployed drone-based pollution mappers that sprayed water vapour and neutralising agents in high-density smog zones. Within a few years, these smart interventions reduced particulate matter (PM2.5) levels by more than 40%.

India can adopt a similar AI-driven pollution management framework, integrating Delhi's air quality sensors, traffic systems, and industrial controls under a unified smart network. This technology-led approach could transform Delhi from a pollution hotspot into a model for sustainable urban air management in the developing world.



Mr. Anugrah Ashish Kumar

Lecturer, Department of Electrical Engineering
GEMS Polytechnic College, Aurangabad, Bihar

AI in Financial Forecasting: Redefining Market Predictions

The financial realm is a complex system of dynamic marketplaces where prices vary rapidly, affected by economic data, behavioural patterns, and worldwide occurrences. Anticipating these variations has consistently been a challenging issue. Conventional statistical models such as ARIMA, GARCH, and VAR depend on linear assumptions and frequently do not adequately represent nonlinear interactions, volatility clustering, and regime transitions seen in actual financial data. Deep learning algorithms have revolutionised this situation by directly learning intricate temporal and nonlinear correlations from extensive datasets. Convolutional Neural Networks (CNNs) and Long Short-Term Memory (LSTM) networks can derive profound representations of patterns and trends. An essential component of this approach entails meticulous data preprocessing, noise mitigation, and feature selection to guarantee model resilience and avert overfitting. Techniques for processing missing data, normalising characteristics, and equilibrating datasets have markedly enhanced model dependability and generalisation across varying market situations. Current studies emphasise attention methodologies, Explainable AI (XAI), and ensemble learning to enhance transparent and adaptable decision-making. These models are transforming fields such as portfolio optimization, algorithmic trading, volatility forecasting, and risk management, thereby connecting theoretical advancements with practical financial acumen.



Akanksha Sharma

Ph.D. Scholar, Department of Mathematics, Bioinformatics and Computer Applications
Maulana Azad National Institute of Technology, Bhopal

Nanomedicine for Autoimmune and Anti-Inflammatory Disorders

Nanomedicine offers new perspectives in the treatment of autoimmune and anti-inflammatory diseases with tiny particles capable of delivering medicine right to the places of action. Autoimmune diseases occur when the immune system incorrectly attacks the body, leading to inflammation and destruction. Nanoparticles can target specific immune cells to ease this attack without impacting the entire immune system. This targeted delivery cuts down on side effects compared to traditional treatments.

Nanomedicine exerts its action by transporting drugs that reduce inflammation directly into the inflamed tissues in anti-inflammatory disorders. This improves effectiveness and allows lower drug doses. These small carriers can also facilitate early disease detection and/or better monitoring via strategies involving imaging techniques.

In general, nanomedicine seeks to restore balance to the immune system safely and efficiently, offering new hope for patients with chronic conditions. This approach is still in its development but shows great promise for the future of personalised treatment.

Nanomedicine also opens the door for combination therapies, whereby multiple drugs can be packed into a Nano-carrier. This would treat several disease pathways at once, improving long-term recovery in patients.



Ranjeet Kumar

B.Pharma, 5th Semester Student
Kalinga University, Naya Raipur

Neuromorphic Computing: When Human Brain Meets Machine Intelligence

Sometimes technology tries to copy our decisions, but neuromorphic computing goes a step further. It tries to copy the way we think. Instead of following a fixed set of instructions, neuromorphic chips behave like small networks of neurons that adjust after every experience. This makes them quick learners, something that normal computers are not very good at.

The most surprising part is how little energy this system needs. Our brain works 24/7 and still uses less power than a light bulb. Neuromorphic chips also target the same idea: faster thinking without huge energy loss. That is why researchers are trying to use them in places where delay can be dangerous, like driverless cars, medical diagnosis, rescue robots, and security alerts.

What makes this field exciting for me is the possibility of machines understanding not only information but also emotions someday. If computers respond with empathy, technology will feel more natural and helpful rather than mechanical. If handled responsibly, neuromorphic computing might help humans and machines work side by side instead of competing with each other.



Khushboo Kumari

MCA, 3rd Semester Student

Kalinga University, Naya Raipur

When Screen Connects Hearts

In the age of digital interactions, friendships are limited to screens, messages, video calls, likes, and comments. Those chit-chats in office corridors, school benches, and neighbourhood parks are rarely seen. The transitions from reel life to real-life friendships in the 21st-century indicate a tremendous shift in how people connect.

People share their thoughts, ideas, and creativity through social media platforms. They get connected to people, which gradually transforms into support and inspiration for each other. Reel-life friendships can develop into strong relationships through trust, safety, and respecting personal boundaries. Moreover, resonating with each other's thoughts through online interactions also develops a spark to ignite a deeper connection even before the two people meet each other. Careful nurturing of these friendships can also provide collaborative opportunities and lifelong relationships. During an era where loneliness and mental health issues are rising, these online friendships remind us that human connections cannot be dependent on physical boundaries. True friendships are measured by the memories and the warmth they bring into our lives. Many believe that online friendships are fake and shallow, but when handled carefully, these friendships become lifelong blessings.



Dr. Anjum Nazir Qureshi

Assistant Professor
RCERT, Chandrapur

Road Athena: AI and GIS Platform

Road Athena is a new AI-powered and GIS-capable platform that aims to update traffic monitoring, urban planning, and road infrastructure management. Road Athena gives governments and transportation agencies a better understanding of road conditions, traffic flow, and safety threats by fusing real-time geospatial data with sophisticated analytics. By continuously gathering data from sensors, satellite photos, and mobile devices, the platform is able to accurately identify problems like potholes, traffic jams, and structural damage.

By giving priority to areas with the most impact, our AI models can forecast maintenance requirements, improve repair schedules, and lower operating expenses. By offering user-friendly visual layers that display road networks, geography, accident zones, and demographic aspects, GIS mapping further improves decision-making. Road safety, emergency response coordination, and more effective transportation planning are all supported by this combination. Additionally, Road Athena facilitates data exchange between organisations, establishing a cohesive environment for intelligent mobility planning.

All things considered, the platform is a significant advancement in intelligent infrastructure management, providing a proactive, data-driven method for creating robust and sustainable transportation systems. Road Athena is a cutting-edge AI and GIS platform designed to revolutionise the monitoring, analysis, and management of road networks. It creates a cohesive environment for more intelligent transportation infrastructure by combining real-time data sources, geospatial mapping, and artificial intelligence.



Nandini Siddayya Chickmath

Sharnbasva University

Faculty of Engineering and Technology-Exclusively for Women

Department of Electronics and Communication Engineering, Kalaburagi

Data Science for Sustainable Development

“Have you ever wondered how countries plan cleaner cities, safer roads, or better farming using numbers?” This is where data science plays an important role. We gather information from our daily activities, like using phones, shopping, travelling, or going to school. This data helps us make smarter decisions. By studying it, we can solve problems, safeguard the environment, use resources wisely, and upgrade people's lives. This is called sustainable development, and it is important as it helps the Earth and people live better.

In practice, data analysis starts by collecting information from daily life, like energy use, travel, or traffic. The data is next organised in tables, charts, or graphs. Studying it carefully helps us discover patterns, spot problems, and decide the best ways to save resources and improve life. Data analysis helps reduce waste. For example, monitoring electricity shows where energy is wasted. It additionally helps people utilise water and resources more wisely. Cities track electricity, water, and traffic, and fixing leaks or turning off unused lights saves energy and water. Communities manage trash and recycling better. Data also protects forests, rivers, and wildlife from damage.

Data science empowers sustainable choices today, inspiring a smarter, greener world tomorrow.



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Threat Intelligence and Response

In order to safeguard networks and digital assets, Threat Intelligence and Response is a cybersecurity strategy that focuses on finding, evaluating, and handling data pertaining to cyber threats. Instead of merely responding to an attack, organisations may increase their overall security and take preventive measures by knowing how attackers operate.

System logs, malware investigations, threat reports, and shared intelligence platforms are just a few of the internal and external sources from which threat intelligence is gathered. After analysis, this data is categorised into operational, tactical, and strategic intelligence.

Operational intelligence offers real-time insights into active threats, tactical intelligence investigates attack methods and vulnerabilities, and strategic intelligence supports long-term security decisions.

Threat response entails promptly identifying events and putting preventative measures in place to minimise damage and repair systems. This covers security patching, incident handling protocols, automated monitoring, and recovery methods. SIEM systems, intrusion detection tools, and AI-driven analytics are examples of advanced security technologies that improve threat response time and accuracy.

In general, firms can lower risks, limit service interruption, and increase resilience against changing cyberthreats by combining threat intelligence with efficient reaction systems.



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Cyber-Physical Systems for Smart Grids

Cyber-Physical Systems (CPS) combine powerful computer, communication, and control frameworks with physical power infrastructure to form the technological foundation of contemporary smart grids. CPS improves the dependability, efficiency, and resilience of power transmission in a smart grid by enabling real-time monitoring, automated decision-making, and adaptive control. Grid operators can more successfully balance supply and demand because to the constant data collection and exchange provided by sensors, smart meters, distributed energy resources (DERs), and communication networks.

Demand response, defect detection, load forecasting, and the integration of renewable energy sources are just a few of the intelligent functions that CPS offers. CPS can prevent power outages, identify anomalies early, and improve grid performance through machine learning and predictive analytics.

Decentralised and sustainable energy management is made possible by sophisticated control systems that assist in regulating bidirectional power flows from solar panels, wind turbines, and energy storage devices.

A crucial element of smart-grid CPS is security. Grids are increasingly vulnerable to cyberthreats that could damage data or interfere with operations as they become more linked. Strong cybersecurity frameworks are therefore crucial, including intrusion detection, encryption, and robust communication protocols. All things considered, CPS converts conventional power systems into intelligent, adaptable, and secure smart grids that can satisfy the future's expanding energy needs.



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AI-Driven Air Quality Index (AQI) Prediction System

An AI-driven Air Quality Index (AQI) prediction system forecasts air pollution levels more precisely and effectively by utilising real-time data and sophisticated algorithms. Conventional AQI monitoring relies on manual sensor data collection, which frequently yields results that are delayed.

AI systems, on the other hand, examine a variety of inputs to forecast pollution patterns before they happen, including temperature, humidity, wind speed, traffic density, industrial emissions, and satellite data.

Over time, machine learning models increase their forecasting accuracy by learning from past AQI trends. These systems assist governments, environmental organisations, and the general public in taking preventive measures by locating pollution hotspots and forecasting both short-term and long-term AQI levels.

For instance, authorities can use anticipated data to design environmental plans, regulate traffic in areas with heavy pollution, and offer early warnings. Notifications about bad air quality can also be sent to citizens, who can then modify their outdoor activities or health measures.

The growth of smart cities, environmental sustainability, and public health protection all depend heavily on AI-driven AQI prediction. AI-based forecasting systems are becoming a crucial tool for controlling air pollution and creating cleaner, healthier urban settings, thanks to expanded sensor networks and more potent models.



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Robotics as a Service (RaaS)

A contemporary service-based strategy known as "Robotics as a Service" (RaaS) offers robots through subscription plans or usage-based payments as opposed to direct ownership. This concept makes automation more accessible, particularly for small and medium-sized businesses, by assisting firms in implementing robotic technology without incurring high upfront costs.

RaaS combines artificial intelligence, cloud computing, and Internet of Things (IoT) technology with robotics. Robots can be remotely observed, operated, and upgraded via cloud connectivity. In order to enhance performance and provide predictive maintenance, which minimises downtime and manual intervention, data gathered during operation is evaluated. This method makes deployment easier and enables companies to grow robotic operations to meet their demands.

Numerous industries, including manufacturing, healthcare, logistics, agriculture, and defence, have found use for RaaS. Robots are employed in logistics for warehouse automation and material handling. Service robots assist with activities like medicine distribution and sanitation in the healthcare industry. Crop monitoring and harvesting tasks are aided by agricultural robots. In conclusion, by providing flexibility, cost effectiveness, and a lower technical burden, robotics as a service is changing the way automation is adopted. RaaS is anticipated to become a crucial part of automated systems in the future as technology advances.



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Stealth Technology

Stealth technology refers to a set of engineering techniques, materials, and design strategies used to reduce the detectability of military platforms such as aircraft, ships, drones, and ground vehicles. Its primary objective is to minimise the various signatures—radar, infrared, acoustic, and visual—that enemy surveillance and targeting systems use to identify and track objects. One of the key approaches in stealth design is shaping the structure so that incoming radar waves are deflected away rather than reflected back to the radar source. This is supported by radar-absorbing materials (RAM) and specialised coatings that significantly reduce electromagnetic reflections.

Stealth systems also focus on lowering heat emissions by using cooled exhaust paths, shielded engine nozzles, and infrared-suppressing technologies, making platforms harder to detect with thermal sensors. Acoustic stealth is achieved through quieter engines, noise-optimized propellers, and vibration-reducing structures, particularly important in helicopters and naval vessels. In addition, electronic emission control ensures that the platform's communication and radar systems do not reveal its position.

Examples such as the B-2 Spirit bomber, F-35 fighter jet, and modern stealth ships demonstrate how multiple techniques are integrated to achieve low observability. While stealth technology cannot make a platform fully invisible, it greatly delays detection, increases survivability, and enhances mission effectiveness in modern warfare.



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Security Aspects in Industrial Point Zero

Industrial Point Zero refers to the earliest phase of industrial development, where operations depend mainly on manual labour, mechanical systems, and very limited digital technology. Although cyber-related risks are minimal in this stage, security remains essential for maintaining safe and reliable operations. The primary focus is on physical security measures, regulating who can access equipment, and protecting the integrity of manual processes. With machines lacking digital safeguards, industries rely heavily on operator discipline, strict safety procedures, and frequent equipment checks to prevent accidental or deliberate misuse.

Accurate documentation, such as maintenance records, operating logs, and safety audits, acts as a key security tool by ensuring accountability and detecting irregularities early. Security also involves preventing insider threats, unauthorised adjustments to machinery, and tampering with mechanical controls. Basic safety protocols like lockout-tagout (LOTO) help secure equipment during servicing, reducing the risk of operational hazards. Clear communication practices, standardised workflow instructions, and defined emergency-response procedures further strengthen the security framework.

These foundational measures not only ensure safe functioning in a low-tech industrial setup but also prepare the system for future upgrades, enabling a more secure transition into digitally enhanced environments such as Industry 3.0 and Industry 4.0.



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Global Capability Centers: Opportunities And Challenges

Global Capability Centres (GCCs) have emerged as a strategic imperative for businesses worldwide. These centres leverage global talent, technology, and infrastructure to drive innovation, efficiency, and growth. India has been a prime destination for GCCs, thanks to its vast talent pool, cost efficiency, and favourable business environment.

Opportunities: GCCs offer numerous opportunities for businesses, including cost savings, access to a skilled workforce, and the ability to drive digital transformation. India's thriving digital ecosystem, favourable government policies, and infrastructure development initiatives have made it an attractive destination for GCCs.

Despite the potential, GCCs still have to deal with a number of issues, including talent retention, regulatory compliance, and infrastructure and technology readiness. To support GCC activities, strong infrastructure and technology capabilities are essential. Another major problem in a competitive market is attracting and keeping top people.

New Developments: With new trends like digital twin technology, advanced technologies, and environmental measures, the GCC scene is changing. GCCs are using cloud computing, blockchain, and AI to boost productivity and innovation. ESG and sustainability activities are also growing in significance.

Prospects for the future: India's GCC industry is expected to expand dramatically due to the nation's advantageous economic climate and the growing use of digital technologies. GCCs must navigate the opportunities and challenges brought about by the quickly changing business landscape while concentrating on talent development, digital transformation, and sustainability in order to flourish.

GCCs may unleash new opportunities, spur growth, and add value for stakeholders and businesses alike with the correct investments and strategies. Businesses must keep ahead of the curve and take advantage of the opportunities this quickly expanding sector presents as the GCC landscape continues to change.



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Digital Transformation and Its Significance for SMEs

Digital transformation refers to the integration of digital technologies into all areas of a business, basically changing how organisations operate and deliver value to customers. For Small and Medium Enterprises (SMEs), digital transformation is no longer optional but a necessity in today's competitive and dynamically changing market.

By adopting digital tools such as cloud computing, digital payments, data analytics, and online marketing platforms, SMEs can simplify their operations and reduce costs. Automation of routine tasks improves efficiency and allows business owners to focus more on innovation and strategic planning. Digital systems also enhance accuracy, transparency, and speed in business processes.

Another major advantage of digital transformation is improved customer engagement. Through social media, websites, and mobile applications, SMEs can reach a wider audience and better understand customer needs. Customised services and faster responses help in building strong customer relationships and brand loyalty.

Digital transformation also allows SMEs to compete with larger organisations. Access to e-commerce platforms and digital supply chains removes geographical barriers and opens new market opportunities. In addition, data-driven decision-making helps SMEs identify trends, manage risks, and plan for sustainable growth.

In conclusion, digital transformation allows SMEs to become more agile, competitive, and resilient. Adopting digital change is essential for long-term success and economic development.



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Industry 5.0 For Healthcare

5.0 Opportunities Challenges

Industry 5.0 in Health care 5.0 emphasizes a human-centric, resilient, and sustainable healthcare ecosystem by combining advanced digital technologies with human intelligence and empathy. Unlike earlier automation-focused models, this approach highlights collaboration between healthcare professionals and intelligent machines to deliver personalised and value-based care. One of the key opportunities lies in precision medicine, where artificial intelligence, digital twins, and big data analytics support accurate diagnosis, predictive treatment planning, and customised therapies. Collaborative robots, wearable sensors, and smart medical devices enhance clinical efficiency while reducing the physical and cognitive workload of healthcare staff. In addition, Industry 5.0 promotes resilience through decentralised systems, telemedicine, and remote monitoring, ensuring continuity of care during emergencies and public health crises. Sustainability is another advantage, as energy-efficient systems and optimized resource utilisation reduce environmental impact.

However, several challenges limit large-scale adoption. Data privacy and cybersecurity risks increase due to extensive data sharing across interconnected platforms. High implementation costs, lack of skilled professionals, and interoperability issues between legacy systems and emerging technologies further complicate deployment. Ethical concerns related to algorithmic bias, transparency, and over-reliance on automation also remain critical. Addressing these challenges requires robust regulatory frameworks, workforce upskilling, and secure, ethical integration of technology to fully realise the potential of Health care 5.0.



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AI and Ergonomics: A Human-centric Approach

Artificial Intelligence (AI) is transforming today's work environments, and one of the most significant areas where it is making a difference is ergonomics-the discipline focused on shaping workspaces that align with human abilities and limitations. A people-first perspective uses AI technologies to improve comfort, safety, and overall efficiency, while placing the health and satisfaction of workers at the forefront.

Modern AI-based ergonomics solutions monitor posture, physical movement, and workload patterns in real time. By detecting unsafe habits that may contribute to discomfort, stress, or long-term injuries, these systems offer tailored guidance through sensors, computer-vision tools, and learning algorithms. As a result, individuals are encouraged to adopt better work practices, lowering the risk of musculoskeletal problems and encouraging higher productivity because employees can function in healthier conditions.

On a broader scale, AI automation assists organisations in designing ergonomic work environments. It can model different workspace arrangements, anticipate interactions between humans and machines, and refine repetitive activities to lessen physical exertion by merging analytical data with ergonomics design principles.

Ultimately, AI in ergonomics nurtures safer and more supportive workspaces. Keeping technology centred, around human needs, ensures that AI strengthens the work experience, building more adaptable, inclusive, and resilient systems for the future.



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AI and Circular Economy

Artificial Intelligence (AI) is becoming a key driver of the circular economy, transforming how resources are produced, used, reused, and recovered. By enabling intelligent data processing and predictive insights, AI helps industries reduce waste, optimise material use, and design sustainable production cycles. It supports real-time monitoring of resources, making operations more efficient and environmentally responsible. In manufacturing, AI-powered systems analyse product lifecycles to identify opportunities for reuse and recycling.

Machine learning models predict material degradation, helping industries extend product lifespan and schedule maintenance before failures occur. AI also improves waste-sorting processes through automated vision systems that classify materials more accurately than human inspection, leading to higher recycling efficiency.

AI further enhances supply-chain sustainability by forecasting demand, tracking material flows, and reducing unnecessary production. When integrated with IoT devices, sensors, and cloud computing, AI creates a connected ecosystem where products can report their condition, allowing companies to recover components and re-manufacture them effectively.

By combining intelligent automation, data analytics, and sustainable design principles, AI accelerates the shift from a linear “take-make-dispose” model to a regenerative circular model. This supports environmental conservation, cost savings, and long-term industrial resilience.



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Future of Human–AI Collaboration

The-paced evolution of Artificial Intelligence (AI) is revolutionising the way humans interact with technology, and this paradigm shift is from automation to collaboration. Current AI systems are not only focused on replacing human intelligence but also complementing human potential in areas such as decision-making, creativity, and problem-solving. The collaborative use of human and AI systems combines the strengths of both: the speed of computation, processing, and pattern recognition by the AI, and the creativity, ethics, and human emotions of human beings. The collaborative use of human and AI systems is gaining widespread adoption in various applications, including healthcare, education, manufacturing, scientific research, and business management. The use of technologies such as intelligent assistants, collaborative robots, or cobots, and decision-support systems helps humans to function more efficiently and more safely with lower human errors and operation risks. However, the issue of human trust, transparency, data privacy, and ethical accountability in collaborative human-AI systems remains a matter of utmost importance. The issue of human trust, transparency, data privacy, and ethical accountability of human and AI systems must be tackled with the seriousness the issue deserves to ensure safe and equitable use of human and AI systems. The future of working and innovating lies not in competition between human and AI systems, but in collaborative working between them.

Keywords: Artificial Intelligence, Human-AI Collaboration, Intelligent Systems, Decision Support, Future Technology.



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Nano-materials and Nanotechnology: Transforming Modern Materials Science

Nanomaterials and nanotechnology have emerged as transformative forces in modern materials science, enabling unprecedented control over material properties at the atomic and molecular scale. Typically defined by structural features below 100 nanometers, nanomaterials exhibit unique physical, chemical, optical, and mechanical properties that differ significantly from their bulk counterparts. These distinctive characteristics arise from high surface-to-volume ratios, quantum confinement effects, and enhanced interfacial interactions.

Advances in nanotechnology have revolutionised the design and synthesis of materials for diverse applications. In electronics, nanomaterials such as graphene, carbon nanotubes, and quantum dots have enabled faster, smaller, and more energy-efficient devices. In the energy sector, nanostructured materials play a vital role in improving the performance of batteries, supercapacitors, solar cells, and fuel cells through enhanced charge transport and catalytic activity. Similarly, nanomaterials have significantly contributed to environmental remediation by enabling efficient pollutant adsorption, photocatalytic degradation, and water purification.

In healthcare, nanotechnology has opened new avenues in drug delivery, biosensing, and diagnostic imaging, allowing targeted and controlled therapeutic interventions. Despite these advancements, challenges related to large-scale production, long-term stability, environmental impact, and health safety remain critical. Continued interdisciplinary research and responsible innovation are essential to harness the full potential of nanomaterials, positioning nanotechnology as a cornerstone of future materials science and technological development.



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Astrophysics as a Career: Exploring the Universe and Professional Opportunities

Astrophysics is a dynamic and intellectually rewarding career that focuses on understanding the physical nature of celestial objects and phenomena, including stars, galaxies, black holes, and the evolution of the universe. By applying principles of physics, mathematics, and computational science, astrophysicists seek to explain the fundamental laws governing cosmic systems and space-time.

A career in astrophysics typically begins with a strong foundation in physics or astronomy at the undergraduate level, followed by postgraduate specialisation and doctoral research. Professional opportunities exist in academic and research institutions, space agencies, and observatories, where scientists engage in theoretical modelling, data analysis, and experimental research. In India, organisations such as ISRO, IUCAA, TIFR, and IIST provide diverse research and development opportunities, while globally, institutions like NASA, ESA, and international observatories offer advanced research platforms.

Beyond academia, astrophysics graduates are increasingly in demand in sectors such as data science, artificial intelligence, finance, and engineering due to their strong analytical, programming, and problem-solving skills. Career opportunities in science communication, education, and public outreach also enable astrophysicists to inspire and engage future generations.

With rapid advancements in space missions, computational techniques, and observational technologies, astrophysics offers expansive career prospects. It remains a field that not only satisfies scientific curiosity but also contributes significantly to technological innovation and human understanding of the universe.



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Federated Learning for Cybersecurity that preserves Privacy

Federated learning provides a means of enhancing cybersecurity without disclosing private information. It makes it possible for several devices or organisations to work together to train models while maintaining local raw data, which is essential for privacy in contemporary networks.

Concept and Working

Each client (such as a company, server, or Internet of Things device) uses its own logs and telemetry data to train a local intrusion detection or malware detection model in federated learning. Clients communicate only model changes to a central aggregator, which aggregates them into a global security model, rather than exchanging user data or raw traffic. Individual updates cannot be reverse-engineered to reveal private information thanks to strategies like homomorphic encryption and safe aggregation.

Cybersecurity Benefits

This method enables cooperation between businesses, ISPs, or IoT networks to identify new risks like DDoS traffic, phishing trends, and malware without going against legal or regulatory requirements. Federated models can outperform models trained on isolated datasets in terms of accuracy and resilience against complex threats by learning from a variety of dispersed contexts. Federated learning offers a scalable, privacy-preserving basis for next-generation intrusion detection and security analytics as cyber threats become more sophisticated.



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Emerging Materials for High-Efficiency and Long-Lifetime LEDs

Light-emitting diodes (LEDs) have become the cornerstone of modern lighting and display technologies due to their high energy efficiency and long operational life. Continuous improvements in LED performance are largely driven by advances in materials science. Emerging materials are enabling higher luminous efficiency, improved colour quality, and enhanced device reliability.

Wide bandgap semiconductors such as gallium nitride (GaN) and its alloys remain fundamental to high-efficiency LEDs, particularly for blue and ultraviolet emission. Recent research focuses on defect reduction, strain management, and novel substrate materials to extend device lifetime. In parallel, advanced phosphor materials and quantum dots are being developed to achieve superior colour rendering and thermal stability in white LEDs. Composition-engineered phosphors, including nitride and oxynitride systems, offer improved resistance to moisture and heat degradation.

Perovskite materials have also gained attention due to their high photoluminescence efficiency and tunable emission properties. Although challenges related to long-term stability persist, ongoing material engineering and encapsulation strategies show promising results. Additionally, novel organic and hybrid materials are contributing to flexible and low-cost LED technologies.

Overall, the development of emerging materials plays a critical role in achieving next-generation LEDs with higher efficiency, extended lifetime, and broader application potential, supporting sustainable lighting solutions and advanced optoelectronic technologies.



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Sustainability Beyond Sustainability

The word sustainability has become ubiquitous in engineering discourse. We hear it in conference keynotes, see it in corporate reports, and encounter it in academic curricula. Yet, despite its omnipresence, I've found that most discussions treat sustainability as a vague aspiration rather than a concrete framework for decision-making.

That changed for me during a panel at the IEEE Congress. The panel featuring experts from space engineering, supply chain, hardware development, and entrepreneurship established a crucial premise: **Sustainability is context-dependent, not universal.** What works for system space systems differs from supply chain management; yet, underlying principles remain constant.

One of the panellists, Dr. Dipesh Panchal, offered the most actionable definition I've encountered: **"Low input, high output, while maintaining system balance."** This addresses three dimensions that most sustainability discussions miss:

1. Low input (minimising all resources, materials, energy, time, and cognitive load).
2. High output (maximising value relative to input, not generic efficiency, but optimization for your specific context and objectives)
3. System balance (the overlooked dimension): The systems can achieve temporary efficiency while degrading the long-term viability. True sustainability remains in equilibrium across technical, economic, and social dimensions simultaneously.

Sustainability isn't about saving the planet as an abstraction; it's about maintaining conditions that enable human flourishing over extended timeframes. Consider AI infrastructure, by 2030, powering AI systems may require 44 nuclear reactors of power. This demands simultaneously increasing the generation capacity, improving efficiency, and building resilience, as well as developing a workforce to maintain them. Failure in any of these dimensions will create bottlenecks constraining the entire system.

The most valuable outcome wasn't the definitive answer but recognising that asking better questions matters more than accepting simple answers. For young engineers, our responsibility isn't just maintaining the existing system but redesigning it for different constraints and objectives, which requires going beyond viewing sustainability as a constraint to embracing it as a **design principle**.

That's what sustainability actually requires:

*Not perfect optimization for static conditions,
but a consolidated design for dynamic realities.*

That's all from my side.



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Effect of Artificial Intelligence on Jobs

Artificial Intelligence (AI) is rapidly transforming the world of work. It brings greater efficiency, accuracy, and innovation, but also raises concerns about job security. The impact of AI on employment is mixed, involving automation, job creation, and changes in work practices. One major effect of AI is job automation. Routine and repetitive tasks in sectors such as manufacturing, data entry, customer service, and transportation are increasingly handled by machines. This can reduce the demand for certain low-skill jobs and lead to displacement. At the same time, AI creates new job opportunities. Roles like AI engineers, data scientists, machine learning experts, and cybersecurity professionals are in high demand. Many traditional jobs are not eliminated but transformed, with AI assisting humans rather than replacing them.

AI is also reshaping existing professions. In healthcare, education, finance, and law, AI tools support better decision-making and efficiency. However, human skills such as creativity, emotional intelligence, and critical thinking remain essential. The rise of AI has widened the skill gap, making reskilling and upskilling necessary. Workers must adapt through continuous learning. Overall, AI presents both challenges and opportunities, and with proper education and policies, it can support inclusive and sustainable employment growth.



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AI as a Personal Productivity Assistant in Everyday Life

Artificial Intelligence (AI) is no longer limited to research labs or large industries; it has quietly become a personal productivity assistant in everyday life. From smart calendars to voice assistants, AI helps individuals manage time, reduce routine workload, and make better decisions. AI-powered tools can organise schedules, set reminders, and prioritise tasks based on deadlines and user behaviour. Email filters automatically sort important messages, while AI writing tools assist in drafting reports, resumes, and study notes. In education, AI helps students plan study routines, track learning progress, and receive instant feedback, making learning more organised and effective.

AI also supports better decision-making by analysing patterns. Fitness apps suggest personalised workouts, finance apps track spending habits, and navigation systems choose the fastest routes in real time. These intelligent recommendations save time and mental effort. However, the effectiveness of AI depends on responsible usage. Over-reliance may reduce critical thinking and creativity. Therefore, AI should be used as a support system rather than a replacement for human judgment. In conclusion, AI as a personal productivity assistant enhances efficiency, reduces stress, and improves daily organisation. When used wisely, it empowers individuals to focus on meaningful tasks, creativity, and personal growth in an increasingly digital world.



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Artificial Intelligence: Transforming the Future of Humanity

Artificial Intelligence (AI) has emerged as one of the most transformative technologies of the 21st-century, reshaping how humans live, work, and interact with the world. From voice assistants and recommendation systems to autonomous vehicles and smart healthcare solutions, AI is becoming an integral part of everyday life. Its ability to analyse vast amounts of data and learn from patterns enables faster decision-making and improved efficiency across various domains. In healthcare, AI assists in early disease detection, personalised treatment, and robotic surgeries, saving both time and lives. In education, intelligent tutoring systems and adaptive learning platforms are enhancing student engagement and accessibility.

Industries are leveraging AI for automation, predictive maintenance, and optimized supply chains, leading to increased productivity and reduced costs. However, the rapid growth of AI also raises ethical concerns related to data privacy, bias, and job displacement. Responsible development, transparency, and human-centred design are essential to ensure AI benefits society as a whole. Collaboration between technologists, policymakers, and researchers is crucial for building trustworthy AI systems. As we move forward, Artificial Intelligence holds immense potential to solve global challenges and drive sustainable development. Harnessing its power wisely will define the future of humanity.



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The Next Wave of Android Innovation

Android is changing a lot every year. We use it in almost everything, like chatting, studying and playing games. It is not just a phone system now; it is part of our lives. The new wave of Android will bring more smart and easy things for normal users.

These days, phones are learning from people. AI helps in typing words fast, a better camera and quick search. Sometimes the phone knows what we want before we type. It looks simple, but it saves time and helps with small tasks. Plus, Android continues to enhance security with advanced privacy controls, regular updates, and protection against scams and risky apps, giving users peace of mind in daily use.

Now companies are making foldable phones and long battery phones. They also try to use old materials again, so it doesn't hurt nature. That is a nice change.

Android TV extends the ecosystem beyond phones, bringing favourite apps, smart controls, and simple navigation to televisions for a rich and connected entertainment experience.

In the coming time, Android will be simpler and friendlier. It will not only focus on speed, but also on comfort and ideas that help people. I think Android will keep getting better, and we all will enjoy new updates.



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Digital Health in Pharmacy Practice

The application of digital technologies to enhance patient safety, treatment results, and healthcare services is known as "digital health." Digital health has grown in importance as a component of contemporary pharmacy practice in recent years. Pharmacists are providing better and more effective healthcare services thanks to technologies like wearable technology, telepharmacy, mobile health apps, electronic health records (EHRs), and artificial intelligence.

Digital health is crucial to patient care and medication management in pharmacy practice. Pharmacists can access patient medical histories, lab results, and medication profiles through electronic health records, which facilitates precise dispensing and clinical decision-making. Telepharmacy improves access to pharmaceutical care by enabling pharmacists to offer patients in rural and remote locations consultation and counselling services. Patients can manage chronic conditions like diabetes and hypertension, comprehend drug information, and adhere to their medication schedules with the aid of mobile health applications.

By enhancing patient-provider communication, digital health also promotes patient-centred care. Artificial intelligence and data analysis are increasingly being used in fields like personalised medicine, adverse drug reaction detection, and drug safety monitoring. These technologies aid in lowering medical errors and increasing treatment accuracy.

But issues like cybersecurity, data privacy, and a lack of digital awareness need to be addressed. Future pharmacists and pharmacy students should learn the fundamentals of digital health. They will be better able to adjust to the evolving healthcare landscape if they comprehend digital tools. All things considered, digital health holds great promise for improving the efficacy, quality, and accessibility of pharmacy practice.



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An IoT-Based Software Framework for Real-Time Stress Analysis

Mental stress among students often goes unnoticed until it affects health and academic performance. Conventional stress assessment methods rely on self-reported inputs, which are subjective and inconsistent. This work presents an IoT-based, software-driven framework for real-time stress analysis using physiological signal data.

Physiological parameters such as heart rate variability and skin response are obtained from wearable-device data streams or simulated inputs and transmitted over the internet to a cloud-based backend. Python-based analytics are applied to identify deviations from individual baseline patterns. The processed data is visualised through a real-time dashboard, enabling continuous monitoring and trend analysis.

The proposed framework focuses on software intelligence, cloud connectivity, and data visualisation rather than custom hardware development. It does not aim to provide medical diagnosis but supports early awareness and self-regulation. By leveraging IoT data pipelines and analytics, this work demonstrates a scalable and accessible approach to preventive mental wellness monitoring suitable for student-centric environments.



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An NBTI-resilient and Power-Efficient NMOS-only Schmitt Trigger using Hybrid Power Gating and Body Biasing.

In low-power digital systems such as sensor nodes and wearable medical devices, circuits must operate reliably for long durations while consuming minimal energy. Schmitt Trigger circuits are commonly used in these systems to handle noisy or slowly varying input signals. However, conventional CMOS Schmitt Triggers use PMOS transistors, which suffer from a long-term reliability issue called Negative Bias Temperature Instability (NBTI). Over time, NBTI degrades PMOS devices and affects circuit performance.

An effective solution is to eliminate PMOS devices entirely. An NMOS-only Schmitt Trigger naturally avoids NBTI degradation, improving long-term reliability. However, NMOS-only designs tend to exhibit higher leakage power, especially in scaled CMOS technologies.

To address this issue, a hybrid technique combining power gating and body biasing is used. Power gating disconnects the circuit from ground during idle periods, reducing standby leakage. Meanwhile, body biasing allows threshold voltage control: reverse body bias suppresses leakage, while forward body bias improves switching speed when required.

The circuit described can be designed and simulated using Cadence Virtuoso in 90 nm CMOS technology. Results show significant leakage reduction with stable noise margins, making the NMOS-only Schmitt Trigger suitable for low-power IoT and biomedical applications.



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Will Conscious Machines Have Rights?

The rapid movement toward the realisation of artificial general intelligence and neuro-inspired computing poses a crucial question regarding social and legal issues: if and when a machine attains a state of “verifiable consciousness” or what may be termed “Mindroid” status, should that machine or entity be granted any form of legal rights? This article examines the evolution of the societal and legal dialogue surrounding the notion of machine consciousness and its relationship to concepts of personhood and legality. It will analyse existing legal frameworks that currently extend rights solely to humans and certain non-humans, such as corporations or animals, and will further investigate the potential for adapting similar frameworks for these “conscious” artificial beings. The article will demonstrate that the proactive development of social and legal standards is essential for addressing the challenges posed by “conscious” artificial entities and that advancements in technology should align with principles of social justice and benefit.

Keywords: Artificial Consciousness, Machine Rights, AI Ethics, Legal Personhood, Mindroid, AGI, Moral Agency.



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A Smart Water Quality Monitoring System Utilising IoT and Cloud Technology

ABSTRACT: Contamination and degradation of drinking water have contributed to a recent increase in water pollution challenges. Water contamination is a significant concern for the green globalisation movement. Several scientific domains are presently using the Internet of Things (IoT) and similar technologies for remote data collecting, monitoring, and analysis. To assure a steady supply of clean water, it is critical to monitor the water's quality in real time. This research proposes a solution to real-time water quality monitoring that is user-friendly. The most current attempts involving smart water pollution monitoring systems are extensively explored. The paper proposes a smart water quality monitoring system that uses the Internet of Things to continuously evaluate quality metrics. It is both efficient and economical. The created model is assessed using water samples, and the resulting parameters are forwarded to a cloud server for further investigation.

KEYWORDS: Internet of Things, pH sensor, Turbidity sensor, Temperature sensor, ESP32, WI-FI module

PROPOSED SYSTEM

It is a designation for "Advanced water quality monitoring system powered by solar energy and wireless sensor network" The solar node provides power to the wireless sensor network, which employs graphical user interfaces based on MATLAB.

CONCLUSION AND FUTURE SCOPE

This study proposes a low-cost Internet of Things approach for real-time water quality monitoring.

The device is inexpensive and can analyse water quality on its own, eliminating the need for an operator to be there. It is believed that this approach of assessing water quality will be simpler, less expensive, and more successful. This approach has several applications. This system can only monitor new water quality indicators after making the necessary changes to the software package and replacing the sensors.



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Beyond Von Neumann: The Dawn of Neuromorphic Electronics

Modern computing is hitting a "power wall." While AI software is advancing rapidly, the underlying Von Neumann architecture—which separates processing from memory—is struggling with energy inefficiency and data bottlenecks. For Electronics and Communication engineers, the future lies in Neuromorphic Engineering. Neuromorphic systems move away from binary logic toward Spiking Neural Networks (SNNs). By mimicking the biological brain's architecture, these chips only consume power when a "spike" (signal) occurs. This allows for asynchronous, high-speed processing with milliwatts of power—ideal for 6G edge devices, real-time signal processing, and autonomous drone navigation. By integrating sub-threshold analog circuits and memristor-based crossbars, ECE professionals are building the first generation of "living" hardware. These devices perform "In-Memory Computing," effectively eliminating the latency of data transfer.

Organisation: BNM Institute of Technology. As we transition toward an Intelligent Internet of Everything, Neuromorphic engineering isn't just an upgrade; it is the fundamental shift required to make truly autonomous, low-power intelligence a reality. Mastering this intersection of VLSI and Neural Science is the next frontier for the modern ECE engineer.



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Mastering your Emotions

Emotions are as integral to life as they are to theatre, yet they often create a chaotic drama that leaves us feeling out of control. Many of us unknowingly hand our "remote control" to others, allowing external praise or criticism to dictate our internal state. This lack of mastery doesn't just disturb our peace; it can manifest physically as illness. To reclaim your autonomy, you must move from being a slave to your emotions to becoming a conscious witness of them.

True mastery is like a karate fighter who redirects an opponent's energy. Since energy is neutral, your wisdom determines whether it becomes positive or negative. Rather than seeking happiness externally—which is often misery in disguise—realise that true joy dwells within. The bridge to this inner stability is your breath. By practising a simple ratio—inhaling for three counts and exhaling for six—you flush out toxins and calm your nervous system. As you master your breath, you master your mind. The goal is to live consciously; if you "mind your mind," the world loses its power to hurt you. Take back your remote, breathe deeply, and live as a master of your own inner world.



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Artificial Intelligence (AI): Evolution or Destruction?

In today's modern world, there are many such technological things which have brought revolution in the entire world. Artificial Intelligence, or AI, is one of them. This is being discussed everywhere today and is gradually gaining ground everywhere, whether in engineering, education, medicine, graphic design, animation, or social media. AI is being used everywhere. Previously, tasks that took hours to complete can now be accomplished in minutes with AI. Students can study with ease. Earlier, when students had to write projects for hours, now with the help of AI, it takes only minutes. It has also made jobs much easier for employers. AI is being used in almost every other company today.

But while we've discussed the benefits of AI, it's equally important to discuss its disadvantages. For example, if a student can easily make his project, how will his intellectual development take place? If artists can easily create art, what about creativity? Nowadays, anyone can be defamed by creating fake photos or videos. Famous businessman Elon Musk even warned about this. It is true that change is necessary, but we should also consider how we should take advantage of it or how much we should take advantage of it.



Anshuman Vivek Verma

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Why is 'Sanskar' valued?

Sanskar (Samskara) refers to rites of passage and virtues. It is crucial for children as it builds character, ethics and emotional intelligence, acting as an internal compass for good decision-making, respect, responsibility and inner peace, leading to well-rounded individuals who contribute positively to society and find personal fulfilment.

Sanskar strongly emphasises children serving and respecting parents like Shravan Kumar. Sanskar from birth to death involves practices that purify the body, mind, and intellect through gunantaradhana (transformation of new qualities). In Indian culture and education, Sanskar is considered a 'best qualification' because it refers to the process of refining a person's character and internal values, which is seen as foundational to academic or professional success.

In cultural and philosophical contexts, particularly within Indian traditions, a Sanskari son (one with high moral values) is often valued over an earning son because values are seen as the foundation for long-term family stability and emotional well-being, while earning refers to financial capacity. Sanskar dictates how that capacity is used and how relationships are maintained.

Therefore, Sanskar is valued as a foundational system for personal development and social harmony, serving as both a moral compass and a framework for spiritual evolution. It is the best thing for guiding children in today's world.



Sadhana Verma

Primary Teacher

Ramakrishna Vivekananda Vidyapeth

Artificial Intelligence in Everyday Life: Transforming Human Decisions

Artificial Intelligence (AI) has increasingly become an element of our daily activities and has impacted many of the decisions we make without even realising it. From showing us what we can watch or buy on the internet to assisting us in traffic navigation, financial management, and everyday health tracking, artificial intelligence systems are critical components that greatly assist in making our daily activities simpler and easier. By employing technologies like machine learning, natural language processing, and data analysis, artificial intelligence enables people to make decisions faster and better. In the medical sector, education sector, finance sector, and transport sector, artificial intelligence greatly enhances work efficiency, minimises errors, and enables better outcomes. As our dependence on artificial intelligence continues, the following issues and problems associated with it can neither be denied nor ignored. This discussion continues as we ponder how artificial intelligence is impacting daily decision-making and how we can maintain the good and bad aspects of artificial intelligence at a balanced level so that human decision-making, as well as artificial intelligence, work as complementary functions and give our daily decision-making an enhanced touch for its complete effectiveness and overall success.

Keywords

Artificial Intelligence, Applications of AI, Decision-Making, Human-Centred Technology, Smart Systems.



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Mindroid and Brain–Computer Interfaces (BCI)

The interaction between neuroscience, artificial intelligence, and sophisticated computing has resulted in major breakthroughs in the realm of human-machine interaction, especially in the domain of Mindroid systems and Brain-Computer Interfaces (BCIs). This article reviews the conceptual underpinning of Mindroid, that of cognitively inspired intelligent systems, and their possible merger with BCI solutions that create a direct interface between the human brain and any external computer-based device. BCIs make it possible for the abstraction, analysis, and interpretation of neural signals for the purpose of neurorehabilitation, assistive systems, adaptive control, or cognitive monitoring. The addition of Mindroid frameworks further strengthens the BCI systems by endowing them with the facility for learning, environmental sensing, or self-governance. This performance enables the systems to advance from the simple interpretation of signals to intelligent user-level interface systems. This article will cover the recent advancements, designs, and field of implementation that involve the Mindroid BCI solution, along with the major issues that arise regarding signal fidelity, the extent of the system, issues of ethics, privacy, and autonomy of the mind.

Keywords – Mindroid; Brain–Computer Interface (BCI); Artificial Intelligence; Human–Machine Interaction; Cognitive Computing; Neural Signal Processing.



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Attack Models against Mindroid Systems: Vulnerabilities and Mitigation Strategies

Abstract

Because Mindroid is an open-source application framework based on the architecture of Android, it naturally shares the same security problems and remains vulnerable to sophisticated attack scenarios that are related to inter-process communication, memory management, and runtime phenomena. The abstract will discuss the existing threats: spoofing of intents, where attackers take advantage of unchecked inter-component communications to perform unauthorised operations; use-after-free attacks based on binder interfaces for privilege escalation; and Java dependencies for supply chain attacks.

The attack channels are grey-box manipulation of control flow graphs, evading the detection frameworks like MaMaDroid, and man-in-the-middle interceptions of unencrypted intents. Empirical results show high success rates, up to 99% evasion on Android-based systems, which is directly applicable to OS-inspired architecture by Mindroid.

Technological mitigation approaches are concentrated on intent validation at runtime, sanitisation of the memory space, and the auditing of dependencies. Through the application of vulnerability analysis and utilising the secure binder, the Mindroid-based system can reduce the exploitation surface by more than 70%. The use of AI in anomaly recognition at the Mindroid runtime environment is the next logical focus area for research.

Keywords: Mindroid, attack models, intent spoofing, use-after-free, binder exploits, supply chain attacks, mitigation strategies.



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Modern Indian Army: Technology, Training and Transformation

The Indian Army has continuously evolved to meet the changing nature of modern warfare while remaining firmly rooted in its values of discipline, duty, and service. In today's security environment, challenges are no longer limited to traditional combat. They include cyber threats, intelligence gathering, surveillance, and the need for quick and accurate decision-making. To address these realities, the Indian Army has placed strong emphasis on modernisation and technological advancement.

The adoption of advanced communication networks, surveillance drones, and data-supported operations has significantly improved coordination and battlefield awareness. A growing focus on indigenous defence equipment highlights the Army's commitment to self-reliance and long-term strategic readiness. These developments strengthen operational capability while reducing dependence on external sources.

At the same time, training methods have been modernised. Soldiers undergo realistic simulations, joint military exercises, and scenario-based training to prepare for diverse and unpredictable situations. Equal attention is given to leadership development, ethical conduct, and mental resilience.

Beyond its combat role, the Indian Army remains a dependable force during disasters and emergencies, earning widespread public trust. Today, the Indian Army stands as a disciplined and forward-looking institution that combines strength, innovation, and national responsibility.



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The Teacher as a Karma Yogi: Redefining Pedagogy in the NEP Era and Integrating it with the Values of the Bhagavad Gita.

Moving from a "provider of information" to a "selfless guide" (mentor). Back in the day, teachers stood at the front of the classroom, delivering facts like they were the only ones who knew anything. NEP 2020 flips that old script. Now, teachers are more like guides. By thinking like a Karma Yogi, a teacher stops just checking off topics and starts shaping students in a real, meaningful way.

Nishkama Karma, it means teaching without chasing results. Let's be honest, teachers today feel the heat about board exam results and rankings. But when you approach teaching like a Karma Yogi, you stop worrying so much about the numbers. You focus on the learning process, not just the scores.

Yogah Karmasu Kaushalam, the Gita calls Yoga "Excellence in Action. It pushes for Continuous Professional Development. But for a Karma Yogi, you're not just collecting certificates from workshops. You treat learning new teaching methods or technology as part of your duty.

BETTER INDIA—EVERYTHING CHANGES.



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Ethical Considerations in Artificial Intelligence and Automated Systems

In the rapidly evolving field of computer science, bridging the gap between industry and academia has become a critical responsibility of educators. While academic curricula emphasise theoretical foundations, industry demands practical skills, problem-solving ability, and exposure to real-world technologies. As an Assistant Professor of Computer Science, integrating industry-oriented tools, live projects, internships, and guest lectures into academic programs is essential. Such collaboration ensures students remain relevant, employable, and capable of applying concepts like data structures, artificial intelligence, and software engineering to real-world challenges. Continuous curriculum updates and faculty upskilling further strengthen this connection.

At the same time, the growing use of Artificial Intelligence and automated systems raises serious ethical concerns that must be addressed within computer science education. Issues such as data privacy, algorithmic bias, transparency, accountability, and job displacement demand thoughtful discussion. Students should be trained not only to develop intelligent systems but also to evaluate their social and moral impact. Ethical frameworks, responsible AI practices, and regulatory awareness must be embedded into technical courses.

By combining industry alignment with strong ethical grounding, computer science education can produce professionals who are technically competent, socially responsible, and capable of developing technology that benefits society as a whole.



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Bridging the Gap Between Industry and Academia in Computer Science Education

In the field of computer science, a noticeable gap exists between academic learning and industry expectations. Academic institutions traditionally focus on theoretical concepts such as algorithms, data structures, and operating systems, while the industry looks for professionals with hands-on experience, practical problem-solving skills, and familiarity with modern tools and technologies. Bridging this gap is essential to make graduates industry-ready and confident.

As an Assistant Professor of Computer Science, it is important to align teaching methodologies with real-world requirements. This can be achieved by incorporating project-based learning, internships, industrial training, hackathons, and case studies into the curriculum. Collaboration with industry experts through guest lectures, workshops, and joint research projects helps students gain exposure to current trends and challenges in the professional world. Regular curriculum updates based on industry feedback ensure relevance and applicability.

Additionally, encouraging students to work on live projects, use industry-standard software, and develop soft skills such as communication and teamwork enhances their employability. When academia and industry work together, students benefit from both strong theoretical foundations and practical expertise. Such integration produces skilled professionals who can contribute effectively to technological innovation and societal development.



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Artificial Intelligence: Transforming the Modern World

Artificial Intelligence (AI) has become one of the most impactful technologies of the modern age, influencing nearly every sector of society. AI enables machines to simulate human intelligence, allowing them to learn from data, recognise patterns, and make decisions efficiently. Today, AI is commonly used in smartphones, healthcare systems, education platforms, and industrial automation.

In healthcare, AI supports doctors by analysing medical images, predicting diseases, and improving diagnostic accuracy. In education, AI-powered tools promote personalised learning experiences, helping students grasp concepts more effectively. Industries rely on AI for automating repetitive tasks, maintaining quality standards, and optimising production processes, resulting in increased efficiency.

However, the rapid growth of artificial intelligence also raises ethical challenges such as data privacy, algorithmic bias, and employment concerns. Addressing these issues through responsible development and proper regulation is essential.

In conclusion, artificial intelligence holds immense potential to transform society positively. When developed and applied ethically, AI can drive innovation, enhance human capabilities, and contribute to sustainable technological advancement.



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