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MINDROID

Exploring Excellence

VOLUME 3, ISSUE 2 (JULY 2024 TO DEC 2024)



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The background is a light beige color with a complex pattern of thin, light green circuit lines. Scattered throughout are several stylized, light green icons that resemble computer monitors or tablets, each with a simplified face-like shape on its screen. The text is centered in the middle of the image.

CONSOLIDATED MESSAGES FOR MINDROID

MESSAGE FROM

Prof. G. S. Tomar

Chairperson
IEEE MP Section



As the Chairperson of the IEEE Madhya Pradesh Section, I am pleased to extend my warmest greetings to everyone involved in the creation and readership of the IEEE Kalinga University Student Branch Magazine, Mindroid. It is truly inspiring to see the enthusiasm and dedication that the Student Branch continues to invest in promoting innovation, sharing knowledge, and supporting professional growth.

Your commitment to producing a high-quality magazine that highlights the creativity, achievements, and initiatives of our talented student members is commendable. Each edition of the magazine reflects not only technical expertise but also the passion and dedication of our future engineers.

I encourage all contributors to continue exploring new ideas, pushing boundaries, and sharing their valuable insights with the broader IEEE community. Mindroid plays a crucial role in spreading knowledge, inspiring future leaders, and fostering collaboration.

This edition of the magazine is a testament to the exceptional talent of the Student Branch. I am confident that it will inspire others and showcase the incredible achievements of IEEE members while emphasising the impact IEEE has on shaping the future of technology.

I would like to express my sincere gratitude to the editorial team for their hard work and dedication in creating yet another insightful edition. Your efforts play a significant role in the success and reputation of our IEEE MP Section.

Wishing you all continued success, innovation, and a fulfilling journey ahead.

Best Regards

MESSAGE FROM

Col. N. C. Gupta

Director Bharat Drone Systems Pvt. Ltd.
Director BDS Education



ROBOTS & AI WILL SNATCH YOUR JOBS

Whenever something great is happening in the world, it is accompanied by a big wagon band of doomsday predictors. Take the very latest example of e-rickshaws in India. No jobs lost - infect tripled. The working environment for the rickshaw puller - improved. Comfort of passengers - improved. Time of journey - reduced. Trips per day - doubled. Supporting jobs - increased. Income of supporters - increased. But remember, the prelaunch media had only highlighted the predictors, not these advantages.

When computers came, bank staff went on strike; the reason was resistance to change. Take away the staff's computer; they will go on strike again. The reason they and all the rest have now tasted the advantages of this change.

When robots entered the shop floor to assemble cars, the workers went berserk. However, angry then, the very same workers found tons of opportunities in dealerships outside. Happy today, they stated, flourishing.

In all three cases, no jobs were lost. Only the ecosystem around these jobs changed. The story with Robotics & AI is no different. Now that AI is entering our lives, the doomsday predictors are back. There is no problem with what they say, but a serious problem exists in the series of wrong messages they send to the current & future stakeholders on social media – the parents & the children.

To understand this, let us take the hottest villain of AI - Chat GPT. At the core of Chat GPT sits ML (Machine Learning). At the core of ML sits AI (Artificial Intelligence). At the core of AI are improved automation & decision-making techniques, & at the core of these sit people called coders (you and me). They write or produce the codes or programs or algorithms (all mean the same thing) that enable Chat GPT to work for us.

These coders are akin to the rickshaw pullers, bank employees & factory workers of the above examples. No coder will ever lose a job. Only the ecosystem around the job will change. As new gizmos like GPT & Sora emerge, so will the tools available to the coders to arrive at these gizmos.

The second thing people predict is that with AI having arrived, Children Need not Learn Coding. They talk of acronyms like No Code & Zero Code. They remain on the surface of these acronyms & advertently or inadvertently avoid digging deeper. Again, how very wrong & confusing they can be. In the above three cases, if any child wanted to become a rickshaw puller, a banker, or an assembly line worker, he had to first learn the ABC or fundamentals of that work. Most of this ABC does not change. It only gets modified. This ABC was important to lay the foundation then; It is equally important for laying the foundation today.

Once the foundation is laid, the structure over it is built using the changed ecosystem. The need for children to learn coding to lay this foundation is not going anywhere. On the contrary, it has become even more vital & important. In fact, it has become so important that Coding is called the English of Tomorrow. A child who does not know coding tomorrow will be considered illiterate, & will face the same disadvantages as a child who does not know English has faced over the last two centuries. Should you risk your child carrying the infamous illiterate tag?

Finally, schools will only do this much. The real stuff has to be learnt by oneself online or offline in coaching centres or through a guru near you. Very similar to learning anything else through coaching, from maths to music or from IAS to cricket.



The background is a light beige color with a complex pattern of thin, light green circuit lines. Scattered throughout are several stylized, light green icons of computer monitors or tablets, some of which are slightly tilted. The overall aesthetic is clean and technological.

**LET'S HEAR
FROM THEM**

LET'S HEAR FROM THEM

I am delighted to extend my warmest greetings to the IEEE Kalinga University Student Branch on the launch of MINDROID, Volume 3, Issue 2. It is truly a pleasure to witness the outstanding achievements and progress of our IEEE Student Branch, especially in the production of this insightful and thought-provoking magazine.

MINDROID, with its innovative content and commitment to excellence, serves as a testament to the dedication and intellectual prowess of the students who have contributed to its creation. As we unveil this latest issue, I am confident that it will continue to be a valuable platform for the exchange of ideas, the dissemination of knowledge, and the exploration of cutting-edge technologies.

Congratulations to the IEEE Student Branch on this significant milestone, and I offer my best wishes for the continued success of MINDROID in the future.



Dr. Rajeev Kumar
Chairman
Kalinga University



Dr. Sandeep Arora
Chancellor
Kalinga University

I am delighted to extend my warm greetings to each one of you on the occasion of the launch of MINDROID, Volume 3, Issue 2, by our dedicated IEEE Kalinga University Student Branch. This magazine stands as a testament to the relentless pursuit of knowledge, innovation, and excellence demonstrated by our brilliant students.

MINDROID has evolved into a prominent platform for showcasing the intellectual prowess of our budding engineers, researchers, and innovators. With the launch of this latest issue, it continues to highlight the latest advancements, cutting-edge technologies, and insightful research articles that reflect the dynamism of the field.

I commend the exceptional teamwork and coordination that went into the production of this magazine. I wish the entire team continued success in their future endeavours.

MINDROID has long served as a platform for sharing innovative ideas, research findings, and technological advancements within the IEEE community. The upcoming Volume 3, Issue 2, promises to be an exciting compilation of articles, IEEE activities, recognitions, and features that highlight the intellectual prowess of our IEEE members. The launch of such a magazine underscores our collective commitment to pushing the boundaries of knowledge and making meaningful contributions to the world of technology. I extend my best wishes to the team at IEEE Kalinga University Student Branch for the successful release of this issue of MINDROID.



Dr. R. Shridhar
Vice-Chancellor
Kalinga University

I commend the IEEE Kalinga University Student Branch for their unwavering commitment to excellence in producing MINDROID. The dedication, creativity, and hard work of the editorial team and contributors are truly admirable. I am confident that this magazine will continue to inspire and foster a culture of innovation within our student body.

I encourage all members of our academic community to engage with MINDROID actively, contribute their ideas, and embrace the wealth of knowledge it offers. May this magazine serve as a source of inspiration, sparking curiosity and promoting a deeper understanding of the transformative power of technology.

On behalf of the entire institution, I extend my best wishes for the continued success of MINDROID, Volume 3, Issue 2.



Dr. Sandeep Gandhi

Registrar
Kalinga University



Dr. Vijaylaxmi Biradar

SMIEEE, Joint Secretary &
Chairperson IEEE WIE
AG MP Section, Director IQAC
Kalinga University

MINDROID serves as an invaluable platform for our young engineers and researchers to express their ideas, share their research findings, and contribute to the broader discourse in science and technology. Each issue is a reflection of the hard work, creativity, and intellectual curiosity of both our students and mentors.

This technical magazine, brought to life by the dedicated efforts of the IEEE Kalinga University Student Branch, embodies the spirit of innovation, collaboration, and academic excellence that defines our community. I would like to extend my heartfelt congratulations to the editorial team, contributors, and all members of the IEEE Kalinga University Student Branch.

Let us take a moment to appreciate the tremendous effort that has gone into making MINDROID Volume 3, Issue 2, a reality. May we be inspired by the insights and innovations within its pages and continue to strive for excellence in all our endeavours.

I am thrilled to extend my warmest greetings to each of you as the IEEE SB Counsellor for our esteemed institution. MINDROID has consistently been a beacon of knowledge, innovation, and collaboration within our community. As we embark on Volume 3, Issue 2, I am confident that the passion and dedication of our student members will once again shine through its pages.

This magazine is a testament to the incredible work and achievements of our IEEE Kalinga University Student Branch. It serves as a platform for showcasing the remarkable projects, research, and ideas that have emerged from the brilliant minds within our community. The diversity of topics covered, from cutting-edge technologies to insightful articles, reflects the dynamic and forward-thinking nature of our IEEE KU Student Branch. I would like to express my heartfelt gratitude to the editorial team, writers, contributors, and everyone involved in bringing this magazine to life. Your hard work and dedication have played a significant role in the success of MINDROID, making it a valuable resource for our members and the broader academic community.

I look forward to the continued success and evolution of MINDROID under the capable leadership of our IEEE KU Student Branch.



Dr. Anu G. Pillai

Branch Counsellor IEEE KU SB
Vice Chair IEEE WIE MP Section
Assistant Professor &
IQAC Coordinator

The background is a light beige color with a complex pattern of thin, light green circuit lines. Scattered throughout are several stylized, light green robot heads, each with two circular eyes and a simple mouth. The robot heads are oriented in various directions, some facing forward and others slightly angled.

UNDER MINDROID ACTIVITY

JULY 2024 TO DEC 2024

IEEE 2nd International World Conference on Communication and Computing 2024 (IEEE WCONF 2024)

Date: 12th to 14th July 2024

Start Time: 08:45 A.M. (12th July)

End Time: 03:00 P.M. (14th July)

WCONF 2024 was hosted by **Kalinga University** from 12th to 14th July 2024. This important conference was organised by the **IEEE Kalinga University Student Branch**, with sponsorship from **DST-SERB (Department of Science and Engineering Research Board)** and technically co-sponsored by the **IEEE Madhya Pradesh Section**

Conference Focus:

The conference covered **emerging and state-of-the-art topics** in the fields of **Engineering & Technology**, with a special focus on **Intelligent Systems**. It explored how new technologies can be implemented and the strategies needed to make them effective.

Objectives:

The main goal of the IEEE WCONF 2024 is to create a platform for interaction and collaboration among **researchers, academicians, industry professionals, and students**. It allowed them to share ideas, experiences, and expertise in the latest trends in **engineering and technology**.

Conference Program:

The conference featured a highly selective technical program. This included:

- **Submitted papers:** Authors from around the world submitted papers on a variety of topics.
- **Invited papers:** A set of papers from well-known leaders in the fields of **communication** and **computing** were also presented. These invited papers covered important and timely topics in these areas.

Paper Submissions:

The conference received an overwhelming number of submissions — a total of **2,231 papers**. After a thorough review process, **262 high-quality papers** were accepted for publication in **IEEE Xplore**, a prestigious digital library. These papers represented some of the best research in the field.

Presentation Tracks:

The accepted papers were presented across 20 different tracks, where each track focussed on specific topics related to communication and computing technology. This provided a detailed and diverse look at the current trends and innovations in these fields.



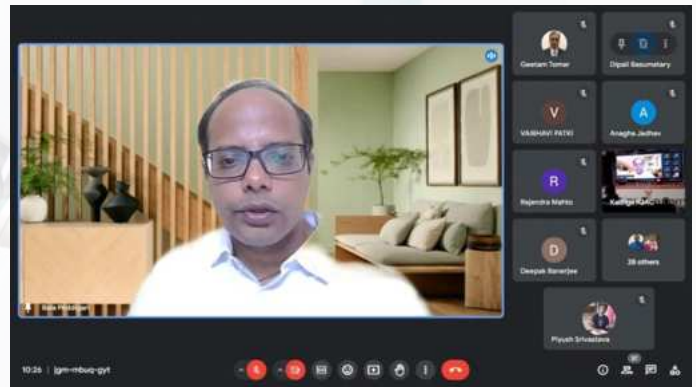
Event Poster



IEEE MP Section Chair addressing the gathering



Release of Conference Proceedings



Keynote Session by Mr. Bala Prasad Peddigari



Welcome Note by Dr. Vijayalaxmi



Conference Proceedings



WCONF Coverage by Local Media

Hands-on IoT Training: Exposing Rural Students to Opportunities in STEM

Date: **5th-9th August 2024**

Venue: **Seminar Hall, 2nd Floor Main Building (Kalinga University)**

The IEEE Kalinga University Student Branch, under the IEEE Madhya Pradesh Section, organised a hands-on IoT training program titled "Exposing Rural Students to Opportunities in STEM" from 5th to 9th August 2024 at Kalinga University, Naya Raipur. Sponsored by the IEEE STEM Grant, the program aimed to provide rural students with practical exposure to STEM fields.

Dr. Vijayalaxmi Biradar led the sessions on IoT fundamentals, with support from Dr. Anita Verma, Mr. Pratham, Mr. Ashwan Sahu, Mr. Hemant Sahu, and IEEE student volunteers. 50 students from Govt. Higher Secondary School Rakhi participated in the program, working on projects like Mex Mobile, Forklift, and Snow Sweeper. They also learned basic programming concepts, creating prototypes like Smart Watches and Temperature & Humidity Monitoring systems.

The students were assessed on the final day, and certificates were awarded in recognition of their achievements. This initiative empowered students to pursue STEM careers and bridge the gap to emerging opportunities in technology.



Event Poster



Session by Dr. Vijayalaxmi



Ongoing Session



Group Photograph of the Event

One Week of Hands-on Training on Robotics

Date: **16th September 2024 - 20th September 2024**

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

The IEEE Kalinga University Student Branch hosted a One Week Hands-on Training on Robotics from 16th to 20th September 2024 at the university premises. This initiative aimed to provide practical exposure to students from various departments, in line with IEEE KUSB's commitment to fostering learning through hands-on experiences.

Dr. Vijayalaxmi Biradar, Director of IQAC at Kalinga University, was the resource person for the training program. She guided the 66 participants, divided into 11 groups, through the fundamentals of robotics. On the first two days, Dr. Biradar introduced participants to essential robotic components such as Arduino UNO, motor drivers, sensors, and actuators. She also demonstrated how to program robots using the Arduino IDE and upload code to microcontrollers.

During the following days, participants built and connected various robotic systems, including IR-controlled, Bluetooth-controlled, and obstacle-avoidance robots. They gained practical skills in handling and troubleshooting the robots independently.

The program concluded with an assessment test, followed by a certificate distribution ceremony led by Dr. Anu G. Pillai, Dr. Anita Verma, Mr. Abhishek Kumar Gupta, Mr. Ashwan Sahu, and Mr. Hemant Sahu from the IQAC Department. One participant shared, "The training was a very helpful, engaging, and insightful learning experience."



Session by Dr. Vijayalaxmi



Hands-on Experience for the Students



Group Photograph of the Event

IEEE Branch Counsellors Meeting – Madhya Pradesh Section, Chhattisgarh Region

Date: **30th September 2024**

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

The IEEE Branch Counsellors Meeting for the Madhya Pradesh Section's Chhattisgarh Region was held on 30th September 2024 at Kalinga University, Raipur. The event was honoured by the virtual presence of Prof. GS Tomar, Chairperson of IEEE MP Section, and Prof. Celia Shahnaz, Chair of IEEE Women in Engineering (WIE) Affinity Group (AG).

During the meeting, Dr. Vijayalaxmi, Joint Secretary and WIE Chair, IEEE MP Section, delivered a comprehensive discussion on strategies for branch growth and the various funding opportunities available to support initiatives. Dr. Anu G. Pillai, Vice-Chair of WIE, IEEE MP Section provided valuable insights on the use of vTools to enhance branch management efficiency.

The meeting emphasised the importance of collaboration, effective utilisation of funding, and leveraging IEEE resources to drive impactful initiatives. Hosted by Kalinga University, the event served as an important platform to strengthen the IEEE regional network and empower the operations of IEEE branches in the Chhattisgarh region.



Event Poster



Session by Dr. Vijayalaxmi



Group photograph of the event



Session by Dr. Anu G. Pillai

The Importance of Girls in Science, Technology, Engineering, and Management (STEM)

Date: **27th September 2024**

Vanue: **Seminar Hall, Bhilai Institute of Technology
Durg, Chhattisgarh, India**

As we work towards empowering and inspiring the next generation of female leaders in STEM fields, this event aims to showcase the significant contributions made by girls and women in science, technology, engineering, and management. We will engage in discussions on strategies to encourage greater participation of women in these fields, as well as highlight the importance of creating an inclusive environment for their growth and success. Your expertise and insights would be invaluable in this endeavour, helping us to pave the way for more young girls to pursue and excel in STEM careers.



Event Poster



Session by Dr. Vijayalaxmi



Welcome of Dr. Vijayalaxmi



Felicitation of Dr. Vijayalaxmi

IEEE MP Section Student and Leadership Congress 2024

Date: **5th - 6th October 2024**

Venue: **ABV-IIITM Gwalior**

A team of five students from the **IEEE Kalinga University Student Branch (IEEE KU SB)** represented their branch at the **IEEE Madhya Pradesh Section Students and Leadership Congress 2024**, held on the **5th and 6th of October 2024** at **ABV-IIITM Gwalior**.

The team included:

1. **Piyush Srivastava** (Chairperson, IEEE KU SB)
2. **Vedant Raj** (Vice-Chairperson, IEEE KU SB)
3. **Koda Aayushi Rao** (Chairperson, IEEE KU SB WIE Affinity Group)
4. **Simpi Kumari** (Secretary, IEEE KU SB)
5. **Priyanshu Singh** (Chairperson, IEEE KU SB AEES Chapter)

At the congress, the team presented a poster showcasing the branch's activities from **2023 to the present**, reflecting their commitment to meaningful initiatives and teamwork. Their efforts earned them a **consolation prize of INR 4000/-** and a **travel grant** to attend the IATMSI conference at ABV-IIITM Gwalior in **March 2025**.

This achievement highlights the **IEEE KU SB's dedication** to promoting IEEE values and fostering collaboration within the **Madhya Pradesh Section**.



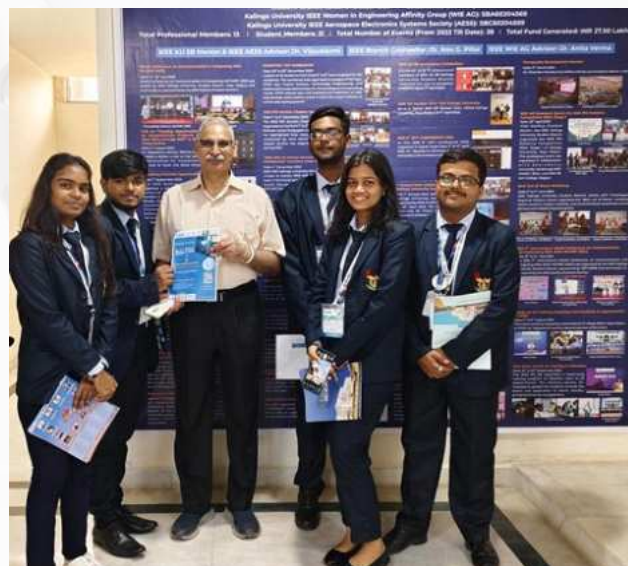
Event Poster



Poster Presented by IEEE KU SB



Session by Dr. Vijayalaxmi



Poster demonstration session



Group Photograph of the Event

ESG and Sustainability Symposium

Date: **22nd and 23rd November 2024**

Venue: **Auditorium, Kalinga University**

The ESG & Sustainability Symposium, organised by the IEEE Kalinga University Student Branch under the IEEE Computer Society High Impact Zonal Events (HIZE), served as a dynamic platform for discussing Environmental, Social, and Governance (ESG) principles and promoting Sustainable Development Goals (SDGs). The event also marked the inauguration of Kalinga University's SDG Cell, reinforcing the university's commitment to sustainability.

Day 1 Highlights:

The inaugural ceremony featured distinguished guests, including Prof. Geetam Singh Tomar, Chairperson of IEEE Madhya Pradesh Section, who joined the event online, along with other notable officials from Kalinga University. Mr. Shivam, Chairperson of the New Initiative Committee, IEEE CS, delivered an inspiring keynote on global sustainability initiatives. The first session, by Mr. Rohit Raj, CEO of Techsics Technologies, focused on the impact of startups, robotics, and innovation on modern industries. A poster presentation session allowed participants to showcase ESG-related projects.

Day 2 Highlights:

Ms. Devina Kothari delivered a forward-looking talk on ESG 2.0 and sustainability strategies for 2025-2050. Dr. Vinamra Bhushan Sharma presented on bridging ESG principles with policy frameworks. The valedictory ceremony featured an address by Mr. Rahul Pinnamaneni, CEO of Polygon Geospatial, and closing remarks by Dr. Vijayalaxmi, Director IQAC, Kalinga University. Guests and knowledge partners were honoured, and the winners of poster/project demonstrations were announced. The event concluded with a vote of thanks by Dr. Anita Verma, IOAC Coordinator.

The ESG & Sustainability Symposium effectively fostered awareness of ESG principles and sustainability, providing a platform for collaboration among students, professionals, and experts. It encouraged innovative solutions and connections that will drive future advancements in ESG and sustainability.



Event Poster



Sponsors for the Event



SDG Logo Launch Ceremony



Keynote Session by Mr. Shivam



Session by Ms. Devina Kothari



Group Photograph of the Event



Group Photograph in Champaranya

4th IEEE Region 10 (Asia-Pacific Region) Section Chapter Symposium and Conference Leadership Program (SCS 2024)

Date: **30th November 2024 to 5th December 2024**

The conference Leadership Program (CLP) was a highlight, showcasing collective efforts to advance technology for societal betterment.

In December 2024, Dr. Vijayalaxmi Biradar visited Singapore to participate in a prominent conference, with the Leadership Program (CLP) being one of its key highlights. The event brought together global experts and thought leaders to discuss the collective efforts in advancing technology for the betterment of society. Dr. Biradar's participation emphasised the importance of leadership in shaping the future of technology and its potential to address pressing societal challenges. The conference provided a platform for collaboration, innovation, and knowledge-sharing, with a strong focus on leveraging technology for positive societal impact. Dr. Biradar's insights and contributions further highlighted her commitment to driving technological progress for the greater good.



Dr. Vijayalaxmi in Singapore



Group Photograph of the Event



Attending the Event

IEEE-Move Outreach India: Promoting Climate Change Awareness & Sustainability

Date: **5th December 2024**

Time of Event: **01:00 P.M. to 03:30 P.M.**

Event Type: **Offline**

Venue: **Govt. Middle School, Kuhera, Naya Raipur (C.G.)**

OBJECTIVE OF PROGRAM:

- To educate students about the causes and consequences of climate change.
- To promote sustainable practices in daily life.
- To encourage young minds to think innovatively about environmental solutions.
- To foster community engagement in addressing climate challenges.



Event Poster



Demonstration of STEM Activities



Group Photograph of the event

IEEE-Move Outreach India: Promoting Climate Change Awareness & Sustainability

Date: **7th December 2024**

Time of Event: **10:00 A.M. - 12:30 P.M.**

Venue: **Government Higher Secondary School, Uperwara, Naya Raipur Chhattisgarh, India**

The event commenced with a welcome address from the Principal of Government Higher Secondary School, who stressed the importance of environmental awareness and collective action in preserving the planet. Dr. Anu G. Pillai, Faculty Advisor for the IEEE Kalinga University Student Branch, introduced the IEEE-MOVE initiative, outlining its objectives and its vital role in promoting sustainability and disaster relief across India.

Following the inaugural session, students participated in an interactive discussion on "Understanding Climate Change." The session included visual presentations on global warming, the role of greenhouse gases, and the impacts of climate change. Group activities encouraged students to explore sustainable practices and discuss ways to reduce their environmental footprint.

The IEEE-MOVE team then provided an overview of the initiative, highlighting its disaster relief and community resilience efforts. The presentation emphasised how the MOVE program aligns with climate action and sustainability, showcasing the critical role of technology and community mobilisation in addressing climate challenges.

The session concluded with a renewed sense of responsibility among students, motivating them to take proactive steps in promoting sustainability and combating climate change within their communities.

OBJECTIVE OF PROGRAM:

- To educate students about the causes and consequences of climate change.
- To promote sustainable practices in daily life.
- To encourage young minds to think innovatively about environmental solutions.
- To foster community engagement in addressing climate challenges.



Event Poster



Demonstration of STEM Activities



Group Photograph of the event

STEM Exploration at Kalinga University

Date: **7th December 2024**

Venue: **Kalinga University**

The Kalinga University Student Branch (KU SB) is playing a pivotal role in highlighting the importance of STEM (Science, Technology, Engineering, and Mathematics) education by organising engaging activities across various schools. These initiatives are designed to foster hands-on learning experiences, encourage critical thinking, and spark a passion for STEM fields among students. To further this mission, the KU SB set up a stall titled "STEM Exploration" at the Science Working Model Competition 3.0. The stall showcased a variety of STEM activities organised by the student branch in schools, educating students about the significance of STEM and how they can be innovative and thought-provoking in their approach to problem-solving. The aim was to inspire students and align with the vision of transforming India into a developed nation by 2047, marking the 100th year of India's independence—referred to as Viksit Bharat 2047.

The Kalinga University Student Branch is committed to this mission, providing specialised STEM training and workshops across the state to nurture the next generation of innovators and leaders.



Students from Government Schools exploring about Drones and other accessories

IEEE-Move Outreach India Promoting Climate Change & Sustainability

Date: **16th December 2024**

Time of Event: : **01:30 P.M. to 03:30 P.M.**

Venue: **Saraswati Shishu Mandir Higher Secondary School Jagdish Mandir, Garhafatak Jabalpur, MP**

OBJECTIVE OF PROGRAM:

- To educate students about the causes and consequences of climate change.
- To promote sustainable practices in daily life.
- To encourage young minds to think innovatively about environmental solutions.
- To foster community engagement in addressing climate challenges.



Event Poster



Demonstration of STEM Activities

IEEE-Move Outreach India Promoting Climate Change & Sustainability

Date: 19th December 2024

Time of Event: : 10:30 A.M. to 01:30 P.M.

Event Type: **Offline**

Venue: **Oriental Institute of Science and Technology, Bhopal**

OBJECTIVE OF PROGRAM:

- To educate students about the causes and consequences of climate change.
- To promote sustainable practices in daily life.
- To encourage young minds to think innovatively about environmental solutions.
- To foster community engagement in addressing climate challenges.



Event Poster



Felicitation of Resource Person Dr. Anu G. Pillai



Demonstration of STEM Activities

Seminar on Writing an Effective IEEE Proposal for Funding

Date: **21st December 2024**

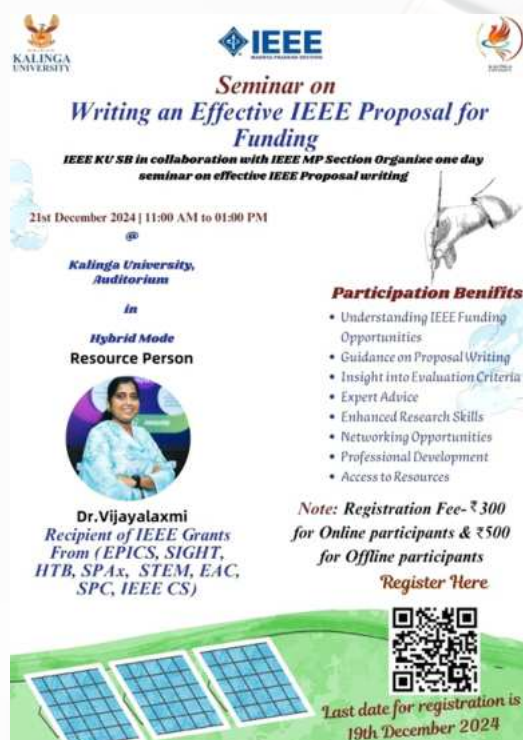
Venue: **Kalinga University**

Mode: **Hybrid**

A one-day seminar on "Writing an Effective IEEE Proposal for Funding" was held on 21st December 2024 at Kalinga University, Raipur. The seminar aimed to equip participants with the essential skills and knowledge to successfully write proposals for securing funding from IEEE for research and development projects. The event attracted students, researchers, and professionals who were eager to learn the intricacies of crafting a compelling and persuasive proposal.

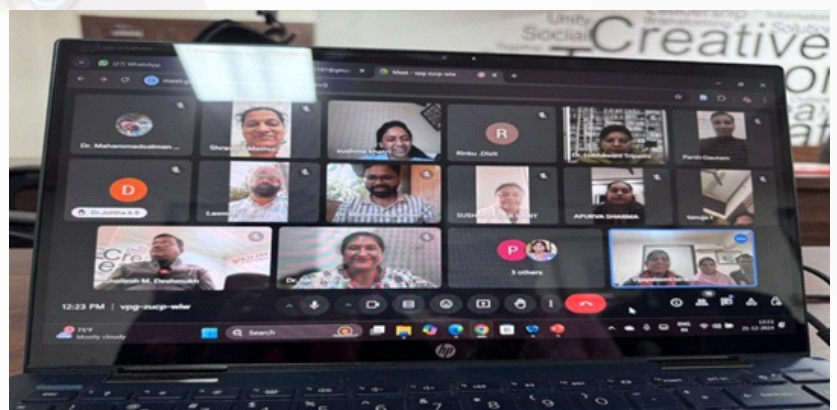
The seminar covered a range of crucial topics, including understanding the key components of an IEEE proposal, the importance of clear objectives, budget planning, and the process of aligning proposals with IEEE's funding priorities. It also provided practical insights on how to present innovative ideas in a structured format to maximise chances of approval. Various experts and researchers presented papers on successful strategies for proposal writing and shared their experiences of securing IEEE funding.

The event fostered an interactive learning environment, allowing participants to engage with the speakers, discuss their queries, and learn from real-world examples. Overall, the seminar was an invaluable experience for all attendees, enhancing their skills and confidence in pursuing funding opportunities for future projects.



The poster features the IEEE logo at the top center, flanked by Kalinga University logos. The title "Seminar on Writing an Effective IEEE Proposal for Funding" is prominently displayed. Below the title, it states "IEEE KU SB in collaboration with IEEE MP Section Organize one day seminar on effective IEEE Proposal writing". The date and time are "21st December 2024 | 11:00 AM to 01:00 PM". The venue is "Kalinga University, Auditorium" and the mode is "Hybrid Mode". The resource person is "Dr. Vijayalaxmi, Recipient of IEEE Grants From (EPICS, SIGHT, HTB, SPA.x, STEM, EAC, SPC, IEEE CS)". A list of participation benefits includes understanding IEEE funding opportunities, guidance on proposal writing, insight into evaluation criteria, expert advice, enhanced research skills, networking opportunities, professional development, and access to resources. A note specifies a registration fee of ₹300 for online participants and ₹500 for offline participants, with a "Register Here" link. A QR code is provided for registration, and the last date for registration is 19th December 2024.

Event Poster



Ongoing Session

IEEE-Move Outreach India Promoting Climate Change & Sustainability

Date: **24th December 2024**

Event Type: **Offline**

Venue: **MM School, Raipur**

OBJECTIVE OF PROGRAM:

- To educate students about the causes and consequences of climate change.
- To promote sustainable practices in daily life.
- To encourage young minds to think innovatively about environmental solutions.
- To foster community engagement in addressing climate challenges.



Event Poster



Students Exploring STEM



Demonstration of STEM Activities

Unlocking IEEE Funding Opportunities: Tips, Tricks & Evaluation Insights

Date: **26th December 2024**

Time: **08:30 P.M.**

Mode: **Online**

A one-day seminar on "Writing an Effective IEEE Proposal for Funding" was held on 26th December 2024 at Kalinga University, Raipur. The seminar aimed to equip participants with the essential skills and knowledge to successfully write proposals for securing funding from IEEE for research and development projects. The event attracted students, researchers, and professionals who were eager to learn the intricacies of crafting a compelling and persuasive proposal.

The seminar covered a range of crucial topics, including understanding the key components of an IEEE proposal, the importance of clear objectives, budget planning, and the process of aligning proposals with IEEE's funding priorities. It also provided practical insights on how to present innovative ideas in a structured format to maximise chances of approval. Various experts and researchers presented papers on successful strategies for proposal writing and shared their experiences of securing IEEE funding.

The event fostered an interactive learning environment, allowing participants to engage with the speakers, discuss their queries, and learn from real-world examples. Overall, the seminar was an invaluable experience for all attendees, enhancing their skills and confidence in pursuing funding opportunities for future projects.

The poster is for a webinar titled "Unlocking IEEE Funding Opportunities: Tips, Tricks & Evaluation Insights" held on 26th December 2024 at 9:00 PM (GMT +6). The resource person is Dr. Vijayalaxmi Biradar, Director IQAC, Kalinga University, Raipur, Chhattisgarh, who is a recipient of IEEE Grants from EPICS, SIGHT, HTB, SPAX, STEM, EAC, SPC, and IEEE CS. The poster lists participant benefits: learning about IEEE funding opportunities, expert guidance on crafting winning proposals, gaining insights into evaluation criteria, and receiving a participant certificate. A QR code is provided for registration, with a deadline of 24th Dec 2024. The registration fee is 100 BDT for Sub-ExCom and 50 BDT for Secretariat, Web & IT, SAC, Spark, and GSM. The event is organized by the IEEE Computer Society Bangladesh Chapter, IEEE CS BDC Web & IT Committee, and the Secretariat.

Event Poster

The certificate is a "Token of Appreciation" presented to Dr. Vijayalaxmi Biradar in recognition of her insightful and invaluable contribution as a distinguished speaker in the webinar "Unlocking IEEE Funding Opportunities: Tips, Tricks, and Evaluation Insights." The certificate is organized by the IEEE Computer Society Bangladesh Chapter, specifically by the Web & IT Committee and the Secretariat.

Dr. Vijayalaxmi received a "Token of Appreciation" by the IEEE Computer Society Bangladesh Chapter

The background is a light beige color with a complex pattern of thin, light green circuit lines. Scattered throughout the background are several stylized, light green computer monitor icons. The text is centered in the middle of the page.

ACHIEVEMENTS & RECOGNITIONS

Women Leadership in STEM 2024

Date: **January 2024**

Dr. Vijayalaxmi has been awarded “Women Leadership in STEM” by BIRAC STEM Grand Challenges India, 2024, @women_lift_health's inaugural #WomenLeadershipinSTEM cohort, a year-long leadership development program towards gender equality in STEM in India

<https://www.womenlifthealth.org/southasia-india/2024-women-leadership-in-stem-cohort/>



1st Residential at Mussoorie - 22nd - 26th July 2024



2nd Residential at New Delhi - 22nd-25th October 2024

IEEE R10 WIE Outstanding Professional Volunteer



Dr. Vijayalaxmi received IEEE R10 WIE Outstanding Professional Volunteer



IEEE Women in Engineering

Takes pleasure in presenting this certificate to

Vijayalaxmi Biradar

As the recipient of an Honorable Mention for the

**2024 IEEE Women in Engineering
Inspiring Member of the Year Award**

In recognition of outstanding dedication and contributions to the
IEEE Women in Engineering community.



September 2024

Celia Shahnaz

Celia Shahnaz

2023-2024 WIE Committee Chair

Dr. Vijayalaxmi received 2024 IEEE WIE Inspiring Member of the Year Award

Returning Mothers Conference 2024

Date: 15th-16th November 2024

Dr. Vijayalaxmi was felicitated at the Returning Mothers' Conference (RMC) 2024, held on 15th-16th November at IISc Bangalore, for receiving the prestigious R10 IEEE WIE Outstanding Professional Volunteer Award 2024. The event was graced by notable personalities, including Bozena Pasik-Duncan, Takako Hashimoto, Ramalatha Marimuthu, and Mini Ulanat. This recognition highlights Dr. Vijayalaxmi's exceptional contributions and dedication to professional volunteering, showcasing her impactful work within the IEEE Women in Engineering community.



Award



Felicitations of Dr. Vijayalaxmi



ARTICLES

Latest Innovations in Commerce

The commerce industry is undergoing significant innovation in 2024, driven by advancements in technology and shifting consumer priorities. Key trends include:

- 1. AI-Driven Personalization:** Retailers are leveraging AI to deliver hyper-personalized shopping experiences. This includes tailored recommendations, dynamic pricing, and AI-powered chatbots, enhancing customer satisfaction and loyalty.
- 2. Social Commerce:** Platforms like Instagram and TikTok are integrating shopping features, enabling seamless purchases directly through social media. Livestream shopping has also gained traction, offering real-time interaction between sellers and customers.
- 3. Sustainability:** With increasing demand for eco-friendly products, businesses are adopting sustainable practices and promoting second-hand marketplaces. Brands like Lululemon and Walmart are investing in resale platforms to attract environmentally conscious shoppers.
- 4. Augmented Reality (AR):** AR allows customers to visualise products, such as furniture or clothing, in real-world settings, reducing uncertainty and returns.
- 5. Flexible Payment Options:** Buy Now, Pay Later (BNPL) services and "invisible payments" are simplifying checkout processes, catering to younger generations who value flexibility and convenience.

These innovations highlight the industry's push towards more sustainable, tech-driven, and customer-focused solutions, ensuring businesses stay competitive in a rapidly evolving market.



Gurjinder Kaur

Assistant Professor in Commerce
Babbar Akali Memorial Khalsa College
Garhshankar

Latest Innovations in Software Engineering

- A field of Computer Science to develop quality Software Products

Software engineering, a field that bridges computer science and application development, is continuously evolving to meet the demands of an increasingly digital world. Innovations in this field not only enhance software quality but also improve efficiency and expand possibilities for developers and businesses alike. Below, we delve into the latest innovations in software engineering that are reshaping the industry.

1. Low-Code and No-Code Platforms

Low-code and no-code platforms have democratised software development by enabling non-developers to create applications. Tools like Microsoft PowerApps and OutSystems provide intuitive drag-and-drop interfaces, accelerating development timelines. These platforms are particularly valuable for businesses looking to deploy internal tools or prototypes without extensive programming expertise.

2. Quantum Computing in Software Development

Quantum computing, though in its nascent stages, is starting to influence software engineering. Developers are exploring quantum algorithms to solve problems that are infeasible for classical computers, such as complex simulations and cryptographic analyses. Platforms like IBM Quantum and Google Quantum AI provide tools for experimenting with quantum software development.

3. Blockchain and Smart Contracts

Blockchain technology has expanded beyond cryptocurrencies to include applications in software engineering. Decentralised applications (dApps) and smart contracts are becoming integral in industries like finance, supply chain, and healthcare. Frameworks such as Ethereum and Hyperledger Fabric simplify blockchain-based application development.

4. Edge Computing and IoT Integration

The proliferation of Internet of Things (IoT) devices has driven the adoption of edge computing. This innovation processes data closer to the source rather than relying on centralised data centres, reducing latency and bandwidth usage. Developers are leveraging frameworks like AWS IoT Greengrass and Microsoft Azure IoT Edge to build responsive and reliable IoT solutions.

5. 5G-Ready Applications

With the global rollout of 5G networks, software engineers are innovating applications to leverage high-speed, low-latency connectivity. Industries such as gaming, augmented reality (AR), and virtual reality (VR) are at the forefront, utilising 5G for immersive, real-time experiences.

6. Green Software Engineering

Sustainability has become a priority in software engineering, leading to the emergence of green software practices. These practices focus on optimising software to minimise energy consumption. Developers are leveraging energy-efficient algorithms and cloud solutions to reduce their carbon footprint.

Conclusion

The latest innovations in software engineering are enabling developers to create more efficient, secure, and scalable applications. As technology advances, the focus on automation, security, and sustainability will continue to shape the future of this dynamic field. By embracing these trends, software engineers can push the boundaries of what's possible, driving progress across industries and improving lives globally.



Harjot Kaur

Assistant Professor in Computer Science Department
Babbar Akali Memorial Khalsa College
Garhshankar

TCL RayNeo X2: A Technological Marvel in Augmented Reality

The TCL RayNeo X2, introduced at CES 2023, is a groundbreaking innovation in augmented reality (AR) eyewear. Combining cutting-edge features with practical functionality, these glasses are set to transform how users interact with the digital and physical worlds.

The RayNeo X2 integrates Simultaneous Localization and Mapping (SLAM) technology within its smart GPS navigation system, allowing it to map nearby landmarks in real-time. Gesture recognition further enhances navigation, enabling hands-free interaction. Equipped with Bluetooth-enabled notifications, the glasses keep users updated with on-screen messages while navigating seamlessly.

A standout feature is the AI-powered translation system, which interprets multiple languages in real-time, making cross-cultural communication effortless. Additionally, the glasses come with an integrated camera capable of capturing photos, videos, and time-lapses, making them a versatile tool for creative and professional purposes.

These glasses find applications in various fields, including tourism, where they offer real-time navigation, translation and education, enabling immersive AR learning experiences. Professionals in logistics and fieldwork can also benefit from hands-free navigation and real-time updates.

With intuitive controls through buttons and touch-sensitive areas, along with its advanced MicroLED display and Snapdragon XR2 processor, the TCL RayNeo X2 is ready to set a new benchmark for AR glasses, blending convenience and innovation.



Ms. Heer Mehta

Student at Marwadi University
Rajkot, Gujarat

5G Technology

5G technology, the fifth generation of mobile networks, represents a significant leap forward in wireless communication. Launched in various parts of the world, 5G promises faster speeds, lower latency, and enhanced connectivity compared to its predecessors. With download speeds that can exceed 10 Gbps, users can stream high-definition content seamlessly and download large files in seconds.

One of the key features of 5G is its ability to support a massive number of devices simultaneously, making it ideal for the Internet of Things (IoT). This capability enables smart cities, autonomous vehicles, and advanced healthcare solutions, transforming how we interact with technology daily.

Moreover, 5G's low latency—often below 1 millisecond—facilitates real-time communication, which is crucial for applications like remote surgery and augmented reality. Industries such as manufacturing, agriculture, and entertainment are poised to benefit significantly from this technology.

However, the rollout of 5G faces challenges, including infrastructure costs and regulatory hurdles. As network coverage expands, the potential for innovation is immense, paving the way for a more connected and efficient world. As 5G continues to evolve, it is set to redefine our digital landscape, enhancing both personal and professional experiences.



Kamini

Assistant Professor, Faculty of Department of Computer Science & Applications
Babbar Akali Memorial Khalsa College
Garhshankar

Generative AI: Unleashing Human Creativity

Generative AI is revolutionising creativity by empowering machines to produce original content—ranging from text and images to music and code. Unlike traditional AI, which is designed for specific tasks, generative models learn from data to create entirely new outputs, pushing the boundaries of human imagination and innovation.

The journey of generative AI began in the 20th century with pioneers like Alan Turing. Over the years, breakthroughs in deep learning, Generative Adversarial Networks (GANs), and transformers have advanced the field. These technologies power models like GPT, enabling machines to generate coherent text, solve complex problems, and even engage in creative endeavours such as art and design.

Generative AI offers immense benefits: it boosts creativity, enhances productivity by automating repetitive tasks, and allows for personalised experiences across industries. It is driving innovation in fields like healthcare, science, and business. However, challenges such as ethical concerns, bias, job displacement, and environmental impact must be addressed for responsible development.

The future of generative AI holds exciting potential. By focusing on ethical practices and fostering collaboration, we can shape a future where AI and human creativity work hand in hand to solve global challenges and create new possibilities.



Koda Aayushi Rao

B.Tech. (CSE), 4th Semester
Kalinga University, Naya Raipur

Expansion of 5G in India: A Transformational Leap

The rollout of 5G in India marks a significant milestone in the country's technological advancement. With major telecom operators like Reliance Jio, Bharti Airtel, and Vodafone Idea leading the charge, the expansion of 5G networks is poised to revolutionise connectivity, enhance economic growth, and empower digital innovation.

India's 5G journey began with the historic spectrum auction in 2022, where the government allocated airwaves across various frequency bands. Since then, cities like Delhi, Mumbai, Bengaluru, and Chennai have seen the rapid deployment of 5G infrastructure. The technology promises ultra-fast internet speeds, minimal latency, and seamless connectivity, enabling transformative applications across sectors like healthcare, education, manufacturing, and agriculture.

The "Digital India" initiative aligns with the 5G rollout, fostering innovation through initiatives like smart cities, IoT adoption, and AI-driven solutions. Furthermore, 5G is expected to accelerate startups, bolster industrial automation, and enhance mobile broadband experiences. However, challenges remain, including the need for extensive infrastructure, affordability, and ensuring rural coverage. The government and private players must address these issues to ensure inclusive and sustainable 5G adoption.

As India embraces 5G, it stands on the brink of a digital revolution, paving the way for unprecedented growth and connectivity in the years to come.



Komal Sahu

B.Tech. (CS AI & ML), 2nd Semester
Kalinga University, Naya Raipur

Shaping the Future: The Conversation of Technology and Humanity

The world is on the cusp of a technological revolution, driven by advancements in artificial intelligence, robotics, and the Internet of Things. This convergence of technologies is transforming industries, from healthcare to finance, and redefining the way we live and work.

In the near future, we can expect to see widespread adoption of autonomous vehicles, smart homes, and personalised medicine. The rise of virtual and augmented reality will revolutionise entertainment, education, and communication.

However, this technological revolution also poses significant challenges, including job displacement, cybersecurity threats, and social inequality. As we embark on this journey, it is essential that we prioritise responsible innovation, ensuring that the benefits of technology are shared by all.

Ultimately, the future of technology holds immense promise, but it is up to us to shape it in a way that benefits humanity. "The Conversation of Technology and Humanity"

In conclusion, the conversation between technology and humanity is complex and multifaceted. As technology continues to evolve, it is essential that we consider the implications of these advancements on human relationships, identity, and society as a whole.



Md Aiman Shafi

B.Tech. (CSE), 2nd Semester
Kalinga University, Naya Raipur

DNA Mutation

A DNA mutation is a change in the sequence of an organism's DNA. These alterations are the foundation of genetic diversity, playing a crucial role in evolution. Mutations can take many forms. Modern technologies like CRISPR-Cas9 have revolutionised the study of mutations.

Basically, with the growth in Technology (Genetic Engineering), Scientists can predict and alter the genes. Scientists can now edit genomes with precision, correcting harmful mutations or introducing desirable traits. If there is any change needed, it may be due to any genetic disease or personal choice. We can pre decide skin tone, intelligence, physical appearance or anything. In short, we can pre-design our future generation with the help of this genetic Technology.

But there are many benefits and drawbacks with respect to this innovation. The major advantage is that we can save our generation from generational diseases, and the major disadvantage is skin cancer. Beneficial mutations can drive evolution, enabling organisms to adapt to changing environments. On the other hand, harmful mutations can lead to genetic disorders like Huntington's disease or certain cancers.

Understanding DNA mutations is essential for medicine, agriculture, and evolutionary studies.



Ms. Merlin Joy Vardhini

B.Tech. Student

Sharnbasva University, Kalaburagi, Karnataka

Nanotechnology in Cancer Treatment: A New Era in Medicine

Nanotechnology is revolutionising cancer treatment by offering precise, targeted, and less invasive solutions. By operating at the molecular and cellular levels, nanotechnology provides innovative approaches to diagnose, treat, and monitor cancer.

One of the most promising applications is in drug delivery. Traditional chemotherapy often damages healthy cells along with cancerous ones, causing severe side effects. Nanoparticles, however, can be engineered to carry anticancer drugs directly to tumour cells, minimising harm to healthy tissues. For example, liposomes and dendrimers are used to enhance drug efficacy and reduce toxicity.

Nanotechnology also plays a pivotal role in early cancer detection. Nanosensors, capable of detecting biomarkers in blood or tissues, enable earlier diagnosis, significantly improving survival rates. Moreover, quantum dots, a type of nanoparticle, are being used to enhance imaging techniques like MRI and CT scans, making tumours easier to locate.

Another breakthrough is in photothermal therapy, where nanoparticles are injected into tumours and heated using infrared light, destroying cancer cells without damaging surrounding tissue. This method offers a non-invasive alternative to traditional treatments like surgery.

As research advances, nanotechnology holds the potential to transform cancer treatment, offering hope for more effective and patient-friendly therapies in the near future.



Ms. Roopa G D

B.Tech. Student

SJM Institute of Technology, Chitradurga

Revolutionizing Agriculture with AI and IoT

Agriculture, the cornerstone of global sustenance, is undergoing a transformation powered by Artificial Intelligence (AI) and the Internet of Things (IoT). These technologies address critical challenges such as climate unpredictability, resource constraints, and rising food demands.

AI for Smarter Decisions AI enables unparalleled precision in farming by analysing vast datasets on weather, soil health, and crop conditions. Machine learning algorithms predict optimal planting schedules, detect diseases early, and offer tailored solutions. Drones equipped with AI provide real-time monitoring, identifying pests or deficiencies swiftly to prevent losses.

IoT for Connected Ecosystems IoT devices like soil sensors, weather trackers, and automated irrigation systems create smart farms. These tools collect and transmit data to cloud platforms, empowering farmers with actionable insights. Smart irrigation systems minimise water wastage, while IoT-enabled machinery like autonomous tractors streamlines labour-intensive processes.

A Synergized Future The fusion of AI and IoT forms an intelligent agricultural ecosystem. Farmers receive real-time alerts and precise recommendations, optimising resource use and boosting productivity. This integrated approach fosters sustainability and ensures resilience against environmental challenges.

AI and IoT are not just modernising agriculture but redefining it. Together, they promise a future where farming is smarter, sustainable, and capable of feeding a growing world.



Ms. Pallavi S A

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SJM Institute of Technology, Chitradurga

Latest Innovations in Computer Applications

The latest innovations in computer applications are shaping various industries and redefining user experiences. Here are some notable developments:

1. **Quantum Computing Applications:** Quantum Machine Learning (QML) integrates quantum computing with traditional machine learning, offering exponential speed for solving complex problems like drug discovery and financial modelling.
2. **Low-Code/No-Code Platforms:** These tools democratise software development, allowing users without programming expertise to create applications using drag-and-drop interfaces. Platforms like Microsoft Power Apps simplify development for businesses.
3. **Biometric Authentication:** Advancements in biometric technologies, such as facial and voice recognition, enhance security in personal devices, healthcare, and financial transactions.
4. **Intelligent Apps:** By leveraging AI and machine learning, intelligent apps adapt to user behaviour, offering personalised experiences in areas like e-commerce and digital assistants.
5. **Edge Computing:** Processing data closer to its source reduces latency, which is critical for IoT devices, autonomous vehicles, and real-time applications.
6. **Generative Adversarial Networks (GANs):** GANs power innovations in content creation, such as generating realistic images, enhancing video quality, and creating deepfake content responsibly.

These technologies are transforming industries, improving efficiency, and personalising user interactions, marking a significant leap in computing innovation.



Narinder Jit Kaur

Assistant Professor in Computer Science and Applications
Babbar Akali Memorial Khalsa College
Garhshankar

3D Printing in Healthcare: A Revolutionary Approach

3D printing, also known as additive manufacturing, is revolutionising the healthcare industry by offering customised and cost-effective solutions. This innovative technology enables the creation of complex structures layer by layer, opening up new possibilities in medicine.

One of the most impactful applications is in prosthetics. With 3D printing, highly personalised prosthetic limbs can be designed to fit the exact measurements of patients, ensuring better comfort and functionality. This process is faster and more affordable than traditional methods, making prosthetics accessible to a wider audience.

Another groundbreaking use is in bioprinting. Scientists are now able to print tissues and organs using bio-ink made of living cells. Although still in its early stages, this technology could one day solve the problem of organ shortages, saving countless lives.

Additionally, 3D printing is transforming surgical practices. Surgeons can now use patient-specific 3D-printed models of organs to plan complex procedures, reducing risks and improving outcomes. For example, doctors have successfully used 3D-printed models to guide heart surgeries and brain tumour removals.

From creating customised medical devices to enabling innovations in regenerative medicine, 3D printing is redefining healthcare. As this technology evolves, it promises to make healthcare more efficient, personalised, and accessible.



Ms. Nikhitha P H

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AI & Coding: Transforming the Future of Programmers

"The real voyage of discovery consists not in seeking new landscapes, but in having new eyes." ~ Marcel Proust

Today, AI is reshaping programming by improving tasks like code generation, debugging, and automation with tools such as Copilot. While it boosts efficiency, human programmers remain vital for customising solutions, integrating systems, and addressing challenges like system architecture and ethical dilemmas. AI-generated code often requires human oversight to ensure reliability and alignment with project goals.

This transformation enables programmers to focus on software design, code optimisation, and AI system management. Leadership and communication skills are becoming increasingly essential to bridge technical teams and stakeholders. As AI takes over repetitive tasks, new roles like AI trainers and ethicists are emerging to refine AI systems and uphold ethical standards.

The future will see a growing demand for expertise in AI ethics and user-centred design. Continuous learning will be critical for programmers to stay relevant and maximise AI's potential. This collaboration highlights the complementary strengths of humans and AI, empowering engineers to innovate responsibly.

AI amplifies human skills, emphasising their importance. By embracing this partnership, programmers can drive technological progress while fostering a thoughtful and forward-looking approach to software development, crafting a future defined by enhanced productivity and responsible innovation.



Piyush Srivastava

B.Tech. (CSE) - 4th Semester
Kalinga University, Naya Raipur

The Future of Warfare: Robotics and Drones in the Indian Army

The Indian Army is embracing a technological revolution, with robotics and drones redefining modern warfare. Drones serve as vigilant eyes in the sky, offering real-time surveillance, guiding precise strikes, securing borders, and aiding in disaster relief. On the ground, robots like Daksh are transforming bomb disposal, neutralising explosives safely, and exploring dangerous terrains. They also assist in logistics, easing the physical burden on soldiers.

Looking ahead, AI advancements promise smarter robots with enhanced decision-making capabilities. Drone swarms could work together for complex tasks, amplifying strategic advantages. The seamless collaboration between soldiers and robotic counterparts is set to redefine mission success.

However, this technological leap brings challenges, including ethical dilemmas, cybersecurity threats, and the need for continuous development. To stay ahead, the Indian Army is focused on indigenous innovations like the Rustom drone and Daksh robots, reducing reliance on foreign technology. As these technologies evolve, they will play a crucial role in shaping the future of warfare, ensuring the safety of soldiers and strengthening national security.



Priyanshu Singh

Diploma (ME), 4th Semester
Kalinga University, Naya Raipur

AI IN ELECTRONICS: A New Era of Innovations

Artificial Intelligence (AI) is increasingly being integrated into electronic devices, transforming the way they operate and interact with users. This fusion of AI and electronics is giving rise to smarter, more efficient, and adaptive products that are revolutionising various industries.

In the consumer electronics sector, AI-powered devices such as smart home appliances, voice-controlled speakers, and personalised recommendation systems are becoming increasingly popular. These devices use machine learning algorithms to learn user preferences and adapt to their behaviour, providing a more intuitive and user-friendly experience.

In Industrial Automation, AI-powered electronics are being used to optimise production processes, predict maintenance needs, and improve product quality. AI-driven sensors and actuators can detect anomalies in real time, enabling swift corrective action and reducing downtime.

The integration of AI in electronics is also transforming the healthcare industry, with AI-powered medical devices such as portable diagnostics and wearable health monitors. These devices use AI algorithms to analyse data and provide personalised insights, enabling early disease detection and prevention.

As AI technology continues to advance, we can expect to see even more innovative applications in the electronics industry, leading to improved efficiency, productivity, and decision-making across various sectors.



Ms. Roopa Dantkale

B.Tech. Student

Faculty of Engineering and Technology

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Edge Computing: The Future of Real-Time Data Processing

Edge computing is a distributed computing paradigm that brings computation and data storage closer to the data sources, such as IoT devices or local edge servers. This proximity significantly reduces latency, enhances bandwidth efficiency, and improves real-time data processing capabilities.

In traditional cloud computing, data is sent to centralised data centres for processing, which can lead to latency issues, especially for applications requiring immediate responses. Edge computing addresses this by processing data at the “edge” of the network, closer to where it is generated. This approach is crucial for applications like autonomous vehicles, industrial automation, and smart cities, where real-time decision-making is essential.

One of the primary benefits of edge computing is its ability to handle the massive amounts of data generated by IoT devices. By processing data locally, it reduces the need for extensive data transmission to central servers, thereby saving bandwidth and reducing costs. Additionally, edge computing enhances data security and privacy by keeping sensitive information closer to its source, minimising exposure to potential threats during transmission.

Edge computing is revolutionising various industries by enabling faster, more efficient, and secure data processing. As the number of connected devices continues to grow, the importance of edge computing in managing and analysing data in real-time will only increase.



Sameena

B.Tech. - 7th Semester Student
Sharnbasva University, Kalaburagi, Karnataka

LIDAR TECHNOLOGY: Detection of Small Vehicles

The rapid advancement of autonomous vehicles (AVs) has underscored the need for reliable obstacle-detection systems. This study presents a LIDAR-based vehicle detection system designed to identify small vehicles such as cars and vans using point cloud processing and machine learning. Unlike conventional approaches relying on complex deep learning models, this system employs a lightweight methodology to enhance computational efficiency.

The proposed system leverages the KITTI 3D object detection dataset, utilising raw point cloud data from HDL sensors. Preprocessing is conducted with the Open 3D library, where voxel grid sampling reduces data volume without compromising cluster integrity. Ground points are separated using the RANSAC algorithm, ensuring precise clustering through the DBSCAN method. Dimensional features like height, length, and width are extracted for classification, facilitating the identification of vehicles.

The system provides accurate detection and tracking, even in challenging conditions like nighttime, fog, or heavy traffic. Its advantages include High accuracy and reliability, Real-time processing and alerts, Flexibility for various environments and vehicle types, and Integration with existing traffic management systems.

This research offers a scalable, efficient solution for vehicle detection, contributing to the safe deployment of autonomous systems.



Ms. Shakti Manker

B.Tech. - 7th Semester, FETW
Sharnbasva University, Kalaburagi, Karnataka

Green Computing: “A Modern and Sustainable Approach”

Green computing focuses on using computers and related technology in an environmentally sustainable manner. It aims to minimise energy consumption, reduce e-waste, and promote the use of renewable resources throughout the life cycle of devices, from design to disposal. Key practices include energy-efficient hardware, optimised software, virtualisation, cloud computing, and recycling outdated equipment.

The importance of green computing lies in its environmental and economic benefits. It reduces carbon footprints by minimising energy use and e-waste, helping to combat global warming and pollution. It also lowers energy costs for businesses and individuals, promotes resource optimisation, and ensures compliance with environmental regulations. Green computing boosts corporate social responsibility, enhancing a company's reputation and brand value.

Merits include energy efficiency, cost reduction, environmental preservation, extended hardware lifespan through recycling, and fostering innovation in green technologies. However, challenges include high initial costs for eco-friendly devices, limited access to green technologies in some regions, potential performance trade-offs, and difficulties in e-waste recycling.

Overall, green computing is vital for sustainable development. Despite its challenges, it offers significant long-term environmental, economic, and social benefits, with ongoing efforts needed to increase awareness, improve technology, and incentivise adoption.



Simpi Kumari

B.Tech. (CSE) - 4th Semester Student
Kalinga University, Naya Raipur

Flexible Electronics

Flexible electronics are electronic devices designed to be bendable, flexible and stretchable, enabling them to conform to various shapes and surfaces while maintaining their electrical functionality and performance. This adaptability has paved the way for ground-breaking advancements in multiple industries.

The applications of flexible electronics are diverse and rapidly expanding. In healthcare, flexible electronics enable the creation of wearable devices that monitor vital signs, track fitness, and detect diseases. In consumer electronics, flexible displays are revolutionising the design of smartphones, tablets, and TVs.

Flexible electronics are fabricated using various techniques, including screen printing, inkjet printing, and roll-to-roll processing. These methods enable the creation of flexible circuits, sensors, and displays on a variety of substrates, such as polyimide, polyethylene terephthalate (PET), and graphene. The use of these materials and techniques has enabled the development of flexible electronics with improved performance, reliability, and cost-effectiveness.

The future of flexible electronics holds much promise, with the global market expected to grow exponentially in the coming years. Some of the future directions for flexible electronics include the development of stretchable electronics, bio-inspired electronics, and neuromorphic electronics. These advancements will enable the creation of flexible electronics that can stretch, deform, and adapt to different environments, leading to innovative applications in fields such as healthcare, robotics, and energy harvesting.



Ms. Soumya Chandrakanth,

B.Tech. Student, FETW

Sharnbasva University, Kalaburagi, Karnataka

Augmented Reality: Transforming the Digital and Physical Worlds

Augmented Reality (AR) bridges the digital and physical worlds, enhancing real-world experiences by overlaying virtual elements like images, sounds, and data. Unlike Virtual Reality (VR), AR integrates digital content into the physical environment, enriching rather than replacing it.

AR has a wide range of applications across industries. In healthcare, it aids medical training, surgical precision, and patient rehabilitation. Education benefits from immersive learning experiences and risk-free training simulations. Retail and e-commerce use AR for virtual try-ons and home visualisation, transforming the shopping experience. In entertainment, AR-powered games like Pokémon GO merge digital and physical worlds, while live events use AR for interactive storytelling. Real estate and architecture leverage AR to visualise designs and properties, saving time and reducing errors. Industries like manufacturing and navigation use AR to enhance precision, efficiency, and exploration.

While AR fosters creativity and innovation, challenges like data privacy, hardware costs, and accessibility remain. The technology's future lies in advancements in AI, 5G, and IoT, unlocking the even greater potential for personalisation and industrial applications.

As AR evolves, it is not just a tool but a transformative force reshaping industries, redefining interactions, and merging the digital and physical worlds in unprecedented ways.



Soumya Shinde

B.Tech. - 7th Semester Student

Sharnbasva University, Kalaburagi, Karnataka

WEARABLE TECHNOLOGY: BRIDGING INNOVATION AND LIFESTYLE

Wearable Technology refers to Smart Electronic Devices worn on the body that collect, analyse and transmit data in real-time. These devices combine sensors, processors and communication technologies to provide functionalities like health monitoring, fitness tracking, communication and even making payments. Wearables are convenient, seamless, and portable and can offer hands-free access to electronics. Wearable Technology has been classified into many categories, such as Health Monitoring, Fitness and Sports, Medical and Healthcare Devices, Smart Glasses and Augmented Reality, Wearable Cameras, Wearable Entertainment Devices and Smart Clothing.

Health Monitoring, devices like Smart Watches can keep check of the heart rate and oxygen levels, Track physical activity and provide insights into overall health. And can be helpful for early detection of any health issues and remote patient monitoring. Wearables in sports have evolved to keep the insights of the athlete's health condition and monitor their performance and progress. Workplace wearables are for safety monitoring in hazardous environments by alerting them of potential dangers. Smart watches and rings can be used for Contactless payments and making transactions more convenient.

Wearables assist industries with AI guidance and safety monitoring as recommendations for workouts, sleep and tasks. Enhances virtual and augmented reality gaming experiences. They have High initial costs and are less accessible to all users, and some wearables also lack ergonomic designs, causing discomfort. Can make lightweight and affordable VR headsets for widespread adoption. Some popular brands are Apple, Fitbit, Samsung, Google and Microsoft. Wearable Technology is revolutionising industries ranging from healthcare to entertainment and industrial applications. It is not only a trend but a transformative shift towards smarter, more connected living.



Syeda Benazir Khan

B.Tech. - 7th Semester Student

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Bio-based solution for remediation of plastic waste

Approaches for the elimination of polymeric waste (plastic) have been explored by physical, chemical and biological means. Physical and chemical, though successful, are not efficient and result in hazardous by-products. Bioremediation has proved to be efficient in an environment friendly way. Bio-based catalysts are the future molecules abundantly present in the prokaryotic and eukaryotic systems. Bacterial species *Indonella sakaiensis* utilises PETase to transform PET into terephthalic acid and ethylene glycol - reused for plastic production. Enzyme engineering of PETase combined with MHETase has accelerated the recycling process. Comamonadaceae bacteria *Comamonas testosteroni* from wastewaters has an ability to break down polyethylene terephthalate pellet into nanoparticles and is utilised as a carbon source. Genetically modified *Vibrio natriegens*, and *Indonella sakaiensis* utilises PETase to degrade PET from seawater. Modifying hydrophobic binding site in *Fusarium solanipisi*; triple mutation in CUT190 cutinase from *Saccharomonospora viridis* AHK190. *Enterobacter asburiae* YT1 and *Bacillus* sp. YP1 from gut of plastic eating waxworm/mealworm (*Plodia interpunctella*, *Corcyra cephalonica*, *Achroia griseella*) are successful strategies. White rot fungus *Phanerochataete chrysosporium* employs lignin peroxidases and manganese peroxidases; *Aspergillus tubingensis*, *Pestalotiopsis microspore*; *Periodonium album* break down polyurethane. Employing these unicellular bacteria, lower eukaryotes fungi, yeast, help drastically reduce the plastic environmental footprint and dependence on fossil fuels.



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Personalised medicine and genomics: A new era in healthcare

Personalised medicine, driven by advancements in genomics, is transforming healthcare by tailoring treatments to individual genetic profiles. Unlike the traditional one-size-fits-all approach, this innovative method considers a person's unique genetic makeup, lifestyle, and environmental factors to deliver precise and effective medical healthcare.

At the core of personalised medicine is genomics, the study of an individual's complete set of genes. By analysing genetic variations, scientists can predict how a person will respond to specific treatments, identify their risk of developing certain diseases, and recommend preventative strategies. For instance, genomic testing can guide cancer treatments by targeting mutations in tumour DNA, significantly improving outcomes while minimising side effects.

This approach also plays a pivotal role in drug development. Pharmacogenomics, a branch of genomics, helps determine the right drug and dosage for patients based on their genetic profiles, reducing trial-and-error and adverse drug reactions.

As the cost of genome sequencing continues to decline, personalised medicine is becoming more accessible. It promises a future where “healthcare is not only reactive but also predictive” improving patient outcomes and reducing costs. By harnessing the power of genomics, personalised medicine is paving the way for a more precise, effective, and patient-centred healthcare system.

Dr. Francis Collins: A geneticist and the leader of the Human Genome Project, has been a strong advocate for translating genomic knowledge into personalised medicine.

PMI Launch: The Precision Medicine Initiative (PMI) was launched by U.S. President Barack Obama in 2015. It aimed to leverage big data, genomics, and digital health tools to customise medical treatment



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VIRTUAL REALITY AND THE FUTURE OF TRAVEL

Virtual reality employs 3D near-eye displays and pose tracking, which detects the precise pose of head-mounted displays, controllers, and other objects. Virtual has had the meaning of “being something in effect.

The thrill of exploring a new city, or the awe of standing before a historical monument-travelling has always been a gateway to new experiences.

The Rise of Virtual Reality in Travel

VR Technology has advanced rapidly in recent years, moving beyond gaming to find applications in various industries, including travel. With VR headsets becoming more affordable and accessible, companies are creating hyper-realistic experiences that allow users to explore destinations, museums and even outer space from their comfort zone.

Some Examples:

Google Earth VR: It Enables users to “fly” over famous landmarks and cities in 3D.

Travel Agencies: Offering virtual tours of destinations to help customers plan their trips.

As Technology improves, VR Travel may become more interactive. While VR is unlikely to replace traditional travel, it will become a powerful tool for education, planning and accessibility, allowing more people to explore the world in Innovative ways.

Future Trends:

1. AI-Powered avatars as virtual tour guides.
2. More multi-sensory experiences, like VR headsets integrated with smell or temperature adjustments.



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Kavach: Protecting India's Trains with an Invisible Shield

Kavach, meaning "shield" in Sanskrit, is an advanced train protection system developed in India to enhance railway safety. This indigenous technology utilises a combination of GPS, sensors, and communication systems to monitor train movements and prevent accidents.

Kavach functions as an "automatic guardian," continuously tracking train speed and location. If a train exceeds the speed limit or approaches a red signal, Kavach alerts the driver and can automatically apply the brakes. This system minimises human error, a leading cause of train accidents.

The benefits of Kavach are numerous: increased safety, reduced accidents, improved efficiency, and cost-effectiveness due to its indigenous development.

The future of Kavach lies in continuous improvement. Integration with AI, enhanced communication systems, and wider coverage across the railway network are key areas for future development.

Kavach is a testament to India's technological prowess and a crucial step towards making Indian Railways safer and more efficient for millions of passengers and freight journeys.



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Personalised Learning: One-on-one tuition

Personalized Learning: Revolutionizing Education for the 21st Century

In today's rapidly changing educational landscape, the traditional "one-size-fits-all" approach is increasingly insufficient. Personalised learning, an innovative paradigm, tailors education to the unique needs, interests, and learning styles of each student. Through technology, data, and flexible teaching methods, it aims to help every student reach their full potential.

What is Personalized Learning?

Personalised learning empowers students to take ownership of their education by adjusting content, pacing, and instruction based on individual needs. This approach considers each student's strengths, weaknesses, and interests, providing a tailored learning experience that fosters engagement, motivation, and improved outcomes.

Key Features of Personalized Learning

1. **Student-Centred Approach:** Teachers use data to understand students' strengths and areas for improvement, adjusting their methods accordingly. Students also set personal learning goals, fostering a sense of ownership.
2. **Flexible Learning Paths:** Students can progress at their own pace, receiving additional support when needed or advancing faster if they grasp concepts quickly.
3. **Technology Integration:** Digital tools provide real-time feedback and resources like videos and simulations to enhance learning.
4. **Differentiated Instruction:** Teachers adapt to diverse learning styles, using various techniques to reach all students.
5. **Continuous Assessment:** Ongoing assessments provide real-time feedback, allowing students to adjust their learning strategies.

Advantages of Personalized Learning:

Personalised learning boosts student engagement, improves academic results, fosters critical thinking, and supports diverse learners, including those with disabilities or language barriers. However, it requires substantial resources, teacher training, and equitable access to technology.



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Future of Personalized Learning:

As technology advances, personalised learning promises more tailored, immersive experiences through AI and virtual reality. Ultimately, it has the potential to make education more inclusive, relevant, and effective, preparing students for a dynamic future.

LATEST INNOVATIONS IN THE IPR AND AI FIELD

In the ever-evolving landscape of innovation, the intersection of technology and creativity continually challenges our traditional understanding of ownership and rights. As artificial intelligence systems begin to generate content that rivals human creativity, and blockchain technology offers new methods for securing digital assets, the realm of Intellectual Property Rights stands at a pivotal crossroads. These advancements not only redefine the boundaries of creation but also compel us to rethink the legal frameworks that protect and incentivise innovation.

Generative AI Copyright Disclosure Act of 2024

The Act has ignited discussions in both tech and legal circles. While it fosters trust and fairness, critics argue that it might slow down AI development by imposing stringent requirements. It also provides a foundation for ethical AI practices and encourages collaboration between technology innovators and the creative industry.

Microsoft's Call for Copyright Law Reforms

Microsoft envisions a world where AI thrives without compromising the rights of individuals whose creative works form the backbone of these technologies. This call for reform highlights the urgent need for global policymakers to ensure that innovation continues to flourish while honouring the value of intellectual property.



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LiDAR: An Overview of its Applications in Autonomous Driving

Millions of people die every day in traffic accidents every year, and even more, are injured, hence affecting the economy, society and infrastructure of a country. Various surveys suggest that the most common causes of car accidents are related to speeding, driving under the influence of alcohol or drugs, reckless driving, distraction, or just plain misjudgement.

Automated driving rules out the driver from the equation, hence helping reduce these accidents.

One such technology used is LiDAR [Light Detection and Ranging], which uses laser pulses to create a 3D map.

The LiDAR sensors first emit rapid laser pulses which are invisible to the human eye, which reflect back to the sensor on encountering an object. The LiDAR system keeps count of the time, and then the distance of the object is counted using the speed of light and the time. By emitting laser beams in a sweeping motion, the LiDAR system forms a 3D map of the surroundings. Advanced algorithms analyse the point cloud to identify and classify objects within the environment. This information is crucial for the autonomous vehicle's navigation and decision-making processes.

Several car companies like Waymo, Tesla and Cruise have embraced LiDAR technology for their autonomous vehicle development programs.



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Latest Innovation in Agriculture Technologies

The agricultural sector is undergoing a transformative shift due to the cutting-edge innovations aimed at increasing efficiency, sustainability and productivity. Precision agriculture is one of the most significant advancements, leveraging GPS, sensors, and drones to collect data on soil health, crop conditions, and weather patterns. This allows the farmers to make informed decisions on the optimal use of resources like water, fertilisers, and pesticides, reducing waste and enhancing crop yields.

Another exciting development is the creation of climate-resilient crops. Through genetic engineering, scientists are developing crops that can withstand extreme weather events such as droughts, floods, and heat waves. Drought-tolerant maize and rice varieties are already being deployed in regions experiencing water scarcity, ensuring consistent food production despite changing climate conditions.

Vertical farming is also gaining ground, particularly in urban settings. By growing crops in stacked layers using hydroponics or aeroponics, vertical farming reduces the need for large plots of land and minimises water usage, all while enabling year-round production in controlled environments.

Also, Artificial Intelligence (AI) has been revolutionising farmers to monitor crops and predict yields. AI-powered systems analyse vast amounts of data, helping farmers make precise, data-driven decisions that boost productivity and sustainability.



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Emerging Trends in Renewable Energy Systems for Sustainable Development

Renewable energy systems are at the forefront of global efforts to achieve sustainable development, offering cleaner, more efficient alternatives to fossil fuels. Recent advancements in solar, wind, and bioenergy technologies have significantly improved energy production capabilities. For instance, solar tracking systems have enhanced photovoltaic panel efficiency by up to 30%, making solar energy a more practical and viable solution. Similarly, cutting-edge wind turbine designs now deliver greater power output at reduced costs, ensuring higher reliability and wider application in modern infrastructure. These advancements are rapidly replacing traditional methods of energy generation.

Microgrids fueled by renewable energy sources are emerging as dependable and flexible solutions, particularly in rural areas and regions vulnerable to natural disasters. The integration of IoT and AI into renewable energy infrastructure has further revolutionised the sector by enabling real-time monitoring, predictive maintenance, demand forecasting, and production optimisation. Smart energy management systems ensure the effective utilisation of resources, reducing wastage and operational costs significantly.

As a lecturer in Electrical Engineering, I am committed to equipping my students with knowledge and skills to innovate in renewable energy technologies, fostering a future workforce capable of addressing global energy challenges. This article explores the pivotal role of renewable energy systems in creating a sustainable, equitable, and resilient future. Education plays a vital role in preparing young minds for advancing this sector.



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Autonomous Vehicles: Revolutionizing Transportation

The world of transportation is on the cusp of a revolution, with Autonomous Vehicles (AVs) leading the charge. Also known as self-driving cars, AVs are vehicles that can operate without human input, using a combination of sensors, GPS, and artificial intelligence to navigate roads and traffic, promising improved safety, increased mobility, and reduced congestion.

AVs have numerous benefits, including:

- **Enhanced Safety:** AVs can detect and respond to hazards more quickly and accurately than human drivers.
- **Increased Mobility:** AVs provide transportation for the elderly, disabled, and those who cannot drive themselves.
- **Reduced Congestion:** AVs optimise traffic flow and reduce congestion by smoothing acceleration and braking.

Companies like Waymo, Tesla, and Cruise are already testing and deploying AVs on public roads. While regulatory frameworks and public acceptance are still evolving, we are still in the early stages of AV development, significant progress has been made in recent years.

Autonomous vehicles have the potential to revolutionise the way we travel, making our roads safer, more efficient, and more accessible. While there are still challenges to overcome, the benefits of AVs make them an exciting and important area of innovation. As the technology continues to evolve, we can expect to see AVs become increasingly common on our roads.



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Education 5.0: Revolutionizing Personalized Learning

Education 5.0 is reshaping the learning landscape, emphasising the integration of cutting-edge technologies to create adaptive and personalised experiences for students. Personalised Learning (PL), a cornerstone of this evolution, tailors educational approaches to meet individual needs. By leveraging Artificial Intelligence (AI), Virtual Reality (VR), and Augmented Reality (AR), Education 5.0 aims to prepare students for a dynamic and technology-driven future.

This article highlights how AI algorithms enhance PL by analysing student performance and offering tailored solutions. The AI-driven model collects data such as attendance, grades, assignments, etc, to identify learning patterns. Using this data, it recommends customised study materials, problem-solving exercises, and areas of focus based on individual strengths and weaknesses. Additionally, it provides insights into potential career paths, helping students make informed decisions.

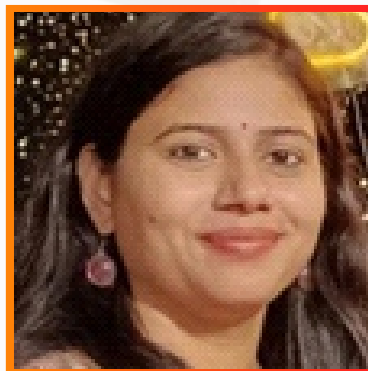
VR and AR further enrich this personalised experience. Virtual environments immerse students in interactive scenarios, fostering hands-on learning across disciplines. AR overlays real-world visuals with digital information, making complex subjects more accessible and engaging. Together, these technologies transform traditional classrooms into dynamic spaces that support creativity, critical thinking, and collaboration.

Education 5.0, powered by AI, VR, and AR, represents a future where learning is deeply individualised, immersive, and future-ready. By embracing these innovations, global education systems can empower students to unlock their full potential while addressing the needs of a rapidly changing world.



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Advances in Online Education

The landscape of education has undergone a revolutionary transformation in recent years, thanks to advancements in online learning. These innovations have redefined accessibility, flexibility, and effectiveness in delivering education globally.

One of the most significant breakthroughs is the development of adaptive learning platforms. These platforms use artificial intelligence to personalise the learning experience, ensuring that students receive tailored content suited to their pace and understanding. Additionally, virtual classrooms and video conferencing tools have bridged geographical gaps, enabling seamless interaction between educators and students.

Another noteworthy advancement is the integration of gamification in online courses. By incorporating elements like rewards and challenges, gamified platforms enhance engagement and motivation among learners. Furthermore, the availability of Massive Open Online Courses (MOOCs) has democratised education, allowing individuals from diverse backgrounds to acquire new skills at minimal cost.

The rise of virtual reality (VR) and augmented reality (AR) technologies has also added an immersive dimension to online education, enabling practical and interactive learning experiences. For instance, medical students can perform virtual surgeries, and engineering students can simulate real-world projects.

These advances in online education continue to break barriers, empowering millions to achieve their academic and professional goals with unprecedented convenience.



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Revolutionising Learning: The Transformative Role of AI in Education

Artificial Intelligence (AI) is reshaping education by transforming traditional classrooms into interactive, personalised learning spaces. By analysing extensive data, AI tailors educational experiences to match the individual needs, pace, and preferences of each learner, enhancing engagement and improving comprehension. AI-driven tools such as intelligent tutoring systems, virtual assistants, and adaptive learning platforms are revolutionising teaching practices. These technologies enable educators to concentrate on fostering creativity and critical thinking while automating routine tasks like grading and administrative duties, increasing efficiency across educational systems. In addition, AI fosters inclusivity by removing barriers for students with disabilities. Tools like speech-to-text, text-to-speech, and AI-based translation technologies make learning accessible to a broader audience, ensuring a more inclusive environment for all. However, the integration of AI in education also presents challenges, including ethical considerations, data privacy concerns, and the risk of widening the digital divide. Addressing these challenges is essential to fully and responsibly leverage AI's potential. As AI continues to advance, it offers the opportunity to democratise education, close learning gaps, and equip students for a future shaped by technology. The synergy between AI and education is not just a passing trend but a transformative force redefining how we learn and teach.



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Innovation in Entrepreneurship

The concept of "entrepreneurship" encompasses much more than just launching a company.

It entails taking chances, having a creative vision, and pursuing opportunities no matter what. By assisting the company in meeting the needs and trends of the market, innovation in entrepreneurship can lead to a number of opportunities.

In entrepreneurship, innovation refers to coming up with a novel solution to issues, developing new goods or services, or improving ones that already exist. Thanks to technology, anything is now feasible.

We can develop online platforms that offer beneficial services to the public, such as local business support platforms, which facilitate client connections for small local firms, particularly in underserved or rural areas.

Personal Finance Management Tools: Create AI-powered financial tools that assist people in making the most of their investments, savings, and expenditures. Elderly Care Tech: create cutting-edge solutions for senior care, like mobility aids, social media apps, and health monitoring systems. Social Entrepreneurship Platforms: create platforms that link social entrepreneurs with investors, resources, or a group of people that share their interests. Since market customer needs and satisfaction are always evolving, it is now imperative for businesses to embrace innovation in entrepreneurship. Businesses seek out novel concepts or products to satisfy their clients in order to thrive in a market.



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