

Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD (now MoE)

Re-accredited with 'A++' Grade by NAAC.CGPA 3.65/4, Category I by UGC

Coimbatore-641 043, Tamil Nadu, India



**Report of the
Eighth Short Term Capacity Building Program
on**

**AI for Engineers: Tools, Techniques, and
Applications**

**Organised
by**

**AIU – Avinashilingam Institute – Academic and
Administrative Development Centre (AIU-AI-AADC)**

14.10.2024 - 18.10.2024

Mode : Online

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Eighth Short Term Capacity Building Program on

AI for Engineers: Tools, Techniques, and Applications

PROGRAMME COORDINATORS

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AIU-AI-AADC

Eighth Short-Term Capacity Building Programme on
‘ AI for Engineers: Tools, Techniques, and Applications ’
14.10.2024 to 18.10.2024 (5 Days) - Online Mode

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Report of the Eighth Short Term Capacity Building Program on AI for Engineers: Tools, Techniques, and Applications.

Jointly organised by
AIU – Avinashilingam Institute – Academic and Administrative
Development Centre (AIU-AI-AADC)
&
School of Engineering
&
Centre for Machine Learning and Intelligence (CMLI)

14.10.2024 to 18.10.2024

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Report on Eighth Short Term Capacity Building Programme on AI for Engineers: Tools, Techniques, and Applications.

The Avinashilingam Institute – Academic & Administrative Development Centre (AIU-AI-AADC), in collaboration with the School of Engineering and the Centre for Machine Learning and Intelligence, successfully organized the Eighth Short-Term Capacity Building Programme of 2024, titled *AI for Engineers: Tools, Techniques, and Applications*. Conducted online from 14th to 18th October 2024, the program aimed to explore the fundamentals and relevance of Artificial Intelligence (AI), understand its various applications in engineering and development, and facilitate its integration into research projects and teaching curricula. The sessions featured eminent speakers from across India, who provided participants with valuable insights and practical knowledge.

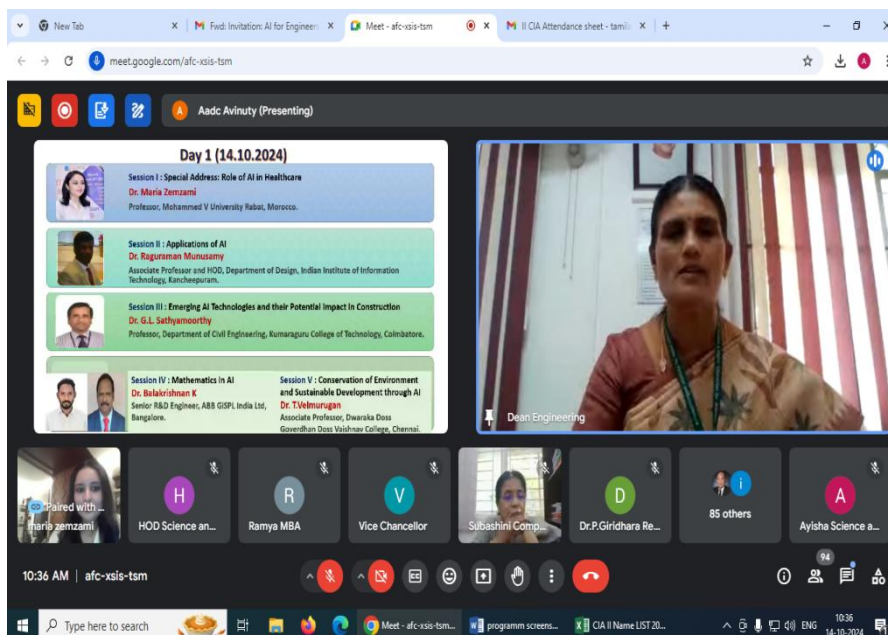
DAY 1: (14.10.2024 /Session I)

The inaugural session on Role of AI in health care started with prayer song and Dr.Ramya, Nodal Officer of the Academic and Administrative Development Centre at Avinashilingam Institute, welcomed the gathering.

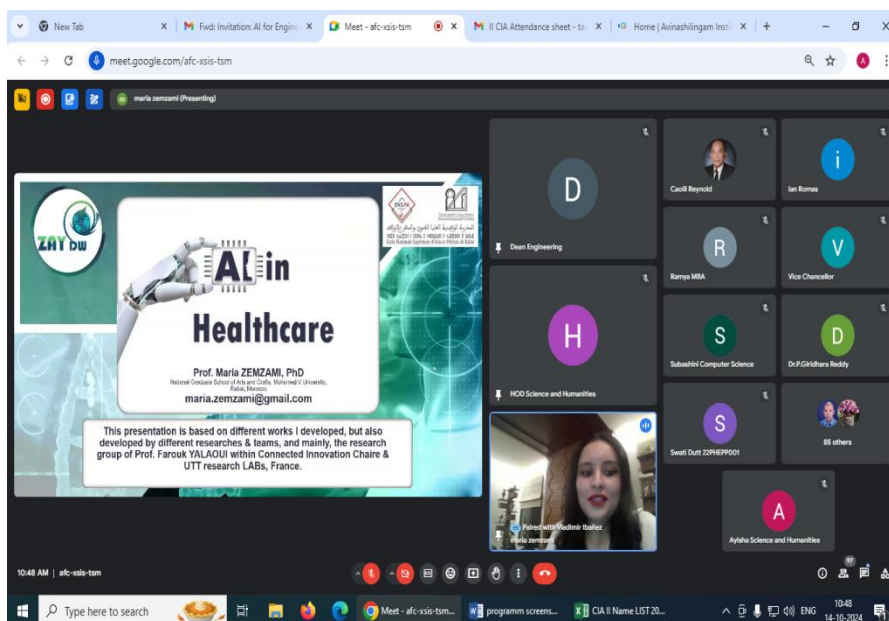


It was followed by the Presidential address delivered by Dr.V.Bharathi Harishankar, Vice- Chancellor, Avinashilingam Institute for Home Science and Higher Education for Women. During her presidential address,

she insisted the participants to understand the contextual usage of AI and to strategize and apply AI to the local realities. She added that the AI and human intelligence will end up while choosing the right option. After the presidential address, Dr. B.Sargunam, Dean, School of Engineering briefed the contents of the five-day capacity building programme.

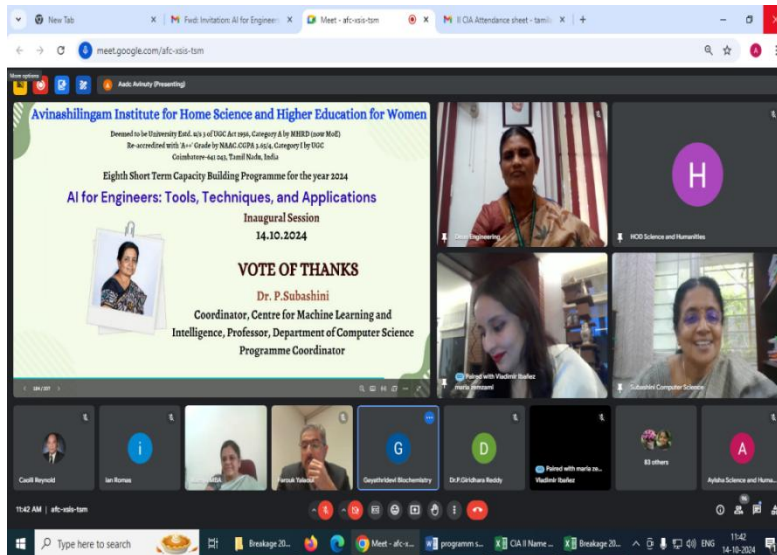


Dr.D.Sumitha, Associate Professor of Mathematics, School of Engineering introduced the chief guest Dr. Maria Zenzami, Professor, Mohammed V University, Rabat, Morocco to the forum.



Dr. Maria Zenzami, Professor, Mohammed V University, Rabat, Morocco inaugurated the session through virtual mode and narrated the significant role of AI in Healthcare. During her inaugural address, she has started to explain the four main types of AI: reactive, limited memory, theory of mind and conscious of AI. Then she

insisted the use of advanced technologies to restructure existing products and services and to support the speeds up operational efficiency and enterprise-wide growth in the Industry X.0- (4.0). The speaker shared the importance of the system interconnections along with the nine pillars of the industry 4.0. The speaker rightly pointed the importance of AI in Health care to save time/ efficiency, shortage of clinicians, improper patient outcome, Bio-data generation and robust algorithms etc. and the advantages and disadvantages. Finally, She explained the practical challenges related to data structures, real-time control, and the evolution of decision-making in the case of Smart EMR NG. The session came to an end with the vote of thanks proposed by Dr. P.



Subashini, Coordinator of the Centre for Machine Learning and Intelligence and Professor of Computer Science.

DAY 1: (14.10.2024 /Session II)

The second session on “Applications of AI” was handled by Dr. Raguraman Munusamy, Associate Professor and Head, Department of Design at the Indian Institute of Information Technology, Kancheepuram.



The session highlighted the diverse applications of Artificial Intelligence (AI) across various engineering disciplines, including healthcare, manufacturing, aerospace, and agriculture. Dr. Munusamy showcased videos demonstrating the transformative potential of AI and its profound impact on multiple sectors. He concluded the session by discussing the future of AI, emphasizing its vast potential to revolutionize industries. He predicted that AI would continue to evolve, becoming deeply integrated into everyday operations across sectors. He underscored the importance of engineers, healthcare professionals, and other industry experts staying informed and adapting to AI-driven advancements, as this technology shapes the future. The lecture offered valuable insights into both the current and emerging applications of AI, leaving participants with a deeper understanding of its significance and the opportunities it presents.

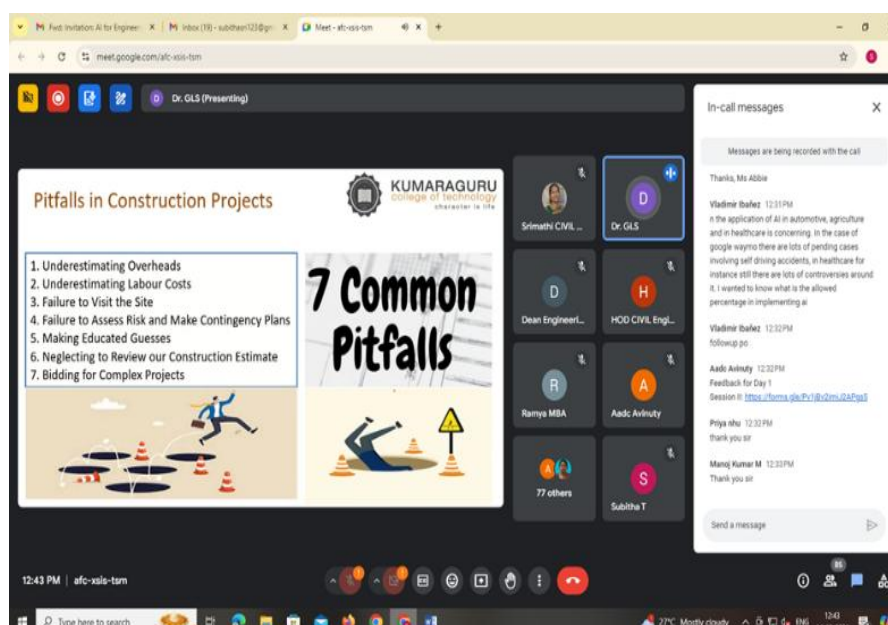
Key Takeaways from the Session:

- AI's growing role in engineering.
- Applications of AI in automobiles, healthcare, and its impact on manufacturing.
- AI in aerospace and its future potential.

DAY 1: (14.10.2024 /Session III)

The third session, titled *"Emerging AI Technologies and Their Potential Impact in Construction,"* was delivered by Dr. G.L. Sathyamoorthy, Professor in the Department of Civil Engineering at Kumaraguru College of Technology, Coimbatore. Dr. Sathyamoorthy provided a comprehensive overview of the transformative role of AI in the construction industry. He elaborated on how AI is being leveraged to optimize various phases of construction, such as design, project management, and safety monitoring.

The speaker highlighted that AI-powered systems are revolutionizing the industry by enabling the creation of more efficient building designs, automating repetitive tasks, and enhancing real-time, on-site decision-making. At the same time, Dr. Sathyamoorthy addressed the challenges associated with AI adoption in the sector. These include the high initial implementation costs, a shortage of skilled professionals to manage AI technologies, and concerns surrounding data privacy.



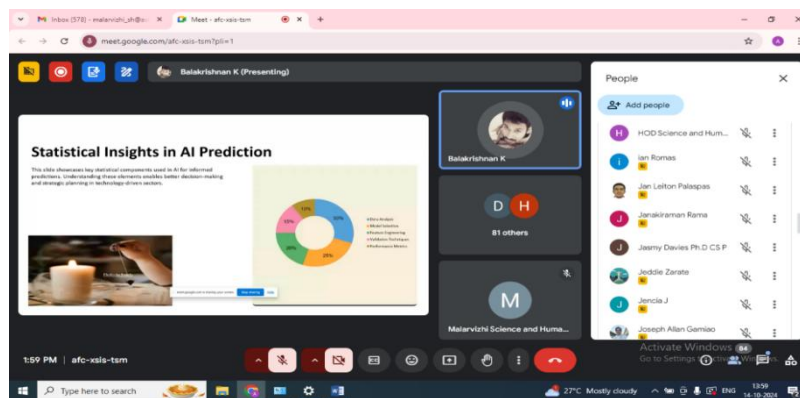
Despite these challenges, Dr. Sathyamoorthy underscored the immense potential of AI to revolutionize the construction sector. He highlighted its ability to enable smarter project execution, lower costs, enhance safety measures, and improve overall efficiency in future construction projects.

Key Takeaways from the Session:

- The transformative potential of AI and its key applications.
- Efficiency and safety benefits driven by AI adoption.
- Challenges to adoption and the broader impact of AI on the construction industry.

DAY 1: (14.10.2024 /Session IV)

The fourth session, titled “**Mathematics in AI,**” was delivered by Dr. K. Balakrishnan, Senior Engineer, R&D, ABB GiSPL, Bangalore. He shared his valuable insights on how mathematics drives innovation in artificial intelligence.



Dr. Balakrishnan began by tracing the origins of AI to its inception in 1956, followed by the evolution of algorithms, the emergence of neural networks, and advancements in machine learning and deep learning. He highlighted the pivotal role of **linear algebra** in artificial intelligence, particularly its applications in developing machine learning models and algorithms for efficient data processing.

He further elaborated on the contribution of **calculus** in enhancing algorithms and improving the efficiency of AI systems. The session also underscored the importance of a strong understanding of statistical components, which fosters better decision-making and strategic planning in technology-driven domains.

Graph theory was discussed as a tool for analyzing complex relationships and patterns, thereby improving predictive models used in applications such as social network analysis and recommendation systems. Dr. Balakrishnan also explained **Bayesian inference** and its mathematical foundation for probabilistic reasoning, which enhances decision-making through data-driven insights across various fields.

In addition, he delved into key mathematical concepts underlying reinforcement learning (RL) and emphasized that understanding these principles is essential for implementing effective RL algorithms and optimizing outcomes. The session concluded with a detailed exploration of the intersection of mathematics, AI, and other disciplines.

Key Takeaways from the Session:

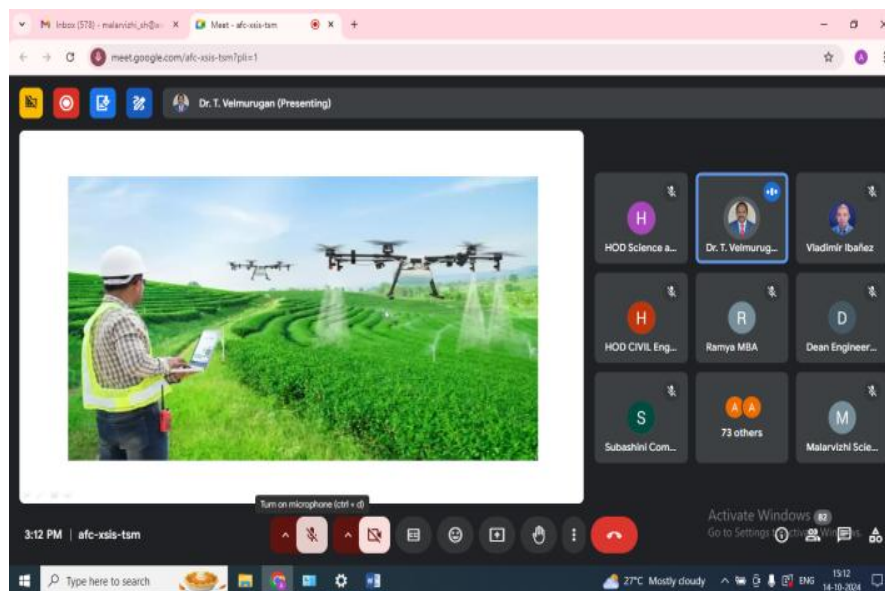
- Role of Mathematics in AI Innovation
- Significance of Statistical Components in Decision-Making
- Implementing and Optimizing Reinforcement Learning Algorithms

DAY 1: (14.10.2024 /Session V)

The fifth session, titled “Conservation of Environment and Sustainable Development through AI,” was led by Dr. T. Velmurugan, Associate Professor in the PG and Research Department of Computer Science and Applications at Dwaraka Doss Goverdhan Doss Vaishnav College, Chennai.

Dr. Velmurugan emphasized the transformative role of AI in advancing environmental sustainability. He discussed how AI can optimize energy efficiency, manage renewable energy systems, enhance smart grids, support agricultural sustainability, and improve waste and water management. Additionally, he highlighted AI's potential in mitigating climate change, preserving biodiversity, and aiding conservation efforts.

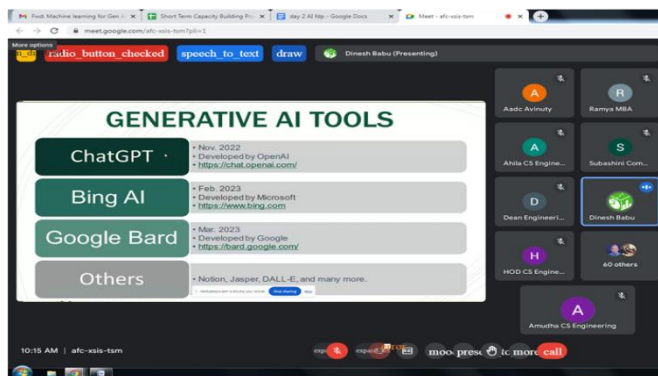
The session concluded with a compelling message on AI's capacity not only to drive environmental sustainability but also to shape a more balanced and resilient future.



Key Takeaways from the Session:

- Practical Applications of AI in Sustainability
- Climate Modeling and Prediction
- Efficient Utilization of Renewable Energy

DAY 2: (15.10.2024 /Session I)



On the second day, the first session was conducted by **Mr. R. Dinesh Babu**, Managing Director of Brainswig Edutech Pvt. Ltd., Chennai, on the topic “*Fundamentals of Generative AI and Responsible Generative AI.*” He began by defining the basic concept of Generative AI, highlighting its economic potential, benefits, and practical applications.

Mr. Dinesh Babu explained in detail the steps involved in how Generative AI functions, using a real-time example to enhance understanding. He further elaborated on the capabilities, limitations, and ethical considerations of Generative AI, emphasizing its responsible use, particularly in classroom environments. Additionally, he introduced popular Generative AI tools such as **ChatGPT, Bing AI, and Google Bard**, offering insights into their functionalities.

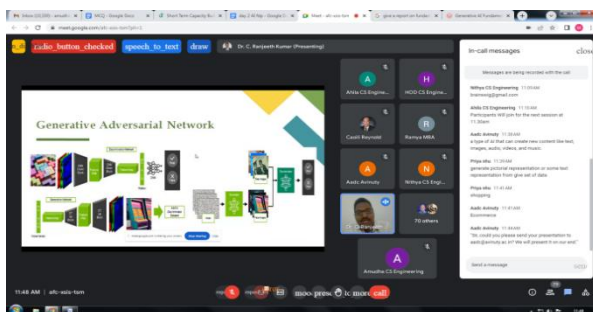
He provided a comprehensive explanation of the working process of ChatGPT, strategies for building responsible Generative AI systems, and best practices for using AI responsibly within organizations. His presentation also covered the implementation of Generative AI with **Large Language Models (LLMs)** and the critical role of **Natural Language Processing (NLP)** in AI applications.

As a practical demonstration, Mr. Dinesh Babu showcased the use of **Power BI** to create interactive dashboards. He demonstrated how prompts can be used to visualize data, presenting an example of sales distribution across countries.

Key Takeaways from the Session:

- Fundamentals of Generative AI and Responsible Generative AI
- Overview of Generative AI tools and their limitations
- Practical demonstration of handling input data using tools like Power BI

DAY 2: (15.10.2024 /Session II)



Dr. C. Ranjeeth Kumar, Professor, Department of CSE, Ashoka Women’s Engineering College, Kurnool, Andhra Pradesh, conducted the second session on “Machine Learning for Generative AI (GenAI).”

During his presentation, he provided an overview of GenAI, emphasizing its ability to generate new content in various forms, including text, images, audio, and code. He discussed the practical applications of GenAI, such as chatbots and virtual assistants, and elaborated on the process of training machine learning models for GenAI using supervised learning, unsupervised learning, and reinforcement learning, supported by illustrative examples.

Dr. Ranjeeth Kumar also highlighted the distinctions between GPT and ChatGPT, along with the different versions of ChatGPT. He delved into the two primary components of GenAI:

1. Multi-head attention, which enables models to capture complex relationships and produce accurate and meaningful outputs such as text, images, or other content, and
2. Self-attention mechanisms, which enhance the model's ability to focus on key elements within the input data, improving both accuracy and coherence.

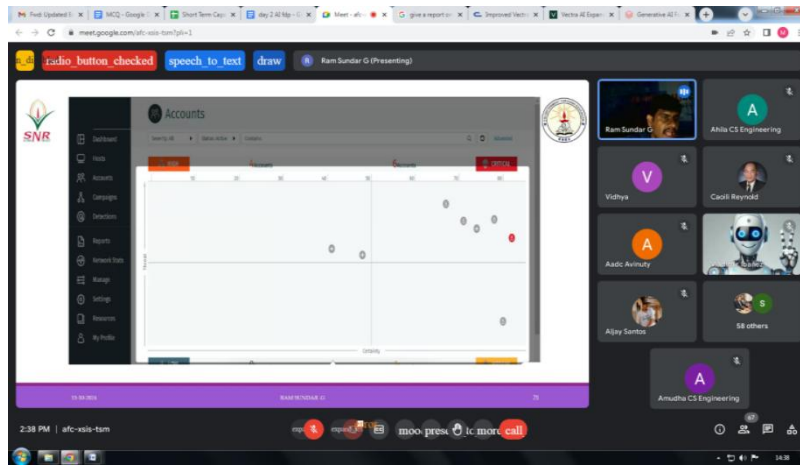
The session concluded with an insightful discussion on the energy consumption, ethical considerations, and key challenges associated with the implementation of GenAI.

Key Takeaways:

- Machine Learning for GenAI
- Comparison of training data types and their quality
- Key components of GenAI: Multi-head attention

DAY 2: (15.10.2024 /Session III)

The third session, titled *Generative AI – Cyber Security*, was led by Dr. G. Ramsundar, Assistant Professor (Sl.Gr.), Department of Information Technology, Sri Ramakrishna Engineering College, Coimbatore.



Dr. Ramsundar provided an in-depth explanation of cutting-edge AI tools, focusing on **Microsoft Copilot** and the **Vectra AI platform**, which introduces advanced threat detection and response capabilities to address generative AI threats. He detailed the operational steps of Vectra AI, including data collection, AI-driven analysis, real-time threat detection, and priority setting.

Highlighting its growing adoption, Dr. Ramsundar noted that over 40% of Vectra AI's identity clients have integrated Microsoft Copilot for M365 into their operations. He elaborated on how the Vectra AI platform supports Security Operation Centers (SOC) in safeguarding identities and preventing attackers from exploiting generative AI tools.

The session also shed light on the distinctions between Vectra AI and traditional security solutions. Dr. Ramsundar presented two key components of the Vectra Cognito platform—**Cognito Recall** and **Cognito Detect**—which play a vital role in post-event investigations and forensics. He emphasized how senior security analysts can utilize Cognito Recall to retrospectively identify threats using high-quality threat intelligence derived from third-party security alerts.

Additionally, he discussed the benefits of Vectra AI, including its speed, accuracy, scalability, and efficiency. A demonstration of the **Darktrace tool** followed, showcasing its significance in cybersecurity. Dr. Ramsundar demonstrated how network administrators could access comprehensive device protection insights through a single dashboard.

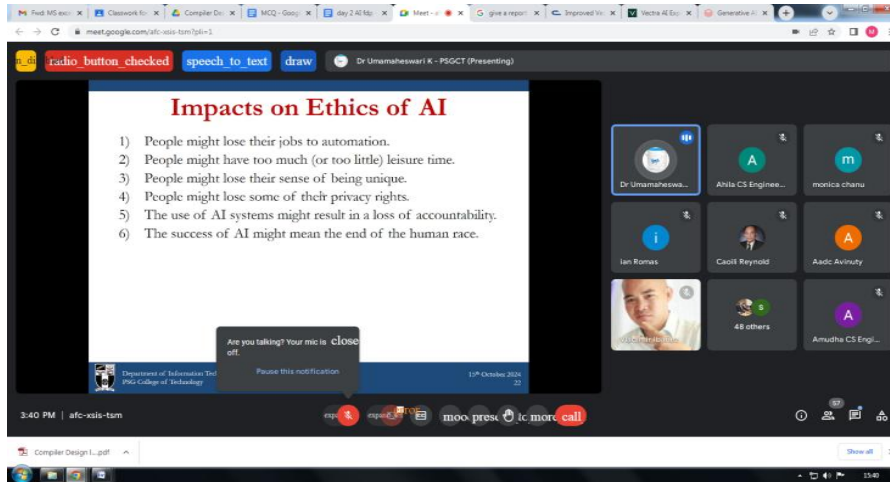
The session concluded with a compelling real-time case study on leveraging Vectra AI to combat ransomware within a business setting.

Key Takeaways:

- AI Tools: Microsoft Copilot

- Differences between Vectra AI and traditional security solutions
- Darktrace tool and its significance

DAY 2: (15.10.2024 /Session IV)



The fourth session, titled *Ethical Considerations in GenAI*, was conducted by Dr. K. Uma Maheswari, Professor & Head of Information Technology, PSG College of Technology, Coimbatore.

Dr. Uma Maheswari provided an insightful overview of Generative AI models, including **OpenAI**, **Google Gemini**, and various versions of **ChatGPT**, while also addressing their limitations. She emphasized the **principles of AI ethics**, the significance of ethical decision-making in AI, and the associated risks and challenges.

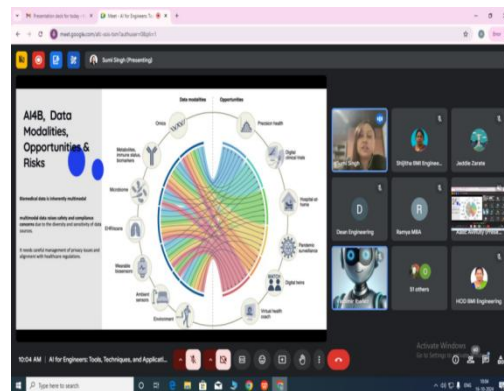
The session highlighted best practices for using GenAI responsibly and explored its applications across different scenarios, underscoring the ethical guidelines that must be followed. Dr. Uma Maheswari delved into critical topics such as **robotics legislation**, **safety considerations**, and the ethical risks associated with technological advancements. She also elaborated on the various forms of ethics in computer science and technology.

Additionally, she addressed the societal impacts of automation, particularly focusing on **employment displacement** and **privacy concerns**, offering a well-rounded perspective on the ethical dilemmas posed by GenAI.

Key Takeaways:

- Ethical considerations in Generative AI
- Impacts of AI on ethics and society

DAY 3: (16.10.2024 /Session I)

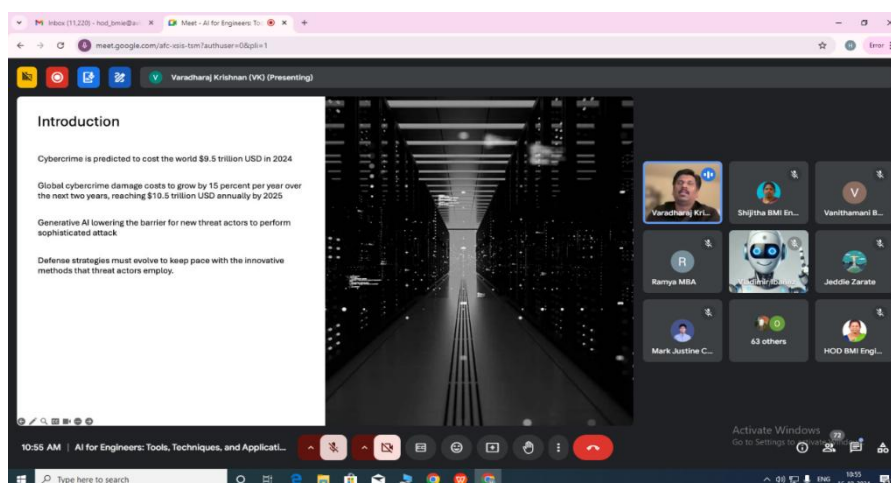


The third day commenced with a session led by Dr. Sumi Singh, Founder and Principal of Generative AI Labs, USA, which focused on designing machine learning systems for biomedical applications. Dr. Singh highlighted the importance of balancing innovation with safety and regulatory compliance. She discussed how to responsibly integrate AI into healthcare systems, ensuring technological advancements are paired with robust ethical and regulatory frameworks. The session concluded with an emphasis on AI's transformative potential in the biomedical field, particularly in research, diagnostics, and patient care. Dr. Singh also stressed the need for continuous monitoring and ethical considerations, including bias mitigation and user privacy protection, in AI deployment. This balanced approach between innovation and regulatory adherence is vital to integrating AI into healthcare systems while enhancing outcomes and preserving patient trust.

Takeaways from the session:

- Practical guidelines for designing AI systems that meet safety standards.
- Exploration of diverse AI applications in healthcare.

DAY 3: (16.10.2024 /Session II)



The second

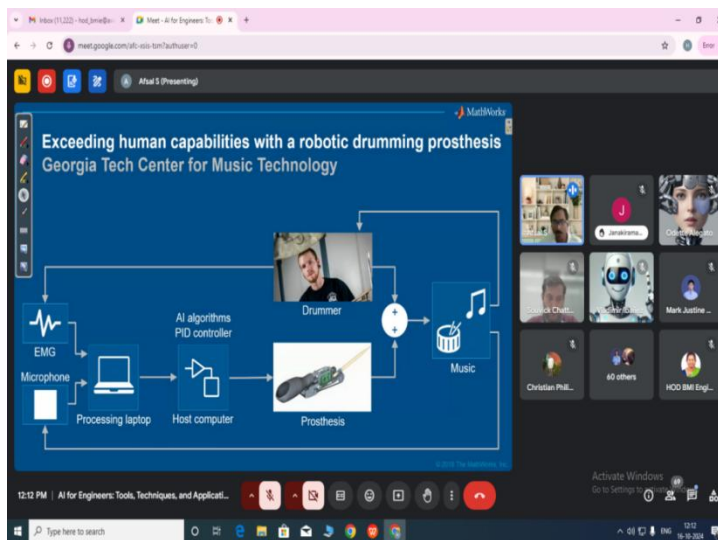
session, led by Mr.

Varadharaj Krishnan, an Independent Researcher from Washington, USA, delved into the integration of Generative AI and Cybersecurity. The discussion provided a comprehensive analysis of the opportunities generative AI brings to cybersecurity, along with the increasing risks it introduces. With the rapid advancement of AI-driven cyber threats, Mr. Krishnan emphasized AI's dual role: as both a potent tool for strengthening cybersecurity and a prime target for cybercriminals. He concluded by asserting that integrating generative AI into cybersecurity is no longer optional but essential in the face of evolving threats. Organizations that embrace these technologies will not only bolster their security frameworks but also enhance their ability to proactively counter emerging cyber risks.

Key Takeaways from the Session:

- Understanding how organizations can harness AI to strengthen their cybersecurity.
- Strategies for enhancing defenses and safeguarding against AI-driven cyber-attacks.

DAY 3: (16.10.2024 /Session III)



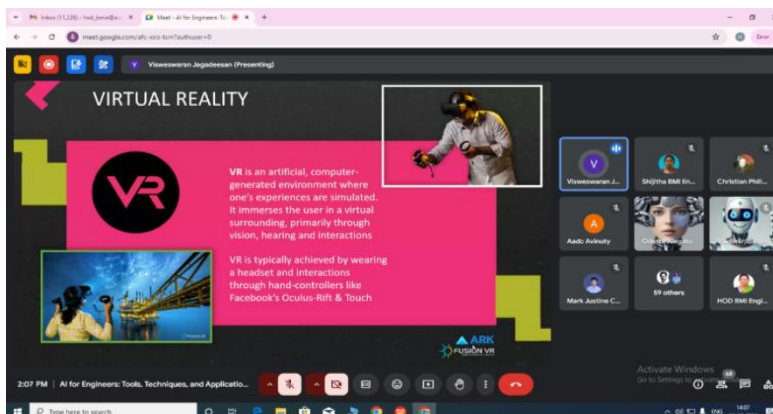
This session highlighted the powerful capabilities of MATLAB in developing AI applications, with a particular focus on biomedical engineering. Participants gained a comprehensive understanding of how MATLAB's AI tools are leveraged for biomedical signal processing, data simulation, model training, and system deployment, especially within the medical and healthcare sectors.

The session emphasized MATLAB's robust support for biomedical engineering applications, offering a full spectrum of tools that span the entire AI pipeline, from data preparation to deployment. With its capabilities in machine learning and deep learning, MATLAB proves to be an invaluable asset for tackling complex challenges in both academic research and industrial settings.

Key Takeaways from the Session:

1. Practical knowledge of implementing AI applications in healthcare using MATLAB.
2. Understanding how MATLAB's AI tools can address complex biomedical engineering challenges, from data processing to system deployment.

DAY 3: (16.10.2024 /Session IV)

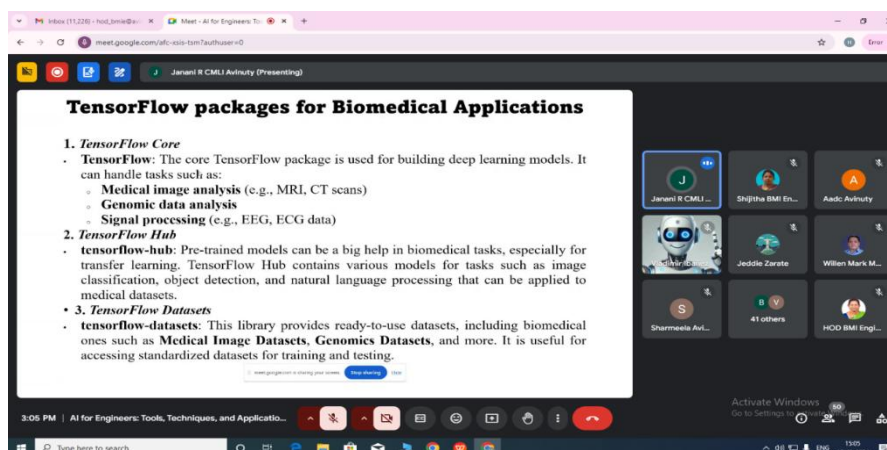


In this session, Mr. Visweswaran J. introduced the rapidly advancing fields of Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR), collectively referred to as Immersive Technologies. He discussed their growing integration across diverse industries, emphasizing their transformative potential in fields such as biomedical engineering and education. The session also highlighted the relevance of Industry 4.0 technologies and the pivotal role immersive technologies play in reshaping professional environments. Mr. Visweswaran showcased how immersive technologies, including VR, AR, MR, and XR, are revolutionizing industries by providing interactive, engaging, and immersive experiences. These technologies enable professionals and students to visualize complex processes and engage with digital content in innovative ways.

Key Takeaways from the Session:

- Application of immersive technologies in complex biomedical signal processing workflows and AI model training.
- Practical use of MATLAB's AI tools in biomedical engineering scenarios.

DAY 3: (16.10.2024 /Session V)



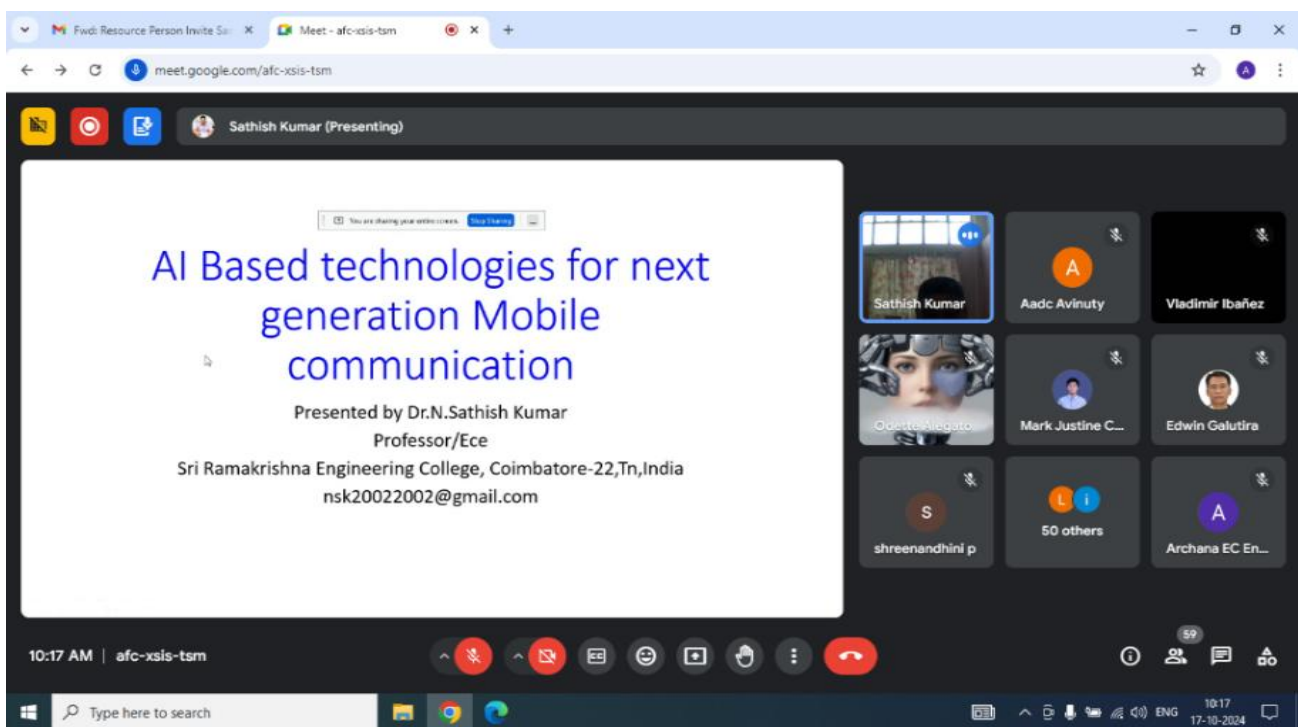
In this session, Ms. Janani delved into the use of open-source AI tools in the biomedical field, with a particular focus on how platforms like TensorFlow can be leveraged to address complex biomedical challenges. She discussed the advantages of open-source tools, highlighted the challenges faced by researchers, and provided practical insights into implementing these tools across a range of biomedical applications.

The session emphasized how open-source AI tools, especially TensorFlow, can be applied effectively to biomedical domains, from medical imaging to genomics. These tools provide scalable and adaptable solutions to tackle intricate problems, empowering researchers and healthcare professionals to develop cutting-edge AI models that drive progress in medical research and healthcare. Key features such as automatic differentiation, TPU support, and cross-platform deployment enable the creation of powerful models.

Key takeaways from the session:

- In-depth exploration of open-source AI tools
- Practical guidance on integrating these technologies into various biomedical fields

DAY 4: (16.10.2024 /Session I)



The session began with a brief introduction of the guest, Dr. N. Sathish Kumar, Professor, Department of ECE, Sri Ramakrishna Engineering College, Coimbatore. The first session, titled “*AI-Based Technologies for Next-Generation Mobile Communication,*” focused on the role of AI in the communication domain. Dr. Sathish Kumar provided an overview of mobile communication networks and discussed the penetration of AI across various sectors within this field. He highlighted that future research areas in next-generation mobile

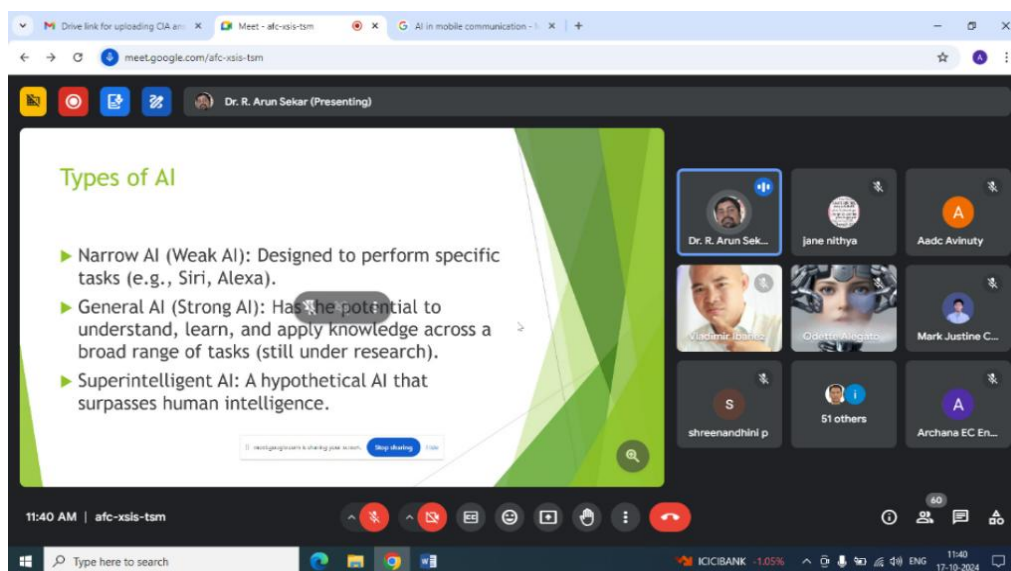
communication will include Terahertz communication, Photonics, and Visible communication, with AI-enabled 6G technology poised to revolutionize the communication landscape.

The key topics covered during the session included AI in network optimization and management, fault prediction within networks, resource utilization, and telecom maintenance. Dr. Sathish Kumar also explained the application of AI algorithms and models in communication systems, concluding with a discussion on AI's transformative potential and the need for thoughtful development to enhance network systems. The session was followed by an engaging discussion with participants.

Key Takeaways from the Session:

- AI will dominate future communication channels.
- Detailed insights into AI and IoT integration in wireless data communication systems.

DAY 4: (16.10.2024 /Session II)

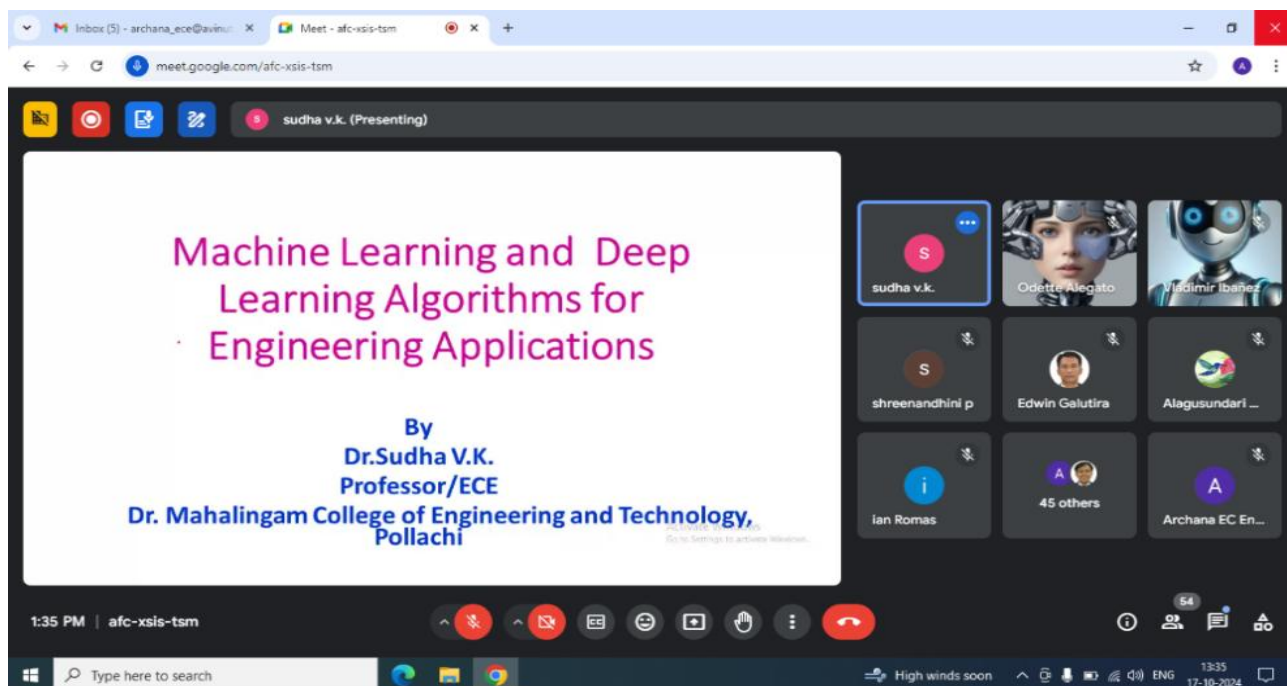


Dr. Arun Sekar Rajasekaran began the session by exploring the different types of Artificial Intelligence (AI) and its key components. The discussion then shifted to Blockchain technology, where the speaker covered its history, architecture, and overall block diagram in detail. Real-time Blockchain platforms and the potential applications that can be developed using them were highlighted. The integration of AI with Blockchain was examined, with emphasis on how it can enhance data security, improve efficiency, boost data analytics, support data integration, and prevent fraudulent transactions. The session concluded with a discussion on the real-world applications of AI-Blockchain integration and the future trends and potential development areas in this domain.

Key Takeaways from the Session:

- AI integration with Blockchain enhances data security.
- Future trends and potential development areas of AI-Blockchain integration were discussed.

DAY 4: (16.10.2024 /Session III& Session IV)



The third and fourth sessions were conducted by Dr. Sudha V.K., Professor, Department of ECE, Dr. Mahalingam College of Engineering and Technology, Coimbatore. The topic of the sessions was "Deep Learning and Machine Learning Algorithms for Engineering Applications."

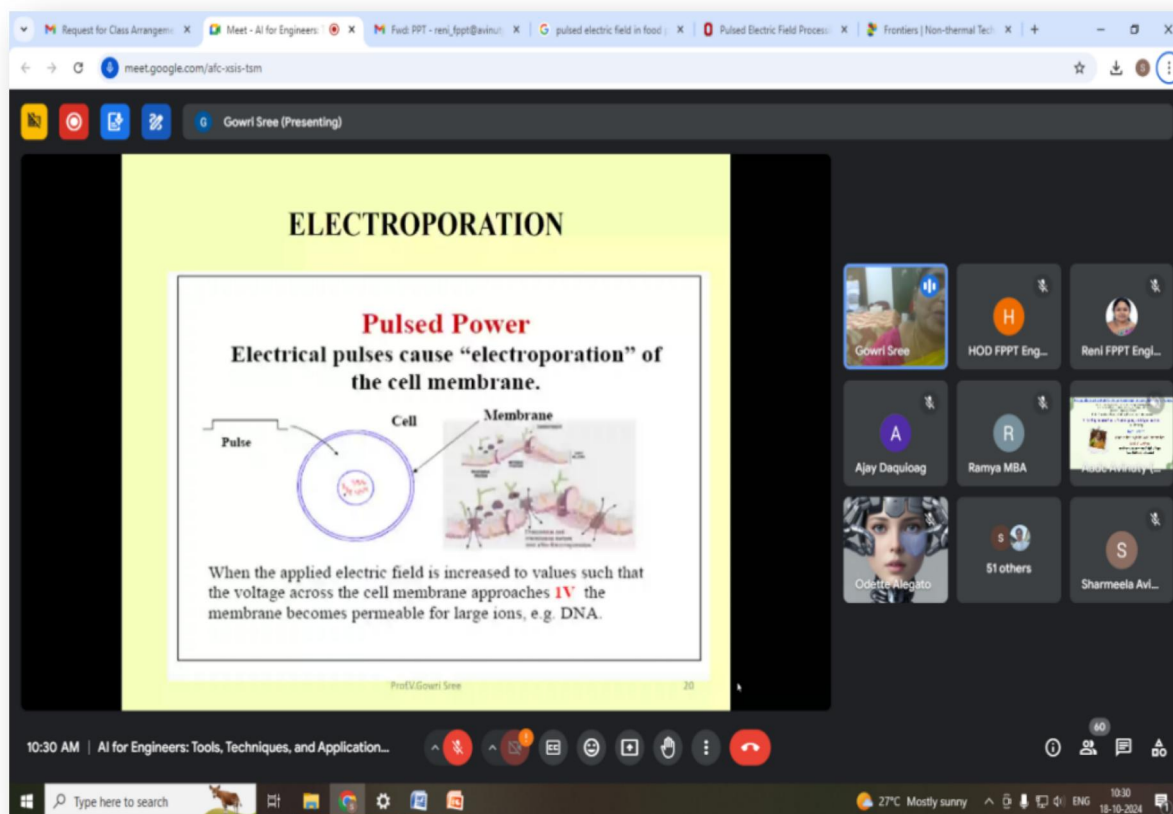
Dr. Sudha began by introducing the fundamentals of Machine Learning and Deep Learning, emphasizing their key differences. She provided a clear and concise presentation on the various categories and classifications within Machine Learning, followed by an in-depth exploration of methods such as classification, regression, and clustering. She then proceeded to outline the Machine Learning workflow and demonstrated its wide-ranging applications using algorithms like linear regression, logistic regression, KNN, and SVM.

The latter part of the session focused on Artificial Neural Networks and Deep Learning algorithms. Dr. Sudha explained the operation of a single neuron and provided insights into various activation functions, including ReLU, Sigmoid, and others. The session also covered neural network models such as the perceptron and multi-layer perceptron.

Key Takeaways from the Session:

- Introduction to the fundamentals of Machine Learning and Deep Learning.
- In-depth analysis of Artificial Neural Networks and Deep Learning algorithms.

DAY 5: (18.10.2024 /Session I)



The screenshot shows a Google Meet window with a presentation slide titled "ELECTROPORATION". The slide content is as follows:

ELECTROPORATION

Pulsed Power
Electrical pulses cause “electroporation” of the cell membrane.

Cell Membrane

When the applied electric field is increased to values such that the voltage across the cell membrane approaches **1V** the membrane becomes permeable for large ions, e.g. DNA.

The slide includes a diagram of a cell with a pulse being applied to its membrane, and a microscopic image of a cell membrane showing the process of electroporation.

The Meet interface shows the presenter, Gowri Sree, and a grid of other participants including HOD FPPT Eng..., Reni FPPT Eng..., Ajay Daquilog, Ramya MBA, Coeditor Negato, and 51 others. The meeting title is "AI for Engineers: Tools, Techniques, and Application...". The time is 10:30 AM and the date is 18-10-2024.

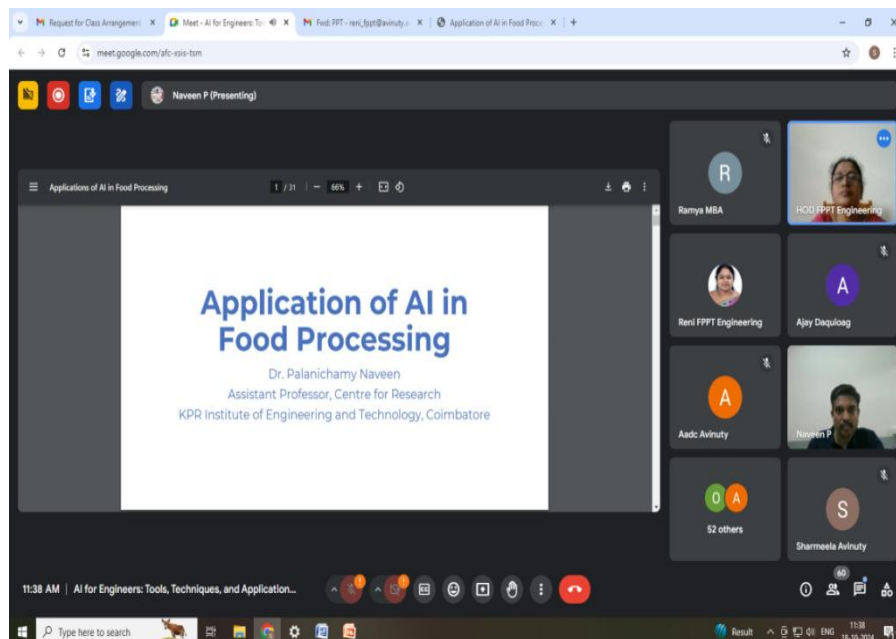
The first session of the fifth day was on “Novel Technologies in Food Preservation,” presented by Dr. V. Gowri Sree, Professor in the Division of High Voltage Engineering, Department of Electrical and Electronics Engineering, College of Engineering, Anna University, Chennai.

Dr. Gowri Sree began by discussing the importance of food quality, which is a critical concern in the food preservation process. He then introduced Pulsed Electric Field (PEF) processing, a novel food pasteurization technique that uses short bursts of high-voltage electric fields to achieve microbial inactivation or modification of food structure. PEF processing involves applying high voltage pulses (20–80 kV/cm) lasting milliseconds to microseconds to liquid foods placed between two electrodes. The electric field may be applied using various pulse types—exponentially decaying, square wave, bipolar, or oscillatory pulses—at ambient, sub-ambient, or slightly elevated temperatures. The pulses are applied at high repetition rates (up to 3,000 pulses per second) to ensure the entire food sample is treated.

Key takeaways from the session:

- Overview of food processing and preservation technologies.
- Advantages and disadvantages of PEF processing.

DAY 5: (18.10.2024 /Session II)



Dr. Naveen highlighted how Artificial Intelligence (AI) is revolutionizing various industries, and the food sector is no exception. AI is transforming the food industry by enhancing efficiency, creativity, and sustainability. It is a game-changer, improving customer service and food safety.

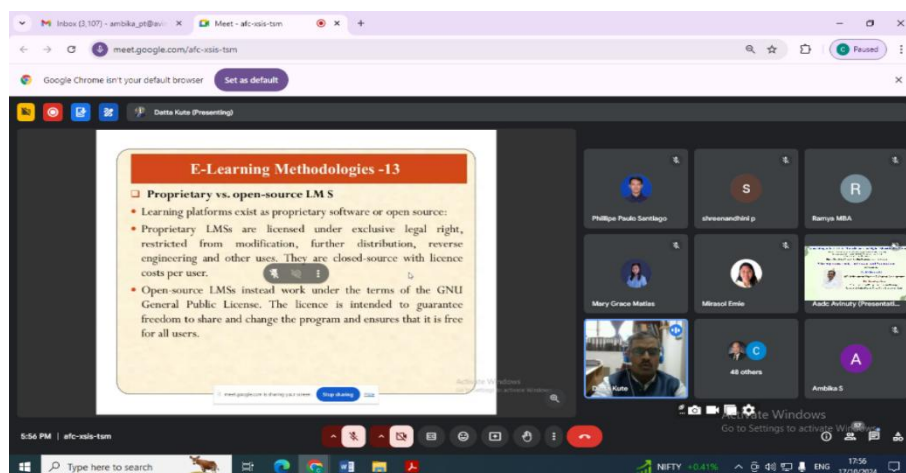
The speaker discussed various AI applications within the food industry, such as food production automation through robotics, which boosts efficiency, precision, and safety. AI helps streamline operations, increase productivity, improve product quality, and reduce labor costs. He also emphasized the importance of proper training to fully leverage these advancements.

Dr. Naveen explained how AI is shaping the future of food production, processing, and distribution, with AI-powered tools optimizing supply chains, enabling accurate demand forecasting, and reducing overproduction and underproduction. Moreover, AI has elevated food safety by detecting contaminants and offering personalized nutrition plans. The potential of AI and futuristic technologies in the food industry promises a more sustainable, healthier, and secure future.

Key Takeaways from the Session:

- Diverse applications of AI in the food industry
- Future trends and predictions for AI in food processing

DAY 5: (18.10.2024 /Session III)



Presented by Dr. Dattatraya Kute, Chairman of the Printing Machinery Sectional Committee MED 25, Manager at University Press, and Officer on Special Duty at the Examination Department, Savitribai Phule Pune University, Pune.

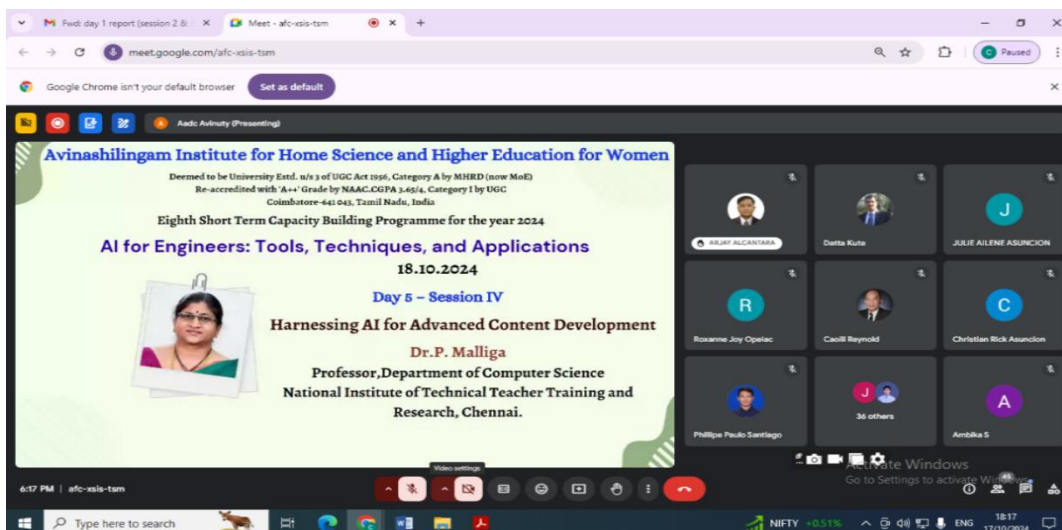
This session delved into the transformative impact of technology-enabled learning, focusing on the National Mission on Education through ICT. Dr. Kute emphasized the objectives of the Educational Multimedia Research Centre and the evolution of e-learning methodologies. He discussed the future potential of Artificial Intelligence (AI) in shaping e-content development and highlighted its role in areas such as content creation, personalization, editing, optimization, data analysis, accessibility, interactive experiences, and content curation.

Dr. Kute concluded by stressing the continuous advancement of AI technology and the integration of AI in e-content development, which will likely lead to even more innovative and effective learning approaches.

Key Takeaways from the Session:

- Automation in e-learning through AI
- Delivering personalized education with AI
- Adaptive learning technologies
- Personalized content recommendations
- Enhancing learning outcomes with intelligent algorithms

DAY 5: (18.10.2024 /Session IV)



The final session of our 5-day online capacity-building program focused on “Harnessing AI for Advanced Content Development,” delivered by Dr. P. Malliga, Professor of CSE and Head of the Department of Educational Media and Technology at NITTTR, Chennai. Dr. Malliga provided a comprehensive overview of how AI can be leveraged in content development, emphasizing its applications in automated content generation, video production, image creation, and content optimization.

She showcased various practical AI tools such as Deep Dream, Adobe Sensei, Pebbley, Lumen5, and DALL-E, all of which enhance the creative process by automating repetitive tasks and assisting in idea generation, research, writing, editing, and content optimization. These tools enable content creators to produce high-quality work more quickly and efficiently. Additionally, she highlighted the importance of AI tools for improving grammar, style, and even fact-checking, thereby elevating the overall quality of content.

Dr. Malliga concluded the session with a crucial point: AI should not replace human creativity and judgment but should instead complement these qualities. The most effective outcomes will be achieved when AI is used as an augmentative tool to enhance the skills and expertise of content creators. With thoughtful integration and usage, AI can become a valuable ally in the pursuit of excellence in content creation.

Key Takeaways:

- Methods for developing e-content
- Tools for improving content development
- The impact of AI on creative writing

The program concluded with formal vote of thanks to the resource persons, participants and the organising committee for the successful conduct of the program.

Participants List

S.No.	Name	Designation	Department	Institution/ Organisation Name
1	Mrs. Anasuya Mani MP	Assistant Professor	Pharmacology	Jain School of Allied Healthcare and Sciences
2	Mrs. Sangeetha Gandhi S	Assistant Professor	Biotechnology	Rajalakshmi Engineering College
3	Ms. Christy Jacqueline	Assistant Professor	Computer Science	Sacred Heart College
4	Dr.K.L.Shunmuganathan	Dean	Information Technology	Rajalakshmi Engineering College
5	Dr. Shobha Shankar	Professor	E&EE	Vidyavardhaka College of Engineering
6	Dr. N Sandya Rani	Professor	CSE	Jaya Engineering College
7	Mrs. Bhuvanapriya.S	Assistant Professor	CSE	Dhaanish Ahmed College of Engineering
8	Ms. Minnuja Shelly	Assistant Professor	Computer Science and Engineering	Sahrdaya College Of Engineering & Technology Kodakara,Thrissur.
9	Mrs. Sreedevi R Krishnan	Assistant Professor	Computer Science and Engineering	Adi Shankara Institute of Engineering and Technology
10	Mrs.Meenalochini. M	Assistant Professor	Computer Science and Design	Kongu Engineering College
11	Mrs. Amitha Mathew	Assistant Professor	CSE	Rajagiri School of Engineering and Technology
12	Mrs.LISHA KURIAN	Research scholar	Computer Science Engineering	Avinashilingam University
13	Ms. Dhakshu Sivan	Research Scholar	Computer Science and Engineering	Avinashilingam university
14	Ms. Nimmi M K	Assistant Professor	Artificial Intelligence and Data Science	Muthoot Institute of Technology and Science
15	Mrs. Archana Devi D	Lecturer	Electrical and Electronics Engineering	Mohamed Sathak Polytechnic College, Kilakarai
16	Mrs.Nighila Ashok K	Assistant Professor	CSE	Universal Engineering College
17	Mrs.Jasmy Davies	Assistant professor	Computer science and engineering	Sahrdaya college of engineering and technology
18	Mr. M.Manoj Kumar	Teaching Assistant	DDU-KK (B.Voc - Farm Equipments Operation & Maintenance)	The Gandhigram Rural Institute (Deemed to be University), Gandhigram.
19	Mrs. Mahalakshmi	Research Scholar	Biomedical Instrumentation Engineering	Avinashilingam Institute for Home Science and Higher Education for Women
20	Mrs. K PRIYA	Research Scholar	Computer Science	Annai College of Arts & Science, Kovilacheri
21	Mrs. Hemalatha	Research Scholar	Computer Science	Annai College of arts and science, kovilacherry
22	Mrs. Seethala Devi V	PhD Research Scholar	Computer Science	Annai College of Arts and Science
23	Mrs.Madhura Mahajan	Research Scholar	Printing Technology	Avinashilingam University
24	Ms. Sheethal M S	Research Scholar	Computer Science and Engineering	Avinashilingam Institute for Home Science and Higher

				Education for Women
25	Dr. Naneetha R	Assistant Professor	Journalism and Mass Communication	SRM University
26	Ms. Ayshwarya P	Ph.d Research Scholar	Computer Science	Annai College of Arts & Science
27	Mrs. Swati Dutt	Scholar	Printing Technology	Avinashilingam Institute for Home Science & Higher Education
28	Mrs.S. Shanmugapriya	Assistant Professor	Artificial Intelligence and Data science	Nehru Institute of Engineering and Technology
29	Mrs.Alagusundari	Assistant Professor	Computer Science and Engineering	Sri RamaKrishna Engineering College
30	Mrs.Arthi D	Assistant Professor	Artificial Intelligence and Data Science	KCG College of Technology
31	Dr.N.Nandakumar	Professor	Mechanical Engineering	Government College of Technology
32	Mrs.S. Bhuvanewari	Safety officer	Printing Technology	SCM garments pvt ltd
33	Ms. Jencia.J	Assistant Professor	Biomedical Engineering	Karunya Institute of Technology and Sciences
34	Mrs. Hepsiba D	Assistant Professor	Biomedical Engineering	Karunya Institute of Technology and Sciences
35	Ms. Shree Nandhini.p	Assistant Professor	Emerging Technologies	Sree Sakthi Engineering College
36	Ms.J.Paruvathavardhini	Research Scholar	Electronics and Communication Engineering	School of Engineering, Avinashilingam University
37	Ms. K Santhiya Lakshmi	Research scholar	ECE	Avinashi lingam engineering campus
38	Ms. Vijitha G	Asst.Professor	Electronics and Communication	Jawaharlal college of engineering and technology
39	Mrs. S.Nandhini	Research scholar	Civil Engineering Department	Avinashilingam institute for Home Science and Higher Education for women
40	Mrs. Minarva Devi	Assistant professor	ECE	Sri Raaja Raajan College of Engineering and Technology
41	Ms. Khumukcham Monica Chanu	Research scholar	Electronics and Communication Engineering	Manipur Institute of Technology
42	Mrs.V.Devi	Assistant Professor	Artificial Intelligence and Machine Learning	Hindusthan College of Engineering and Technology
43	Mrs.Blessy Rapheal M	Associate professor	ECE	Rajadhani Institute of science and Technology
44	Mrs.J.karpagam	Research scholar	Civil engineering	Avinashilingam school of engineering
45	Ms. Suja Paulose	Research Scholar	Electronics and Communication Engineering	Avinashilingam institute of Home Science and Higher Education for Women Coimbatore
46	Mrs.Gokilavani A	Associate Professor	CSE	Jai Shriram Engineering College
47	Mrs.Vanitha.G	Assistant Profressor	CSE	SNS College of Technology
48	Mrs.Anju Aravind	Part time Research Scholar	ECE	Avinashilingum Institute for Home Science and Higher Education for Women
49	Ms. Sharmeela R	Assistant professor	FPPT	Avinashilingam institute
50	Ms. Muneebahmdhyiddeen	Research Scholar	Computer Science and Engineering	Avinashilingam Institute for home science and higher

				education for women
51	Mr. S. Sunilkumar	Software Developer	Computer Science	Kittle Pvt. Ltd
52	Ms. K.Jane Nithya	Assistant Professor	Computer Science	Ethiraj College for Women
53	Mrs. C. T.Vidhya	Assistant Professor	CSE	Avinashilingam Institute for Home Science and Higher Education for Women
54	Mrs. C. Janani	Assistant Professor	CSE	Avinashilingam Institute for Home Science and Higher Education for Women
55	Mrs.Nimmi Vijayan	Ph.D Scholar	Electronics and Communication Engineering	Avinashilingam Institute for Home Science and Higher Education for Women
56	Ms.Winnie Ann Thomas	Assistant Professor	Electronics & Biomedical Engineering	Adi Shankara Institute of Engineering & Technology
57	Mrs.J.Rama	Research Scholar	Computer science	Annai college of arts and science
58	Mrs G. Gokilavani	Teaching Assistant	CSE	Avinashilingam Institute for Home Science and Higher Education for Women
59	Engr. Abegail E. Ruiz	Assistant Professor	Electronics Engineering	Mariano Marcos State University, Philippines.
60	Engr. Christian Philip M. Austria	Instructor	Electronics Engineering	Mariano Marcos State University, Philippines.
61	Engr. Lovina Sciechrist T. Agbayani	Instructor	Computer Engineering	Mariano Marcos State University, Philippines.
62	Garcia, Julie Ailene A.	Instructor	Electronics Engineering	Mariano Marcos State University, Philippines.
63	Engr. Meynard C. Nicolas	Instructor	Electronics Engineering	Mariano Marcos State University, Philippines.
64	Engr. Maria Fregie Gaile R. Pagador	Instructor	Electronics Engineering	Mariano Marcos State University, Philippines.
65	Engr. Ajay A. Daquioag	Instructor	Computer Engineering	Mariano Marcos State University, Philippines.
66	Engr. Willen Mark D. Manzanans	Program Chair, PSMREE	Computer Engineering	Mariano Marcos State University, Philippines.
67	Engr. Aljay B. Santos	Assistant Professor	Computer Engineering	Mariano Marcos State University, Philippines.
68	Engr. Diana Rose A.Tambogon	Instructor	Computer Engineering	Mariano Marcos State University, Philippines.
69	Engr. Vladimir P. Ibanez	Department Chairman, CpE	Computer Engineering	Mariano Marcos State University, Philippines.
70	Engr. Engelbert T. Carino	Instructor	Computer Engineering	Mariano Marcos State University, Philippines.
71	Dr.Sharona Q. Barroga	Dean, College of Engineering	Chemical Engineering	Mariano Marcos State University, Philippines.
72	Engr. Phillipe Paulo B. Santiago	Instructor	Computer Engineering	Mariano Marcos State University, Philippines.
73	Engr. Alennie M. Fagaragan	Instructor Department Chairman	Agricultural and Biosystems Engineering	Mariano Marcos State University, Philippines.
74	Dr. Reynold M. Caoili	Instructor	Agricultural and Biosystems Engineering	Mariano Marcos State University, Philippines.
75	Engr.Edwin F.Galutira	Instructor	Computer Engineering	Mariano Marcos State University, Philippines.

76	Engr. Ashier Dave M Calulot	Instructor	Mechanical Engineering	Mariano Marcos State University, Philippines.
77	Engr. Roxanne Joy O. Antonio	Instructor	Agricultural and Biosystems Engineering	Mariano Marcos State University, Philippines.
78	Dr. Bethany Grace S. Calixto	Associate Professor	Agricultural and Biosystems Engineering	Mariano Marcos State University, Philippines.
79	Engr. Arjay C Alcantara	Instructor	Mechanical Engineering	Mariano Marcos State University, Philippines.
80	Engr. Peter Joenel A.Pelayo	Instructor	Mechanical Engineering	Mariano Marcos State University, Philippines.
81	Ruguian, Arlene Mia G.	Department Chair	Materials Science and Engineering	Mariano Marcos State University, Philippines.
82	Engr. Odette R. Alegato	Department Chair	Mechanical Engineering	Mariano Marcos State University, Philippines.
83	Engr. Ian V. Romas	Instructor	Mechanical Engineering	Mariano Marcos State University, Philippines.
84	Mary Grace D.Matias	Instructor	Computer Engineering	Mariano Marcos State University, Philippines.
85	Mark Justine S.Cudapas	Instructor	Computer Engineering	Mariano Marcos State University, Philippines.
86	Engr. Rafael C. Domingo	Instructor	Mechanical Engineering	Mariano Marcos State University, Philippines.
87	Engr. Marifaye Flores	Instructor	Computer Engineering	Mariano Marcos State University, Philippines.
88	Engr. Christian Rick C. Asuncion	Instructor	Computer Engineering	Mariano Marcos State University, Philippines.
89	Engr. Kendrick Cyrus A. Acidera	Instructor	Mechanical Engineering	Mariano Marcos State University, Philippines.
90	Dr. Cristina S. Decano-Valentin	Associate Professor	Agricultural and Biosystems Engineering	Mariano Marcos State University, Philippines.
91	Engr. Neal Janus R. Pacis	Instructor	Mechanical Engineering	Mariano Marcos State University, Philippines.
92	Engr. Jan Leiton S. Palaspas.	Instructor	Mechanical Engineering	Mariano Marcos State University, Philippines.
93	Engr. Joseph Allan S. Gamiao	Instructor	Ceramic Engineering	Mariano Marcos State University, Philippines.
94	Engr. Shaira Camille M. Santos	Instructor	Agricultural and Biosystems Engineering	Mariano Marcos State University, Philippines.
95	Engr. Louvie John M. Ruguian	Instructor	Ceramic Engineering	Mariano Marcos State University, Philippines.
96	Engr. Emie S. Mirasol	Associate Professor III	Ceramic Engineering	Mariano Marcos State University, Philippines.

Sample Certificate

Avinashilingam Institute for Home Science and Higher Education for Women



Deemed to be University Estd.u/s 3 of UGC Act 1956, Category A by MHRD (now MoE)
Re-accredited with 'A++' Grade by NAAC. CGPA 3.65/4, Category I by UGC
Coimbatore-641043, TamilNadu, India



AIU - Avinashilingam Institute - Academic & Administrative Development Centre (AIU-AI-AADC)
&
School of Engineering
&
Centre for Machine Learning and Intelligence

CERTIFICATE OF PARTICIPATION

Certificate No: AIU - AI - AADC/ 2024 /08/051

This is to certify that

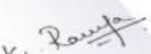
Dr. Sharona Q. Barroga

Dean, College of Engineering

Professor, Department of Chemical Engineering

Mariano Marcos State University, Ilocos Norte, Philippines

has participated in the Short-Term Capacity Building Programme on
"AI for Engineers: Tools, Techniques, and Applications" conducted by
AIU - Avinashilingam Institute - Academic & Administrative Development Centre (AIU - AI- AADC) &
School of Engineering & Centre for Machine Learning and Intelligence (CMLI)
from 14/10/2024 to 18/10/2024 and her performance was Excellent.


Dr. K. Ramya
Nodal Officer
AIU-AI-AADC


Dr. P. Subashini
Programme
Coordinator


Dr. B. Sargunam
Programme
Coordinator


Mrs. Ranjana Parihar
Joint Secretary Printing &
Publications, AIU


Dr. Pankaj Mittal
Secretary General
AIU


Dr. H. Indu
Registrar i/c
Avinashilingam Institute


Dr. V. Bharathi Harishankar
Vice Chancellor
Avinashilingam Institute

Day/Date	10.00 to 11.00 am	11.15 to 12.00 pm	12.00 to 12.45 pm	1.30 to 2.30 pm	3.00 to 4.00 pm
14 th Oct' 2024 Monday The Role of AI in Science and Technology	Presidential Address Dr.V.Bharathi Harishankar Vice Chancellor Inauguration Session Theme: Role of AI in Healthcare Dr. Maria Zemzami, Professor, Mohammed V University Rabat, Morocco.	Applications of AI Dr. Raguraman Munusamy Assistant Professor and HOD, Department of Design, Indian Institute of Information Technology, Kancheepuram. Mail: raguraman.munusamy@iiitdm.ac.in Mobile : 919384142291	Emerging AI Technologies and their Potential Impact in Construction G. L. Sathyamoorthy Professor Department of Civil Engineering, Kumaraguru College of Technology, Coimbatore. Mail : sathyamoorthy.gl.ce@kct.ac.in Mobile : 9629319936	Mathematics in AI Dr. Balakrishnan K Senior R&D Engineer, ABB GiSPL India Ltd, Bangalore. Mail : balanit2019@gmail.com Mobile :73383 26127	Conservation of Environment and Sustainable Development through AI Dr. T.Velmurugan Associate Professor in the PG and Research Department of Computer Science and Applications, Dwaraka Doss Goverdhan Doss Vaishnav College, Chennai.
15 th Oct' 2024 Tuesday GenAI	Fundamentals of Generative AI and Responsible Generative AI Mr.R.Dinesh Babu Managing Director Brainswig Edutech Pvt.Ltd,Chennai. Mail : brainswig@gmail.com Mobile : 9655675422	Machine Learning for GenAI Dr.C.Ranjeeth Kumar Professor & Dean, Department of CSE, Ashoka Women's Engineering College, Kurnool, Andhra Pradesh. Mail: drcranjeeth@ashokacollege.in Mobile :9655675422	Hands-on training on GenAI tools - Vectra AI, Darktrace Dr.G.Ramsundar Assistant Professor (Sl.Gr.) Department of Information Technology,Sri Ramakrishna Engineering College, Coimbatore. Mail : ramsundar.gurumoorthy@srec.in Mobile :9843054556	Ethical Considerations in GenAI Dr.K. Uma Maheswari Professor & Head Department of Information Technology, PSG College of Technology, Coimbatore.	
16 th Oct' 2024 Wednesday GenAI, AI Tools and Applications of AI in Biomedical Engineering	Machine Learning System Design for Biomedical Applications: Balancing Innovation with Safety and Compliance Dr.Sumi Singh Founder and Principal, Generative AI Labs, USA.	Cyber security and Generative AI Mr.Varadharaj Krishnan Independent Researcher, Washington, USA. Mail : varadharaj.krishnan@gmail.com	AI for Engineers-Tools, Techniques and Applications Dr. Souvick Chatterjee Senior Team Lead- Customer Success Engineering, Bangalore. Er. Afsal. S Senior Application Engineer, ARK Infosolutions Pvt. Limited. Mail : afsal.s@arkinfo.in Mobile :8075010860	Preparing for Immersive AR & VR Technologies Mr.Visweswaran J Country Manager ARK Infosolutions Bangalore. Mail: visweswaran.j@arkinfo.in Mobile: 9986028517	Open Source AI Tools for Biomedical Applications Dr.P.Subashini Co-ordinator, Centre for Machine Learning and Intelligence, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore. Mail : subashini_cs@avinutty.ac.in Mobile :9442271971

Day/Date	10.00 to 11.00 am	11.30 am to 12.30 pm	1.30 to 2.30 pm & 3.00 to 4.00 pm	
17 th Oct' 2024 Thursday Emerging AI Technology in Communication Systems	AI-based Technologies for Next-generation Mobile Communications Dr.N. Sathish Kumar Professor, Department of ECE, Sri Ramakrishna Engineering College, Coimbatore. Mail : sathishkumar.n@srec.ac.in Mobile :9952207499	Integration of Artificial Intelligence with Blockchain Dr. Arun Sekar Rajasekaran Associate Professor, Department of Electronics and Communication Engineering, SR University, Warangal, Telangana. Mail : rarunsekar007@gmail.com Mobile :9994650100	Deep Learning and Machine Learning Algorithms for Engineering Applications Dr. Sudha V.K Professor, Department of Electronics and Communication Engineering, Dr. Mahalingam College of Engineering and Technology, Pollachi. Mail : drkvsudha@gmail.com Mobile :9965358922	
Day/Date	10.00 to 11.00 am	11.30 am to 12.30 pm	1.30 to 2.30 pm	3.00 to 4.00 pm
18 th Oct' 2024 Friday Application of AI in Food Processing and Electronic Publishing	Novel technologies in Food Preservation Dr.V. Gowri Sree Mail : vg_sree@annauniv.edu Mobile :9444086488	Application of AI in Food Processing Naveen P Programme Lead (Freshmen), Coordinator - Sponsored Research, Member - Centre for Research and Development, Asst.Professor III Dept., of Electrical and Electronics Engineering, KPR Institute of Engineering, Coimbatore. Mail : naveenam88@gmail.com Mobile :8667405042	AI's Influence on Modern E-Content Development Dr. Dattaraya Kute Officer on Special Duty, Examination Manager, University Press, Savitri Phule Pune University, Pune. Mail : dattakute11@gmail.com Mobile :9860650815	Valedictory:Title: Harnessing AI for Advanced Content Development Dr.P.Malliga Professor, Dept. of Computer Science, National Institute of Technical Teacher Training and Research, Chennai. Mail : malliga@nitttrc.ac.in Mobile :9380342066

Avinashilingam Institute for Home Science and Higher Education for Women



**AIU – Avinashilingam Institute –
Academic and Administrative Development Centre
(AIU-AI-AADC)
&
School of Engineering
&
Centre for Machine Learning and Intelligence (CMLI)**

Jointly organizes

Eighth Short Term Capacity Building Programme for the year 2024

on

AI for Engineers: Tools, Techniques and Applications

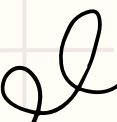
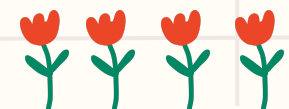
14.10.2024 to 18.10.2024

Online!

29



**Invited Talks
Case Studies
Hands -on Sessions
Activities**



ABOUT THE INSTITUTE



Avinashilingam Institute for Home Science and Higher Education for Women - the epitome of higher education is one of the premier institutions in India well known for its commitment towards the empowerment of women through value based and holistic education. The institute follows educational ideals of Sri Ramakrishna, Holy Mother Sri Saradamani Devi, Swami Vivekananda and Mahatma Gandhiji. The institute is one of the significant contributions of Padma Bhushan, Dr. T. S. Avinashilingam, an illustrious educationist, freedom-fighter and Gandhian and Dr. Rajammal P. Devadas, the world- renowned nutritionist.

The Institute had its humble beginning in the year 1957 as Sri Avinashilingam Home Science College for Women and has been conferred the Deemed to be University by MHRD in 1988. Few of the recent accolades of the Institute includes: A++ with CGPA of 3.65/4 by NAAC; 81st Rank in NIRF, 5th Rank under the category of 'University & Deemed to be University (Govt. & Govt. Aided) Technical' in ARIIA – 2021.

Presently, the institution is progressing towards 'beyond-excellence' under the able guidance and leadership of Dr.T. S. K. Meenakshi Sundaram, Managing Trustee and Chancellor, Dr. V. Bharathi Harishankar, Vice Chancellor and Dr. H. Indu, Registrar i/c.



ABOUT THE ASSOCIATION OF INDIAN UNIVERSITIES



Association of Indian Universities (AIU) is an apex inter university representative body of universities and other higher education institutions in the country. Established in 1925 as the Inter University Board (IUB) of India, it acquired its legal status as a registered society in 1967 under the Societies Registration Act 1860 and was rechristened as Association of Indian Universities (AIU) in 1973. AIU is the second oldest university association in the world next to the Association of Commonwealth Universities which was established in 1913.

It has the distinct feature of having the largest network of universities and other HEIs under its ambit with 1002 Members which includes 16 Associate Members of Foreign Countries. The membership of AIU includes all types of universities e.g., Conventional Universities, Open Universities, Deemed to be Universities, State Universities, Central Universities, Private Universities and Institutes of National Importance.

In addition to Indian Universities, Universities / Institutes from Bangladesh, Bhutan, Republic of Kazakhstan, Malaysia, Mauritius, Nepal, Thailand, United Arab Emirates and United Kingdom are its Associate Members. Since its inception AIU has played a very significant role in the development of Education in the Country.

Some of the eminent scholars and visionary leaders like Dr Sarvepalli Radhakrishnan, Dr Shyama Prasad Mukherjee, Dr Zakir Hussain, Sir. A L. Mudaliar have given leadership to AIU. During such a long journey, AIU has carved a niche for itself by serving the Ministry of Education, Govt. of India as a research-based policy advisory body. Being an apex institution, it constitutes an integral part of all major decision-making committees and commissions in the country.

As an academic 'think tank' organization, AIU supports the Government as research-based policy advisory body with the wider mandate of taking up research projects on higher education policy and capacity building. It also acts as a bureau of information on higher education; liaise with international bodies and universities for internationalization of Indian higher education among many others. The Vision of AIU is to emerge as a dynamic service and apex advisory organization in India by undertaking initiatives and programmes which could strengthen and popularize Indian higher education as leading-edge system in the world and promote greater national and international collaboration in Higher Education, Research, Extension, Sports, Youth and Cultural Activities.

It is bestowed with the mission of promoting and representing the Indian Universities and other higher education institutions through strong liaison with the government and National/International organizations, sister associations world over and establish liaison between/among universities through active support, cooperation and coordination among the member universities and all its stakeholders for quality education, research and other academics and extension activities.





ABOUT THE CENTRE

AIU-Avinashilingam Institute - Academic and Administrative Development Centre (AIU-AI-AADC) has been initiated by the institute in association with Association of Indian Universities (AIU) as a step towards training the human resources of higher education institutions. The specific objectives of the centre are:



VISION

To facilitate value-based transition towards changing higher education ecosystem through continuous capacity building.

MISSION

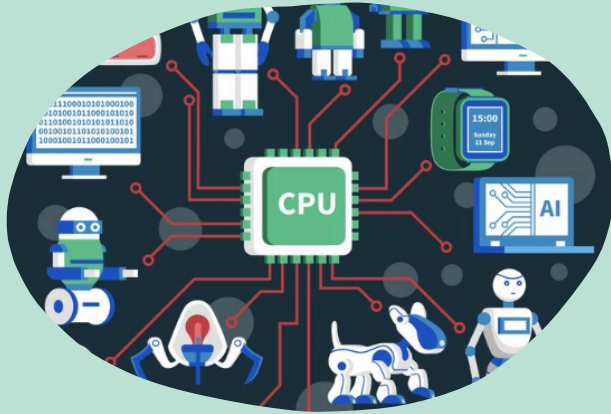
To impart ICT enabled training to human resources of higher education institutions thereby preparing themselves towards Education 5.0.



- **Facilitate learning through Performance Improvement Programmes for different groups (Administrators/Teaching Faculty/Non-Teaching Research Scholars/Technical Personnel) towards progression based on their career stages.**
- **Enable continuous learning through rigorous need-based training sessions**
- **Sensitize stakeholders on recent developments in higher education system in the country and across the world.**
- **Equip academic / administrative / technical / information personnel with the requisite skills on ICT to handle their work effectively.**
- **Develop integrity and professional ethics among higher education personnel.**
- **Strengthen the human capital of the country with right attitude, skills, and knowledge**



ABOUT THE PROGRAMME



- The program aims to provide the latest developments in AI, covering foundational concepts as well as emerging trends. Participants will gain hands-on experience with AI tools and techniques, allowing them to engage directly with real-world problems. The participants will delve into a broad range of topics essential for understanding and teaching AI in engineering contexts. This includes an overview of core AI concepts, AI tools and platforms useful in various engineering domains. Additionally, the program encourages faculty to explore AI research opportunities and apply innovative AI solutions to engineering challenges



- The FDP blends expert-led lectures, hands-on labs, and group discussions to explore foundational and advanced AI topics. With guest speakers from industry and research, it highlights the latest AI trends and applications. This initiative aims to equip engineering educators with AI tools, fostering a new generation of engineers capable of driving future innovations.

OBJECTIVES

- Explore the fundamentals of AI and its relevance to engineering disciplines.
- Understand the various applications of AI in engineering research and development.
- Learn how to integrate AI techniques into research projects and teaching curricula.
- Gain hands-on experience with AI tools and technologies through practical sessions and workshops.
- Discuss emerging trends and future prospects in the field of AI in engineering.

TARGET PARTICIPANTS

This FDP is ideal for professors, lecturers, and researchers from higher education institutions in related engineering disciplines, as well as network administrators interested in leveraging AI-driven technologies for enhancing teaching and learning outcomes.

Duration : 14.10.24 to 18.10.24

(5 Days Programme)

Time : 9:30 am to 4:45 pm

Note : E-certificates will be issued upon successful completion of programs, with attendance, feedback, and assessment submissions being mandatory.





PROGRAMME SCHEDULE

Day 1: Date: 14.10.2024

The Role of AI in Science and Technology

- **Session 1:** IoT and AI for Engineers
- **Session 2:** Emerging AI Technologies and their Potential Impact in Construction
- **Session 3:** Mathematics in AI
- **Session 4:** Conservation of Environment and Sustainable Development through AI

Day 2: Date: 15.10.2024

GenAI

- **Session 1:** Fundamentals of Generative AI and Responsible Generative AI
- **Session 2:** Machine Learning for GenAI
- **Session 3:** Hands-on training on GenAI tools – Vectra AI, Darktrace
- **Session 4:** Ethical Considerations in GenAI



Day 3: Date: 16.10.2024

Day 3: GenAI, AI Tools and Applications of AI in Biomedical domain

- **Session 1:** Machine Learning System Design for Biomedical Applications: Balancing Innovation with Safety and Compliance
- **Session 2:** Cyber security and Generative AI
- **Session 3:** AI for Engineers-Tools, Techniques and Applications
- **Session 4:** Preparing for Immersive AR & VR Technologies
- **Session 5:** Open Source AI Tools for Biomedical Applications

Day 4: Date: 17.10.2024

Emerging AI Technology in Communication Systems

- **Session 1:** AI-based Technologies for Next-generation Mobile Communications
- **Session 2:** Integration of Artificial Intelligence with Blockchain
- **Session 3:** Deep Learning and Machine Learning algorithms for Engineering Applications
- **Session 4:** Challenges of Integration of Artificial Intelligence with Communication Technologies



Day 5: Date: 18.10.2024

Application of AI in Food Processing and Electronic Publishing

- **Session 1: Novel Technologies in Food Preservation**
- **Session 2: Application of AI in Food Processing**
- **Session 3: AI's Influence on Modern E-Content Development**
- **Session 4: Valedictory – Theme: Harnessing AI for Advanced Content Development**

LIST OF RESOURCE PERSONS

- **Prof. Dr. Maria Zemzami**, Professor, Mohammed V University Rabat, Morocco.
- **Dr. Dattaraya Kute**, Officer on Special Duty, Examination Manager, University Press, Savitri Phule Pune University, Pune.
- **Dr. V. Gowri Sree**, Professor, Dept of High Voltage, Anna University, Chennai.
- **Dr. Sumi Singh**, Founder and Principal, Generative AI Labs, USA.
- **Mr. Visweswaran J**, Country Manager, ARK Infosolutions, Bangalore.
- **Dr. C. Ranjeeth Kumar**, Professor & Dean, Department of CSE, Ashoka Women's Engineering College, Kurnool, Andhra Pradesh.
- **Mr. R. Dinesh Babu**, Managing Director, Brainswig Edutech Pvt.Ltd, Chennai.
- **Mr. Afsal S**, Sr. Application Engineer, ARK & Mathworks Thiruvananthapuram, Kerala.
- **Mr. Varadharaj Krishnan**, Independent Researcher, Washington, USA.
- **Dr. Souvick Chatterjee**, Senior Team Lead- Customer Success Engineering, MathWorks, Bangalore.

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REGISTRATION FEE

- Indian Participants Rs. 750
- International Participants USD 25

PAYMENT DETAILS

BANK ACCOUNT DETAILS

Account Name : **Avinashilingam
Institute for Home Science and Higher
Education for Women**

Name of the Bank : **Indian Bank**

Bank Account Number : **6010310202**

IFSC Code : **IDIB000A005**

SWIFT Code : **IDIBINBBCBE**

AI ADVISORS

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Special thanks to:

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AIU Advisors

- **Dr. Pankaj Mittal, Secretary General, AIU**
- **Mrs. Ranjana Parihar, Joint Secretary, Printing & Publications, AIU**

We extend our heartfelt gratitude to all the Invited Guests, Resource Persons, HEI's, Coordinators, Committee Members, Technical staff for their unwavering support!

We sincerely thank each attendee for their participation and enthusiasm!

Welcoming you all again in the future!



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