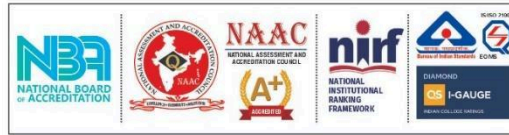




Sai SAI RAM ENGINEERING COLLEGE

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Sai Leo Nagar, West Tambaram, Chennai - 600 044. www.sairam.edu.in



Department of Computer Science and Engineering (Artificial Intelligence & Machine Learning)

A report on 6-day FDP on

“EMERGING TRENDS IN ARTIFICIAL INTELLIGENCE (AI): INNOVATIONS AND APPLICATIONS”



Date: 16.12.2024 to 21.12.2024

Time: 10 to 11.30 am & 2 to 3.30 pm

Venue: Google Meet (<https://meet.google.com/bzq-vvfx-cmk>)

Event ID: SEC202412DAM14

Objective:

Artificial Intelligence (AI) is a rapidly evolving field that mimics human intelligence to perform tasks such as learning, problem-solving, and decision-making. With its transformative impact, AI is shaping diverse sectors such as healthcare, agriculture, finance, education, and entertainment. Recent advancements in AI technologies have unlocked unprecedented opportunities, enabling innovative solutions to complex challenges. This FDP aims to provide participants with an in-depth understanding of cutting-edge AI research and practical implementations. The program focuses on exploring AI's applications across multiple domains, highlighting its potential to drive innovation and efficiency. By fostering technical skills and offering real-world insights, this FDP prepares participants to integrate AI into their research and professional endeavours, equipping them for future advancements in this rapidly evolving field.

Benefits:

This FDP on Emerging Trends in Artificial Intelligence (AI): Innovation and Applications offers participants the opportunity to explore cutting-edge research and practical applications

of AI across diverse domains such as healthcare, agriculture, finance, and education. It equips educators and researchers with the technical skills and knowledge required to harness AI's transformative potential for innovation and efficiency. Through expert-led sessions, participants will gain insights into real-world AI implementations, enabling them to address complex challenges with innovative solutions. The FDP fosters a deep understanding of AI advancements, empowering attendees to integrate these technologies into their professional and research activities. By bridging theory and practice, this program prepares participants to stay ahead in the rapidly evolving AI landscape and contribute to its growing impact.

Participant Details: The participants include distinguished faculty members from various engineering colleges, including Sri Sairam Engineering College, MLR Institute of Technology, PSNA College of Engineering and Technology, Nitte Meenakshi Institute of Technology, Jerusalem College of Engineering, Meenakshi Sundararajan Engineering College, Supaul College of Engineering, and GMR Institute of Technology Rajam. These participants bring a diverse set of expertise, ranging from Artificial Intelligence, Computer Vision, and Data Science, to various engineering disciplines like Electronics, Computer Science, and Mechanical Engineering.

Introduction:

In today's rapidly evolving technological landscape, Artificial Intelligence has emerged as one of the most transformative fields, revolutionizing industries, economies, and societies worldwide. This FDP has been meticulously crafted to delve into the forefront of these domains, exploring the latest advancements, trends, and research directions. The aim of this FDP program within the insights from a distinguished lineup of speakers, experts, and facilitators who will share their insights, experiences, and knowledge, providing you with invaluable perspectives and tools to navigate the complexities of AI for six days.

Dr. R. Nagaraj, Associate Professor, Department of CSE (AI & ML) FDP Coordinator conveyed his gratitude to Chief Patron, Dr Sai Prakash LeoMuthu, Chairman and CEO, Dr. Raja, Principal (SEC), Dr. E. Priya, HoD/CSE (AI&ML). Also, he welcomes the participants on behalf of Sri Sairam engineering College.

Session-1

Date: 16.12.2024

Session: FN (10 to 11.30 am)

Dr. Mahesh M, Assistant Professor at VIT-AP University, delivered an insightful session titled “Modelling of Next Generation Wireless Networks.” The session provided a comprehensive understanding of channel access mechanisms and signalling procedures. He also delved into various channel access protocols that can be seamlessly integrated with Artificial Intelligence (AI). Furthermore, he shared valuable research insights on the

applications of Machine Learning (ML) and Deep Learning (DL) in enhancing the performance and efficiency of wireless networks.

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Session-2

Date: 16.12.2024

Session: AN (2 to 3.30 pm)

Dr. A. Balasundaram, Associate Professor and Deputy Director at the Research Centre for Cyber Physical Systems, VIT Chennai, delivered an engaging session titled “Harvesting the Benefits of Artificial Intelligence in Agriculture - Revolutionizing Modern Farming.” The session offered a thorough understanding of how Artificial Intelligence (AI) is transforming precision agriculture through applications such as soil monitoring, crop stress prediction, and crop yield forecasting. He also highlighted the role of remote sensing imagery in precision agriculture and emphasized the significance of local sensors for effective soil and crop monitoring. His insights provided a clear picture of how AI is revolutionizing modern farming practices.

Session-3

Date: 17.12.2024

Session: FN (10 to 11.30 am)

Dr. Kumari Nidhi Lal, Assistant Professor at VNIT Nagpur, delivered an insightful session titled “Real-Time Applications of SVM and Naïve Bayes Machine Learning Algorithms.” The session provided a comprehensive understanding of Support Vector Machine (SVM) and Naïve Bayes algorithms, focusing on their applications in classification and regression analysis. She also demonstrated the implementation of SVM and Naïve Bayes classifiers using Python programming, applying these techniques to real-world datasets such as the Breast Cancer and Iris datasets. The session was both informative and practical, offering valuable insights into supervised machine learning algorithms.

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Session-4

Date: 17.12.2024

Session: AN (2 to 3.30 pm)

Dr. Santosh Kumar Satapathy, Assistant Professor at Pandit Deendayal Energy University, delivered an enlightening session titled “Sleep Analysis Using Signal Processing and Machine Learning.” The session offered a detailed exploration of sleep waves, methods for

recording sleep signals, and the challenges associated with sleep analysis. He provided valuable insights into the setup and functionality of a representative Polysomnography (PSG) system. He further elaborated on sleep stage classification, highlighting the use of both traditional machine learning algorithms and ensemble techniques to enhance accuracy. The session was highly informative, bridging the gap between signal processing and machine learning in sleep research.

Session-5

Date: 18.12.2024

Session: FN (10 to 11.30 am)

Dr. Amutha S, Senior Assistant Professor at Vellore Institute of Technology, Chennai, delivered an engaging session titled “Graph Convolutional Network for NLP.” The session provided valuable insights into the application of Graph Convolutional Networks (GCNs) in Natural Language Processing (NLP). She explained how GCNs effectively model relationships and dependencies in textual data, enabling advanced tasks such as sentiment analysis, text classification, and information extraction. The session highlighted the significance of leveraging graph structures to capture contextual information, offering participants a deeper understanding of cutting-edge approaches in NLP research.

Session-6

Date: 18.12.2024

Session: AN (2 to 3.30 pm)

Dr. Pandiyarasan Veluswamy, Assistant Professor Grade I at IITDM Kancheepuram, delivered an engaging session titled “Smart Wearables and AI: Innovations Driving the Future of Personalized Technology.” The session explored cutting-edge advancements in wearable devices that utilize body-generated electricity, such as converting body temperature into electrical energy. He explained innovative concepts like flex resistance sensors for charging Bluetooth devices and smart fabrics designed to regulate temperature, keeping users cool or warm as needed. The session highlighted the integration of AI with these technologies, showcasing their potential to revolutionize personalized and energy-efficient solutions in wearable technology.

Session-7

Date: 19.12.2024

Session: FN (10 to 11.30 am)

Dr. R. Sujithra @ Kanmani, Assistant Professor at Vellore Institute of Technology, Chennai, delivered an engaging session titled “Hugging Face Transformers.” She provided an in-depth explanation of the transformer architecture, highlighting its superiority over LSTMs due to its self-attention mechanism. She also discussed key applications such as text classification, summarization, and language translation, demonstrating the efficiency and versatility of transformers in natural language processing tasks. Additionally, she introduced several pre-trained models available on Hugging Face, showcasing their practical use in implementing these applications. The session offered valuable insights into leveraging transformers for advanced NLP solutions.

Session-8

Date: 19.12.2024

Session: AN (2 to 3.30 pm)

Dr. Narendra Khatri, Assistant Professor at Manipal Institute of Technology, Manipal, delivered an engaging session titled “Application of AI in Precision Agriculture.” He provided valuable insights about machine learning and deep learning framework for tomato disease classification and crop yield prediction, emphasizing their transformative potential in modern farming. Dr. Khatri also discussed the use of ensemble models and data fusion to enhance the accuracy and efficiency of agricultural predictions. The session highlighted the integration of AI-driven solutions for addressing real-world challenges in precision agriculture, offering a comprehensive understanding of its innovative applications.

Session-9

Date: 20.12.2024

Session: FN (10 to 11.30 am)

Dr. Debajyoti Biswas, Assistant Professor at Shiv Nadar University, Chennai, delivered an engaging session titled “Quantum Computing: A New Paradigm in Machine Learning.” The session delved into the transformative potential of quantum computing in revolutionizing machine learning. He provided an in-depth overview of quantum principles, algorithms, and their application to solve complex machine learning problems. He highlighted the advantages of quantum computing in enhancing computational speed and accuracy, paving the way for innovative solutions in the field of AI and data science.

Session-10

Date: 20.12.2024

Session: AN (2 to 3.30 pm)

Dr. Ramya H. R., Assistant Professor at M. S. Ramaiah Institute of Technology, Bengaluru, delivered an engaging session titled “Fuzzy Logic in AI.” The session explored the fundamentals of fuzzy logic and its significance in handling uncertainty and imprecision in artificial intelligence. She provided practical insights into the application of fuzzy logic in decision-making systems, control systems, and pattern recognition. She also highlighted real-world examples where fuzzy logic enhances AI systems' adaptability and efficiency, offering participants a deeper understanding of its potential in solving complex problems.

Session-11

Date: 21.12.2024

Session: FN (10 to 11.30 am)

Dr. Badarla Sri Pavan, Associate Professor at Nitte Meenakshi Institute of Technology, delivered an insightful session titled "Artificial Intelligence in 5G Technology." He provided an overview of wireless communication and various protocols fundamental to 5G technology. He explained how Artificial Intelligence is being integrated into 5G networks to enhance performance, improve efficiency, and enable smart communication. The session highlighted AI's role in optimizing network management, data transmission, and decision-making. Participants gained valuable knowledge about the synergy between AI and 5G. The session offered a comprehensive understanding of the transformative impact of AI on next-generation wireless technology.

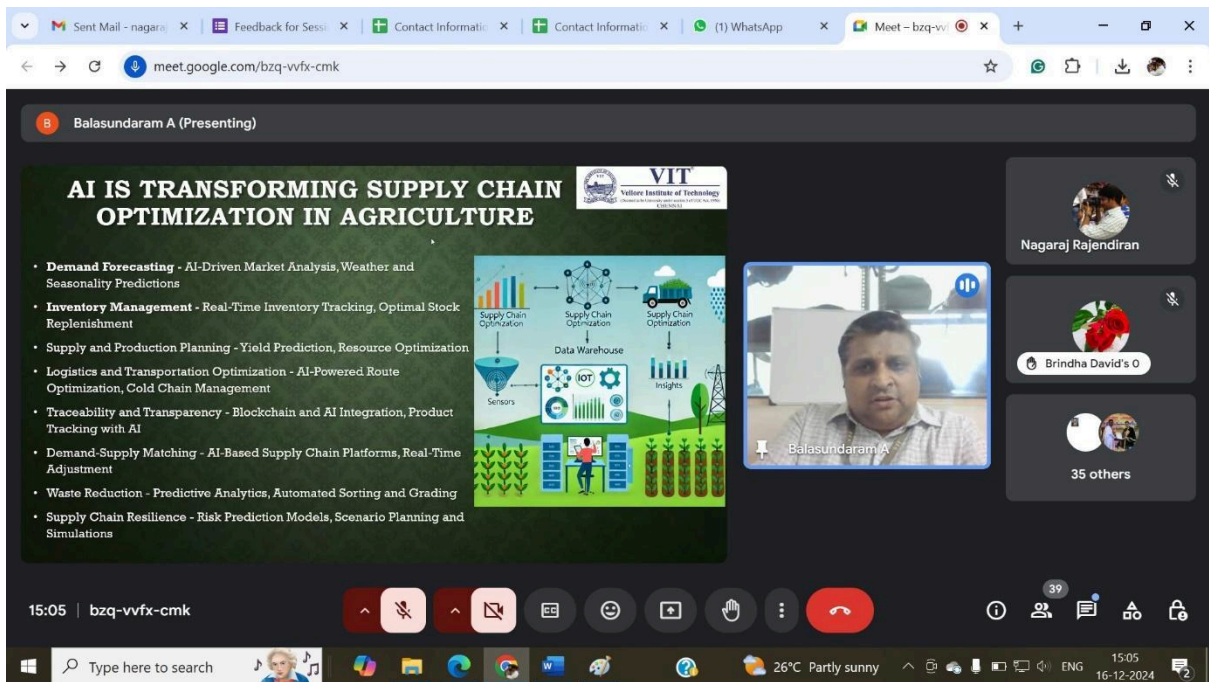
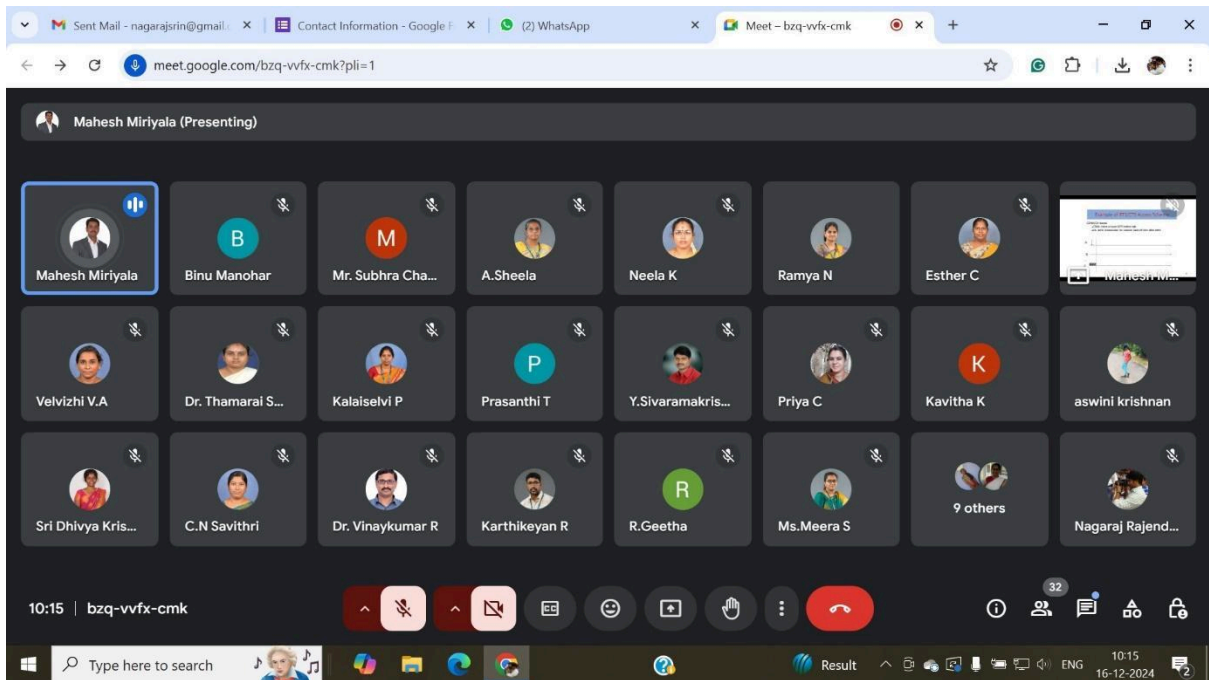
Session-12

Date: 21.12.2024

Session: AN (2 to 3.30 pm)

Dr. V. Sowmya, Associate Professor at Amrita Vishwa Vidyapeetham, delivered an engaging session titled "Explainable AI Models for Computer Vision." She introduced the concept of Explainable AI (XAI) and its significance in making AI models more transparent and interpretable. She focused on the use of Grad-CAM (Gradient-weighted Class Activation Mapping) for image classification, demonstrating how it highlights the most important regions in an image that influence a model's decision-making process. The session provided valuable insights into how AI models can be made more explainable, enhancing trust and understanding of automated decisions in computer vision tasks.

EVENT PHOTOS:



Dr. Nidhi Lal (Presenting)

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10:40 | bzq-vvfx-cmk

28°C Haze

17-12-2024

What is Naïve Bayes Classifier Algo?

Naive Bayes Classifier is a machine learning algorithm based on supervised learning, that can be used for solving classification problems.

It is a probabilistic classifier, which means it predicts on the basis of the probability of an object.

Sample Space: (H, T)

Sample Space: (H, H, T, T, H, T)

Sample Space: (1, 2, 3, 4, 5, 6)

Sample Space: [(1, 1), (1, 2), (1, 3), (1, 4), (1, 5), (1, 6), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (3, 1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6)]

Participants: Dr. Nidhi Lal, Tamil Ravee, Ms.Meera S, Dr B. Priya, khobragade pi..., Karthikeyan R, Brindha David..., 38 others, Nagaraj Rajen...

santosh satapathy (Presenting)

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15:12 | bzq-vvfx-cmk

25°C

17-12-2024

Remote Sleep Monitoring

Figure

Participants: santosh satap..., Prabu M&U, Rajeshkumar S, Geetha R, Vinothkumar K..., Binu Manohar, Dr.A.Kaleel Ra..., 34 others, Nagaraj Rajen...

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Amutha S (Presenting)

10:34 | bzq-vvfx-cmk

Type here to search

25°C Mostly cloudy

10:34 18-12-2024

meet.google.com/bzq-vvfx-cmk

Pandiyarasan Veluswamy (Presenting)

Internet of Things (IoT) In Wearable - Telemedicine

- Wearable IoT (WIoT) - network of patient-worn smart devices with sensors, actuators and software connected to the cloud
- Enable collection, analysis and transmitting of personal health data in real time.

Source: Wearable Technology

Wearable Technology

14:37 | bzq-vvfx-cmk

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HDF...

14:37 18-12-2024

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Dr.R.Sujithra kanmani (Presenting)

```

pip install -q gradio
pip install -q git+https://github.com/huggingface/transformers.git

57.2/57.2 MB 11.8 MB/s eta 0:00:00
120.4/120.4 MB 15.0 MB/s eta 0:00:00
94.0/94.0 MB 6.0 MB/s eta 0:00:00
13.2/13.2 MB 68.5 MB/s eta 0:00:00
73.2/73.2 MB 4.0 MB/s eta 0:00:00
62.3/62.3 MB 4.3 MB/s eta 0:00:00

Installing build dependencies ... done
Getting requirements to build wheel ... done
Preparing metadata (pyproject.toml) ... done
Building wheel for transformers (pyproject.toml) ... done

[] import gradio as gr
import tensorflow as tf
from transformers import TFSeq2SeqWrapper, TFSeq2SeqWrapper

tokenizer = TFSeq2SeqWrapper.from_pretrained("gpt2")
model = TFSeq2SeqWrapper.from_pretrained("gpt2", pad_token_id=tokenizer.eos_token_id)
tokenizer_output = gr.tokenizer.encode("hello world")

```

11:06 | bzq-vvf-cmk

Headphone (Realtek(R) Audio)

24°C Rain

19-12-2024


Inbox - nagarajstin@gmail.com x | Feedback for Session-8 - Goog... x | WhatsApp x | Meet - bzq-vvf-cmk x | +

meet.google.com/bzq-vvf-cmk

Narendra Khatri (Presenting)

Precision Agriculture

'Precision agriculture is a management strategy that gathers, processes and analyzes temporal, spatial and individual data and combines it with other information to support management decisions according to estimated variability for improved resource use efficiency, productivity, quality, profitability and sustainability of agricultural production.'



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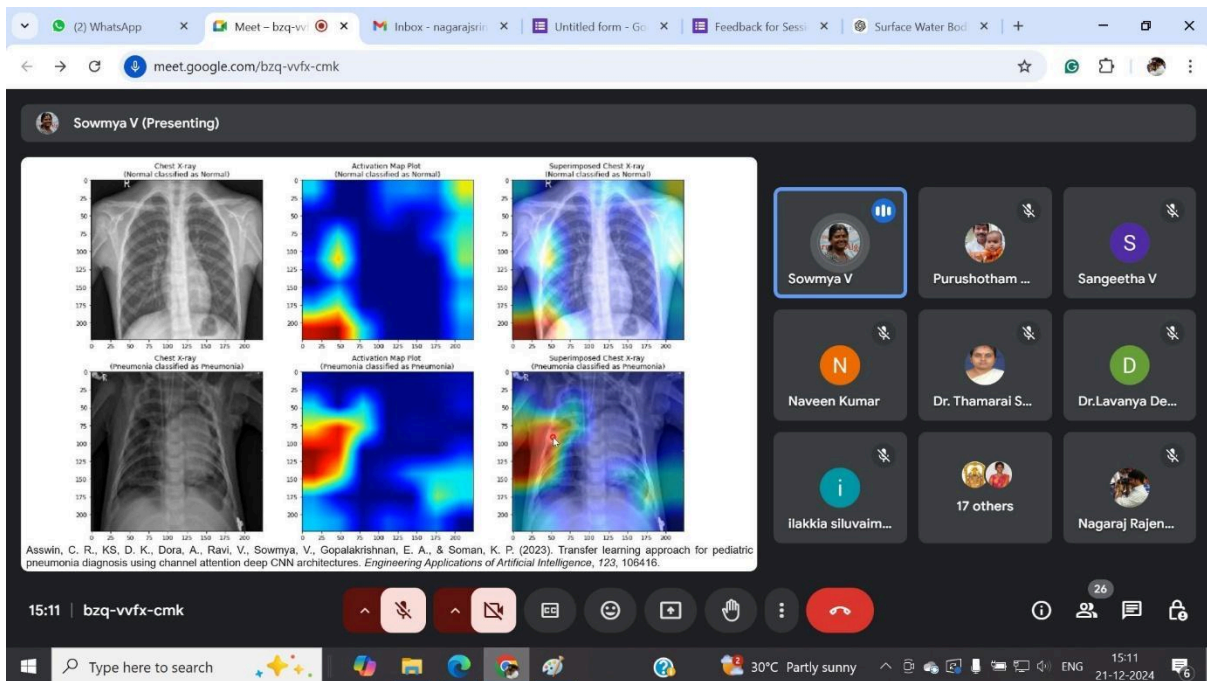
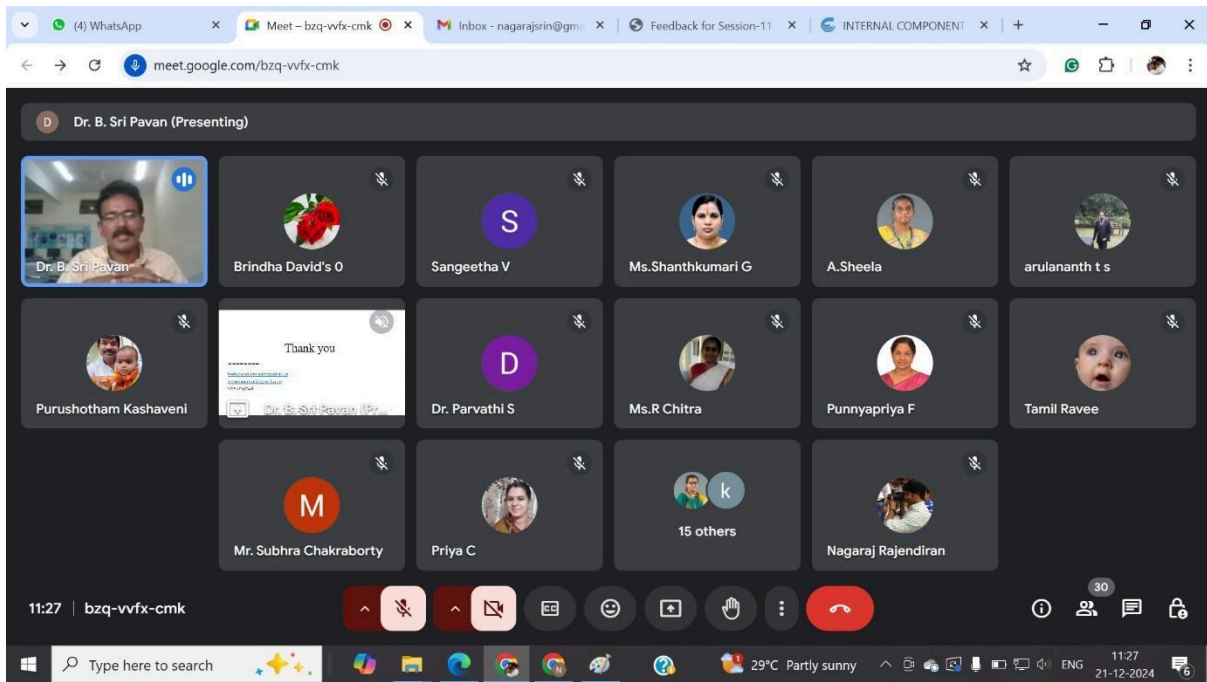
1/9/2023 Dr. Narendra Khatri

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28

24°C

19-12-2024



Feedback Analysis:

The FDP on AI and ML was highly appreciated by the participants for its insightful content and engaging delivery. The speaker effectively covered the latest trends and research in the field, making the sessions informative and valuable. With 76 out of 103 participants successfully completing the program, the event met its objectives, and feedback indicates strong interest in similar future sessions.