Sarvajanik Education Society

Sarvajanik University

Sarvajanik College of Engineering and Technology

Report

on

Faculty Development Program

On

AI-Driven Wearables and Robotics: Transforming the Future of Healthcare and Telemedicine

Dates: 27th January, 2025 to 1st February, 2025

Coordinator

Dr. Chirag Paunwala

(Electronics and Communication Department)

Co-Coordinator

Dr. Vivaksha Jariwala

(Information Technology Department)

The ATAL FDP titled *"AI-Driven Wearables and Robotics: Transforming the Future of Healthcare and Telemedicine"* was organized by the Electronics and Communication department and Information Technology department of SCET.The FDP aimed to provide insights into advancements in artificial intelligence for wearables, and robotics, focusing on their application in healthcare and telemedicine. It was scheduled from 27th January to 1st February 2025. The organizing committee included Prof. (Dr.) Ketki Pathak, Prof. (Dr.) Vandana Shah, Prof. Chhaya Suratwala, Prof. (Dr.) Ankit Kharwar, Prof.Ankit Patel, Prof. Karishma Desai and Ms. Khushbu Naik. The program covered various cutting-edge topics presented by distinguished speakers from academia and industry. The FDP received an overwhelming response with a total of 296 registrations from across India.

Program Schedule and Sessions:

Day 1: 27th January 2025

- **Inauguration:** 6:00 PM - 6:30 PM
    - Prof. Chirag Paunwala introduced the FDP, highlighting its objectives and importance.
- **Session 1:** 6:30 PM - 8:00 PM
    - **Topic:** Smart Wearable Technologies for Personalized Health Management Technology
    - **Speaker:** Dr. Amit Joshi
    - Explored emerging wearable technologies designed for personalized healthcare and preventive medicine.
- **Session 2:** 8:00 PM - 9:30 PM
    - **Topic:** Practical Exploration of Early Detection of Dyslexia Using EEG Signal Analysis
    - **Speaker:** Dr. Shankar Parmar
    - Presented practical approaches and real-world applications of EEG signal analysis for early dyslexia detection.

Day 2: 28th January 2025

- **Session 1:** 6:00 PM - 07:30 PM
    - **Topic:** Transforming Healthcare with AI-Driven Thermal Imaging Technology
    - **Speaker:** Dr. Siva Teja Kakileti
    - Expert discussed the advancements in thermal imaging technology driven by AI, emphasizing applications in early disease detection and patient monitoring.
- **Session 2:** 07:30 PM - 9:00 PM
    - **Topic:** Bluetooth ECG - Opportunities and Challenges
    - **Speaker:** Dr. Utpal Pandya
    - Covered the potential of Bluetooth-enabled ECG devices in remote health monitoring, addressing technical challenges and future prospects.

Day 3: 29th January 2025

- **Session 1:** 6:00 PM - 07:30 PM
    - **Topic:** Touchpoints of Care: The Interaction of User Technology and User Experience in Wearable
    - **Speaker:** Mr. Rahul Makahaniya
    - Addressed the critical role of user experience in wearable healthcare technologies.
- **Session 2:** 07:30 PM - 9:00 PM
    - **Topic:** Physical Perspective of Quantum Computing and Machine Learning
    - **Speaker:** Dr. Monika Aggarwal
    - Delved into the intersection of quantum computing and AI, exploring computational advantages in healthcare applications.

Day 4: 30th January 2025

- **Session 1:** 6:00 PM - 07:30 PM
    - **Topic:** Brain-Computer Interfaces - Are We There Yet?
    - **Speaker:** Dr. Ivan Tashev
    - Provided insights into advancements and challenges in developing brain-computer interfaces for healthcare.

- **Session 2:** 07:30 PM - 9:00 PM
    - **Topic:** The Path of Medical Imaging Innovations: From early Ideas to product and clinical Adoption
    - **Speaker:** Dr. Mariya Doneva
    - Reviewed the evolution of medical imaging technologies and the impact of AI-driven innovations.

Day 5: 31st January 2025

- **Session 1:** 6:00 PM - 07:30 PM
    - **Topic:** The Role of AI in Cancer and Cardiovascular Diseases Detection and Management
    - **Speaker:** Dr. Rohit Thanki
    - Highlighted AI's role in improving diagnostic accuracy and treatment planning for critical illnesses.
- **Session 2:** 07:30 PM - 9:00 PM
    - **Topic:** AI and Peritoneal Dialysis
    - **Speaker:** Mr. Akbar Doctor
    - Discussed AI's application in optimizing peritoneal dialysis processes and enhancing patient outcomes.

Day 6: 1st February 2025

- **Session 1:** 2:00 PM - 03:30 PM
    - **Topic:** Implications for Diagnosis of AI-based Histopathology Image Classification
    - **Speaker:** Dr. Hiren Mewada
    - Focused on the use of AI to automate and improve histopathology image analysis.
- **Session 2:** 03:30 PM - 5:00 PM
    - **Topic:** Measuring Presence in Virtual Reality Using Machine Learning
    - **Speaker:** Prof. Anubha Gupta

- Explained how machine learning enhances VR experiences in healthcare training and therapy.

- **Session 3**:05:00 PM-06:30 PM (concluding Activities)
  - ATAL Quiz
  - ATAL Feedback form
  - Vote of Thanks: Delivered by Prof. Vivaksha Jariwala, who expressed gratitude to all participants, speakers, and the organizing team

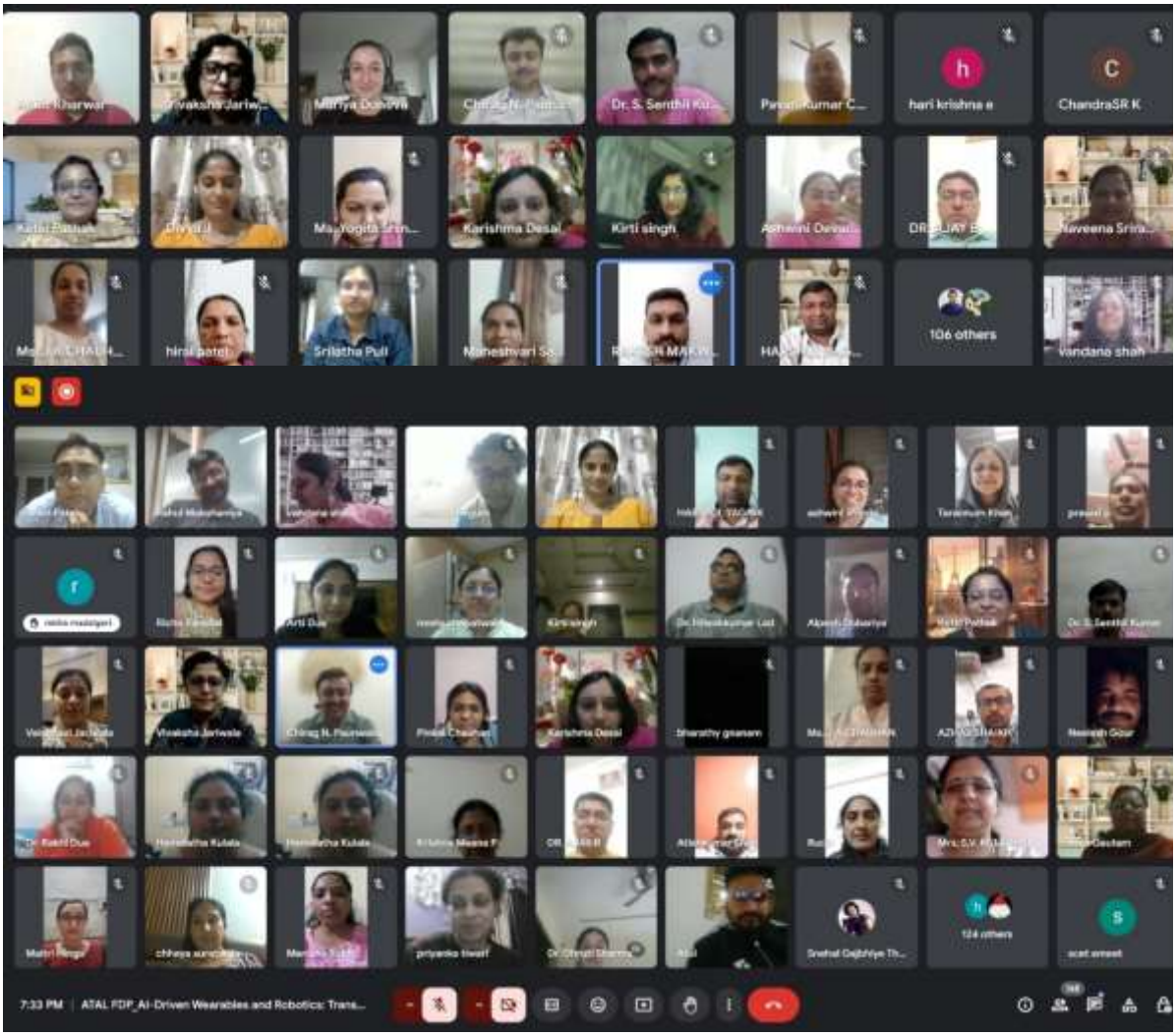
The FDP equipped participants with valuable insights into the transformative role of AI in revolutionizing healthcare and telemedicine. It provided practical knowledge on emerging technologies like smart wearables, robotics, and advanced diagnostic tools, empowering them to integrate these advancements into their teaching, research, and professional practices. Participants benefited from expert-led sessions, fostering interdisciplinary collaboration, innovative thinking, and a deeper understanding of industry trends and challenges. Additionally, the program encouraged skill enhancement, networking opportunities, and ethical considerations in AI applications, enabling them to contribute more effectively to academic and technological advancements.

The program received an overwhelmingly positive response from participants, who praised the expertise of the speakers and the well-organized sessions. Many participants expressed interest in attending similar FDPs in the future and commended the organizing committee for its efforts.

We sincerely thank AICTE ATAL for approving our proposal and providing a platform to host this FDP. Our gratitude extends to the Sarvajanik Education Society, Sarvajanik University and Principal Dr. Hiren Patel for granting permission and offering their unwavering support and guidance. We would also like to express our gratitude to the IEEE Signal Processing Society.We deeply appreciate all the speakers for accepting our invitation and dedicating their valuable time to enrich this FDP. Special thanks to the organizing committee members for their efforts in ensuring the smooth execution of the program. Lastly, we are truly grateful to all the participants for their active involvement and enthusiasm throughout the FDP.

Photographs:


Anubha Gupta (Presenting, annotating)
This call is being recorded
Parameters Responsible for VR Presence
Visual Quality
High Resolution
Realistic Design
More number of polygons in graphics induce more presence [8]
Latency
Display lag and perceived scene instability are directly correlated. Display lag results in cybersickness [9].
Presence
Cybersickness
Audio Effect and Other Feedbacks
Inclusion of detailed audio effects can increase the sense of realness
Along with audio, other sensory feedbacks such as tactile, olfactory, haptic improve the presence [10].
Embodiment
Embedded in the character influences the users to feel more presence in the environment [11].
Anubha Gupta
Dr. Pratap Singh Pat...
Chirag N. Paunwala
Vivaksha Jariwala
Dr. Dhruti Sharma
Prasanna Roy
Shridevi Havanoor
131 others
vandana shah
3:54 PM | ymk-ntwb-jzs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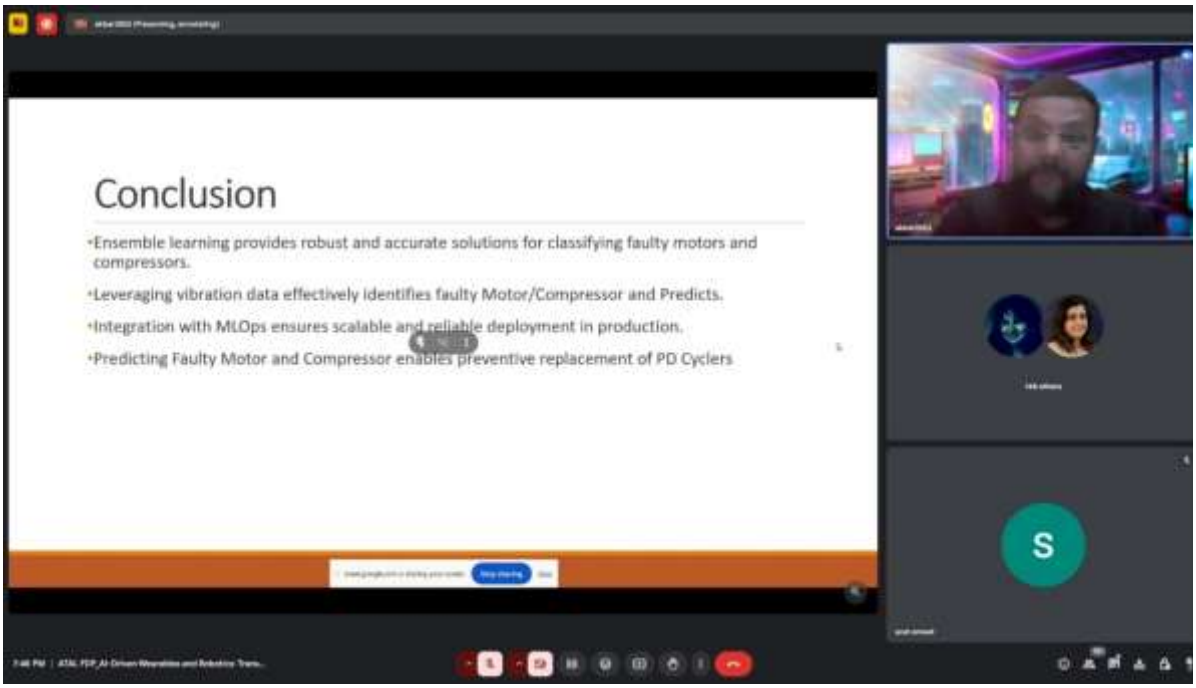
7:33 PM | ATAL FDP_AI-Driven Wearables and Robotics: Trans...


AICTE Training and Learning (ATAL) academy
Online One week Faculty Development Programmes 2024-25
AI-Driven Wearables and Robotics: Transforming the Future of Healthcare and Telemedicine
27th January to 1st February 2025
Presents
Token of Gratitude and Appreciation
For delivering an Expert Talk on
"The path of From early ideas to Products medical imaging innovations and Clinical Adoptions"
Dr. Mariya Doneva
Senior Scientist and a Team Lead at Philips Research, Hamburg, Germany


Conclusion
•Ensemble learning provides robust and accurate solutions for classifying faulty motors and compressors.
•Leveraging vibration data effectively identifies faulty Motor/Compressor and Predicts.
•Integration with MLOps ensures scalable and reliable deployment in production.
•Predicting Faulty Motor and Compressor enables preventive replacement of PD Cyclers
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