



7th International Conference on Energy, Power and Environment

May 09 – May 11, 2025



**Venue: National Institute of Technology Meghalaya,
Sohra Campus, India**

Website: <https://nitm.ac.in/icepe2025/>



ICEPE 2025 Special Session (SS-01)

Title of the special session

AI/ML Technologies based Sustainable Development in Recent Advancement of Research

Aims and scope of the session

The rapid evolution of Artificial Intelligence (AI) and Machine Learning (ML) technologies has transformed industries across the globe, offering innovative solutions to tackle challenges in sustainable development. As the world faces increasing pressure to reduce environmental impact, the integration of AI/ML in sectors such as electric vehicles (EVs), signal processing, and image processing is emerging as a key driver for sustainability. This special issue seeks to highlight the latest advancements in these areas, focusing on their contributions to sustainable development goals (SDGs), particularly in reducing carbon footprints, improving energy efficiency, healthcare, and enhancing mobility and transportation systems.

ICEPE encourages academicians, researchers, and industrialists to submit papers in the special issue: AI/ML Technologies based sustainable development in recent advancement of research. Papers to be submitted in this special issue will be mostly in the applications of electric and hybrid electric vehicles, signal and image processing, sustainable energy system etc. that should incorporate artificial intelligence and machine learning in the part of implementation. The articles in the special issues are expected only in the form of research outcomes, but not in the form of review form of work. The format of the articles will be in standard IEEE Conference format starting from abstract to keywords, introduction, methodology, results through conclusions.

The topics of interest encompass (but not limited to)

- AI/ML in Electric Vehicle Technology
- Signal Processing for Sustainable Solutions
- AI/ML in Image Processing
- AI/ML for Sustainable Energy Systems and Grid Integration
- Energy-Efficient AI Algorithms for Real-Time Processing

Special Session Organizers

**1. Dr. Showmik Bhowmik, Assistant Professor, Computer Science & Engineering Department,
GKCIET, Malda,**

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Dr. Showmik Bhowmik is currently working as an Assistant professor in the Department of Computer Science and Engineering at Ghani Khan Choudhury Institute of Engineering and Technology. He has received his M.E. and Ph.D. degrees from Jadavpur University, from the Department of Computer Science and Engineering.

Dr. Bhowmik was selected as Visvesvaraya Research Fellow by the Ministry of Electronics and Information Technology, Government of India during his Ph.D. His system, developed during his Ph.D.

won the international competition named “ICDAR 2019 Competition on Recognition of Early Indian Printed Documents- REID 2019” in Sydney, Australia. He was also one of the members of the winning team of “ICDAR 2019 Competition on Document Image Binarization-DIBCO 2019”, in Sydney, Australia. Dr. Bhowmik was selected for RUSA 2.0 scholarship for Students to attend Conference/ Seminar / Workshop in abroad.

Dr. Bhowmik has more than 18 international journal publications in reputed SCI-indexed journals like IEEE Trans. on Image processing, IEEE Trans. on Instrumentation and Measurement, Neural Computing and Applications, Multimedia Tools and Applications, Springer. etc and around 20 international conference publications. He has also written a book name “Document Layout Analysis” published by Springer publication. His current areas of research are pattern recognition, image processing, offline handwriting recognition, machine learning, and Deep learning.



2. Dr. Amarjit Roy, Assistant Professor, Department of Electrical Engineering, GKCIET, Malda

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Dr. Amarjit Roy has completed his BTech from West Bengal University of Technology, India and his MTech from National Institute of Technology, Silchar, India. He has completed PhD from NIT Silchar, India in the Year 2018. His major research interests are Image processing, Soft Computing, Machine Learning, Adaptive Signal Processing. He has 7.5 years of teaching experience. Currently, he is working as an Assistant Professor at Ghani Kahn Choudhury Institute of Engineering and Technology, Malda (A CFTI under MoE). He has served as an Assistant Professor at VIT AP University for 1.5 years and at BML Munjal University for 3 years.



3. Dr. Chiranjit Sain, Assistant Professor, Department of Electrical Engineering, GKCIET, Malda

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Dr. Chiranjit Sain received B.Tech in Electrical Engineering from West Bengal University of Technology, West-Bengal and M.Tech from National Institute of Technical Teachers Training and Research (NITTTR), Kolkata, India under the Electrical Engineering department. He has completed his PhD in Electrical Engineering from the National Institute of Technology Meghalaya, India in 2019. Presently he is working as an Assistant Professor in the Electrical Engineering Department at Ghani Khan Choudhury Institute of Engineering & Technology (GKCIET), Malda, A Centrally Funded Technical Institute (CFTI) under Ministry of Education, Govt. of India. He was associated with Siliguri Institute of Technology, Siliguri, India during 2010-2021. Dr. Sain is a Fellow- IETE, senior member of the IEEE and life-time member of the Institution of Engineers India Limited. He has about 13 years of academic experience, 8 years of research experience, and 1 year of industrial experience. His present research of interest includes electric vehicles technology, renewable energy systems and grid integration, control of PM motor drives, etc. He has published more than 60 papers in national/international level journals/conferences/books/book chapters in the relevant field. Additionally, he is guiding four (04) PhD scholars in joint collaboration with NIT Mizoram. He is presently serving as an Academic Editor at PLOS ONE International journal and Discover Electronics, Springer Nature.

