



IEEE North-East India International Energy Conversion Conference and Exhibition (NE-IECCE) 2025

July 4-6, 2025

1st Flagship Conference of IEEE IAS Joint Chapter of IEEE Silchar Subsection | @ National Institute of Technology Silchar, Assam | India



IEEE IAS NE-IECCE Oral Paper Presentation Schedule

DAY 2: 5th JULY 2025

Technical Session 1 (Oral Presentations: 1-6)

Oral Presentation-1 (EED Seminar Hall)

Special Session 1: Advances in Control and Operation of Inverter-Dominated Power Distribution System

Time: 09.00 AM – 10.30 AM

Session Chairs: Dr. Shailendra Kumar, Indian Institute of Technology Bhilai; Prof. Nidul Sinha, NIT Silchar

Paper Ids	Paper Title
369	Double Boosted voltage 5 Level Inverter Topology for Renewable Energy Applications
497	Impedance Based Stability Analysis of DC Microgrid
408	A Novel Backup Protection Function to Realize Dependable Numerical Protection

484	Logarithmic Absolute Square Error Based Differential Protection Scheme for AC Microgrid
374	A Hybrid MPPT Approach for BLDC Motor Speed Control Using Adaptive pi and Boost Converter

Oral Presentation-2 (CIA Classroom)

Special Session 4: Stationary and Mobile battery storage for Advancing grid Resilience and flexibiliTy (SMART)

Time: 09.00 AM – 10.30 AM

Session Chairs: Dr. Subho Paul, IIT (BHU) Varanasi, Prof. L. C. Saikia, NIT Silchar

Paper Ids	Paper Title
457	DESIGN AND SIMULATION FOR A FULL BRIDGE LLC DC-DC CONVERTER FOR EV CHARGING APPLICATION
251	Grid-Forming Control for Edge-Based DERs: Integration Strategies and Performance in Weak Grids
376	Quantum Computing for Enhanced Material Discovery and Optimization in Electric Vehicle Batteries
436	A Novel Hybrid Islanding Detection Technique for PV-Battery DC Microgrid
456	BatteryRL: Deep Q-Network for Intelligent Battery Management in Smart Grid Environment
465	Peer-to-Peer Energy Trading Framework for Microgrid Community Considering Community Hybrid Energy Storage
693	Performance Comparison of Conventional and Three level Buck-Boost converter for Efficient EV Charging Application

Oral Presentation-3 (PESE Classroom)

Special Session 5: Artificial Intelligence and Machine Learning for Smart, Resilient, and Sustainable Energy Systems

Time: 09.00 AM – 10.30 AM

Session Chairs: Dr. Sreejith S., NIT Silchar; Dr. R. Dey, NIT Silchar

Paper Ids	Paper Title
275	Machine Learning-Based Backup Protection for Wind Farm Integrated Transmission System
479	Monitoring and Prognostics of Lithium-Ion Batteries Using Dual Gaussian Process Regression
603	Enhanced Speed Control of Hybrid Energy Source-based Switched Reluctance Motor Employing PSO-Tuned PI Controller
632	Digital Twin Based on Neural Network for a Grid Connected Modular Multilevel Converters for HVDC Transmission
725	A Machine Learning-Driven Oscillatory Mode Estimation Scheme for Smart and Sustainable Energy Systems Using Degraded PMU Measurements

Oral Presentation-4 (CR-01)

Special Session 6: Hydrogen Fuel Cells and Hybrid Electric Vehicles: Innovations in Control, Design, and Policy for Sustainable e-Mobility

Time: 09.00 AM – 10.30 AM

Session Chairs: Dr. Sukanta Halder, Indian Institute of Technology (ISM) Dhanbad; Dr. Mousam Ghosh, Walchand College of Engineering Sangli

Paper Ids	Paper Title
602	Eliminating Cascaded Control Loops: A Neural Network Approach for Grid-Forming Inverters
683	Ideal location for DG to advance their voltage profile using STATCOM and renewable vitality sources
719	Mitigation of DC Bus voltage Oscillations in Cascaded Systems of DC Microgrids: A Novel Source-Side Virtual RL Damper Approach
720	A Novel Source-Side Virtual RLC Damping Approach to Mitigate DC Bus Voltage Oscillations in Cascaded System of DC Microgrids
768	Hierarchical Attention-Enhanced Transformer Framework for Prognostic Degradation Modeling and Capacity Estimation of Lithium-Ion Batteries
771	Ultra-High Gain DC-DC Converter driven PMSM for Green Energy Application

Oral Presentation-5 (Project Lab)

Special Session 7: Advances in Wired and Wireless Charging Infrastructure for Sustainable Vehicular Technologies

Time: 09.00 AM – 10.30 AM

Session Chairs: Dr. Kundan Kumar, NIT Jamshedpur; Dr. Kumari Sarita, Government Engineering College Aurangabad, Bihar

Paper Ids	Paper Title
386	Parametric Analysis of Recent Hybrid BIPV Array Configurations for Power Loss Mitigation under Non-uniform Shading Situations
596	In-Motion Charging Coil configuration for the Improved Battery Charging of Electric Vehicles
614	Analysis of Coupled Inductor based Full Bridge Dual Active Bridge Isolated Converter for Electric Vehicle Charging
748	Analysis of SiC MOSFET-based Phase-shift and Quasi Square Wave Modulated Dual Active Bridge Converter for On-board Charging Application
802	Analysis of Four-switch Non-isolated Non-inverting Buck-Boost Converter Considering Non-idealities

Oral Presentation-6 (Maths Seminar Hall)

Track 1: Power Conversion Technologies for Transportation Electrification and Sustainable Energy Integration

Time: 09.00 AM – 10.30 AM

Session Chairs: Dr. Avirup Maulik IIT (BHU) Varanasi; Prof. Arup Kumar Goswami, NIT Silchar

Paper Ids	Paper Title
201	A Quarter Wave Symmetry Based Modified Harmonic Minimization Scheme for 3-Phase 7-Level Cascaded H-Bridge Multilevel Inverter
283	Centrally Aligned Pulse Based One Cycle Control Technique for PWM Voltage Source Inverters
359	Novel Single Switch Quadratic Boost Converter with Continuous Input and Common Ground
371	A Non-Isolated Voltage Lift based Enhanced Quadratic Boost Converter
373	A Novel Bridgeless Cuk-Cascaded Flyback PFC Converter for EV Charging
762	Stability Assessment of an IBR-based LFC System using Grid-Forming (GFM) Inverter Control

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DAY 2: 5th JULY 2025

Technical Session 2 (Oral Presentations: 7-12)

Oral Presentation- 7 (CR 01)

Track 2: Modeling and Control of Energy Efficient Drives for Electric Transportation (LAND, AIR AND SEA)

Time: 04.30 PM – 6.00 PM

Session Chairs: Prof. Vinod Khadkikar, Khalifa University, UAE; Dr. Vijay Mohale, Walchand Collge of Engineering

Paper Ids	Paper Title
344	Development of the Dynamic Model of a Single-Stator Dual-Rotor Induction Machine
529	A Novel Interturn Fault Identification Solution for BLDC Motor Based EV System
665	Efficient Sensorless Speed Control Techniques for BLDC Motors Using Back-EMF Zero-Crossing
889	Flux Observer-Based Position Sensorless Control of PMaSyRM for Light Electric Vehicles with Regenerative Braking
307	An Uniform Wideband High-Frequency Current Transformer for Measurement of Partial Discharges in High Voltage Power Apparatus
309	Estimation of Inertial Transfer Function Coefficients and Algorithm Development for Forecasting Inertia in Indian National Electricity Grid
775	Analyzing the Performance of Linear and Nonlinear Multi-Period Optimal Power Flow Models for Active Distribution Networks

Oral Presentation-8 (CR 02)

Track 3: Smart and Sustainable Charging Infrastructure for e-Mobility

Time: 04.30 PM – 6.00 PM

Session Chairs: Dr. Arunima Dutta, NIT Meghalaya; Prof. Saurabh Chaudhury, NIT Silchar

Paper Ids	Paper Title
375	A High-Efficiency EV Charging System with Interleaved Buck-Boost Converter and Adaptive Control
490	Design and Simulation of EV Charger for wide Voltage range based on Phase shift full bridge DC-DC Converter
587	An IoT based Cloud Integrated State of Charge Estimation of battery Pack in SIMULINK Platform
908	Design and Analysis of Charging and Discharging System for Electric Two-Wheeler
430	Assessment of Seasonal Variability for Resilience and Reliability Analysis of Grid Integrated Photovoltaic Systems for Energy Management
432	MISMATCH CURRENT EXTRACTION TECHNIQUE USING MULTI INPUT SINGLE OUTPUT DC-DC CONVERTER TO ENHANCE THE PERFORMANCE OF THE PARTIALLY SHADED PHOTOVOLTAIC ARRAY.
613	Control and Modelling of PMSG-based Wind Turbine for integration to Conventional Grid

Oral Presentation-9 (Project Lab)

Track 5: Computational Intelligence, Cyber Security and IoT Applications for Energy Efficiency and Conservation

Time: 04.30 PM – 6.00 PM

Session Chairs: Prof. Nalin Behari Dev Choudhury, NIT Silchar; Dr. Nilesh Kumar Rajalwal, BITS Mesra

Paper Ids	Paper Title
464	An Enhanced Energy Conserving Sensor Scheduling Scheme for Wireless Sensor Networks
622	A Hybrid Deep Learning Network for Grid-Connected Solar Panel Fault Detection
714	FedCNN: Federated Learning Framework Based CNN Model for Fault Classification in IEEE 30 Bus Transmission System
773	Cyber-Induced Voltage Deviation Detection and Mitigation in DC Microgrids Under Operational Constraints
909	Harris Hawks Optimized Regulated Frequency in Thermal, Hydro, and Solar Integrated Power System
427	Design of Event-Based Sliding Mode Controller under Denial of Service Attack

Oral Presentation-10A (CIA Classroom)

Track 6: Automation, Control and Digitisation for Industry Applications

Time: 04.30 PM – 6.00 PM

Session Chairs: Dr. Piyush Pratap Singh, NIT Meghalaya; Dr. Anish Ahmad, Tezpur University

Paper Ids	Paper Title
135	Induction Motors with Variable Frequency Drives: A Systematic Review with Focus on Health Monitoring
297	Second-order Sliding Mode Load Frequency Control of Interconnected Power System
321	Review of Condition-based Monitoring Techniques for Electrical and Industrial Assets to Promote Digitalization Strategies for Utilities
385	A Novel Reaching Law-based Double Integral Sliding Mode Control for Automatic Voltage Regulator
702	A Direct Method to Improve the Load Margin of Power Systems
740	A Five-Stage Algorithm For Estimating Electromechanical Modes of Power Systems
856	Data-Driven Diagnostic Analysis of an Oil Leakage Incident in a Utility-Scale Distribution Transformer

Oral Presentation-10B (PESE Classroom)

Track 4: Energy Conversion and Management for Sustainable Smart Energy Systems and Rural Electrification

Time: 04.30 PM – 6.00 PM

Session Chairs: Dr. Sanjoy Debbarma, NIT Meghalaya; Dr. B. Shakila, NIT Nagaland

Paper Ids	Paper Title
358	Multi-layer Perceptron-Recurrent Neural Network VSC for EV Charging Stations with Integrated Renewable Energy Systems
451	BIPV Based Community Microgrid Aggregation for Net Zero Energy Building
452	Performance Analysis of Grid-Forming Converters in Battery Energy Storage Systems for Large-Scale Solar/Wind Integration
865	Enhanced Performance of Triboelectric Nanogenerator for Martian Environment
330	Direct method for evaluation of energy conversion efficiency in solenoid valves during start transient and improvements obtained by core annealing
834	Design and Analysis of TSK Fuzzy Controllers based Grid Connected DFIG System for Improving Power Quality
793	Digital Control System Based Isolated Totem Pole Converter for Electric Vehicle Onboard Chargers

876	Predictive Models for Voltage Degradation in PEM Fuel Cells Using Gradient Boosting and LSTM Networks
412	A Novel Adaptive Modulation Scheme for Reactive Power Minimization in Dual Active Bridge with Varying Load Demands

Oral Presentation-11 (EED Seminar Hall)

Track 5: Computational Intelligence, Cyber Security and IoT Applications for Energy Efficiency and Conservation

Time: 04.30 PM – 6.00 PM

Session Chairs: Dr. Nabanita Adhikary, NIT Silchar; Dr. B. Ganguly, NIT Silchar

Paper Ids	Paper Title
833	Fuzzy Logic Controlled 6-Phase PMSM Drive Under Various Operating Conditions
299	A Residual Dense Network Approach for False Data Injection Attack Localization in Power Grid
392	Smart Energy allocation for Electric Vehicles using Predictive Modelling
515	Machine Learning-Based Prediction of Distributed Solar Adoption
555	Cloud-Based Energy Management In Residential and Commercial V2G Networked Microgrid
278	Development of Agriculture Monitoring System for Eggplant Crop using Unmanned Aerial Vehicle
595	Operation Risk Based Optimal μ PMU Placement In Distribution Network Considering Radial Buses
686	Automatic Control & Weight Monitoring of a Vacuum Based Grain Collecting Machine.
556	A Novel Sensor-less Model Predictive Direct Torque Control for PMSM Using Sliding Mode and Adaptive Disturbance Observers
795	A Comparative Study of Transformers based Machine Learning Models for Solar PV Power Forecasting

Oral Presentation-12 (Maths Seminar Hall)

Special Sessions: 1-7

Time: 04.30 PM – 6.00 PM

Session Chairs: Dr. Soumyabrata Barik, IIT ISM Dhanbad; Dr. Tushar Kanti, NIT Durgapur

Paper Ids	Paper Title
469	Battery Management System for Smart Wi-Fi Router Adapter for Rural Applications
575	PMU Placement to Estimate Power Mismatch for Frequency Stability Assessment
755	A Comparative Study of Battery State of Charge Estimation Techniques
428	Artificial Intelligence-Powered Real-Time Network Intrusion Detection System with Large-Scale Data Processing in Cloud Environments
480	Artificial Intelligence-Based Comparative Analysis of Wind Energy Forecasting Models
485	A Robust Machine Learning Approach for AC Microgrid Fault Diagnosis Using FFT and XGBoost

477	Improving Grid Stability and Balancing Renewable Power Intermittence with P2H2P Hybrid Power Systems Model: A Performance Study
487	A Universal Battery Charger with Wide Operating Voltage Range and Active Power Decoupling for Electric Transportation
669	Electricity Theft Detection using Ensemble-Based Machine Learning Classifier
481	Reliability Assessment of High Gain Coupled Inductor based Boost Converter for Fuel Cell Electric Vehicle using Markov Analysis



DAY 3 : 6th JULY 2025

Technical Session 3 (Oral Presentations: 13-18)

Oral Presentation- 13 (EED Seminar Hall)

**Track 1: Power Conversion Technologies for Transportation
Electrification and Sustainable Energy Integration**

Time: 11.00 AM – 01.00 PM

Session Chairs: Prof. J. P. Mishra, NIT Silchar; Dr. Biswajit Sahoo, NIT Silchar

Paper Ids	Paper Title
483	Hybrid Ensemble Learning Technique for Efficient Fault Detection in AC Microgrid
712	Dual Duty Triple Mode Active Switched Inductors DC-DC Converter with Reduced Switch Voltage Stress
504	Design of a Bi-Directional Multi-Port Dc-Dc Converter for Hybrid Energy Storage in Electric Vehicles
533	Smart Energy Management in EV Charging Stations Using a PV-Based Boost Converter and Multilevel Inverter
601	Hybrid Adaptive Power Coordination based control and SODA MPPT for Fuel Cell-Battery EVs
608	An Integrated Converter for Electric Vehicle Charging using Grid and Solar Power with Minimal Components
338	Interior Permanent Magnet Synchronous Machine controlled through direct torque for Electric Vehicle
659	Design and analysis of high power bidirectional resonant converters for 800 -V battery charging applications
891	Four-plate capacitive wireless power transfer using LCL-LCL compensation for electric vehicle charging application
794	From Design to Road: Development and Performance Analysis of an Electric Jeep

Oral Presentation-14 (CIA Classroom)

Track 4: Energy Conversion and Management for Sustainable Smart Energy Systems and Rural Electrification

Time: 11.00 AM – 01.00 PM

Session Chairs: Prof. Senthil Kumar, NIT Trichy; Dr. Rangu Seshu Kumar, Vignan's Foundation for Science Technology and Research (VFSTR)

Paper Ids	Paper Title
618	Advanced Single-Stage on Grid Photovoltaic System for High-Efficiency DC Fast EV Charging Using SM-Sign NLMS Algorithm
325	Identify the Net-Zero Emission Pathways through Cross-Border Power Interconnection in the BIMP Region
379	Comparison of Optimization Techniques for Energy Conversion and Management in Sustainable Smart Energy Systems
474	Optimized Load Identification Using Total Harmonic Distortion and Artificial Bee Colony Algorithm
502	NILM Scheme Enabled Wide Range of Electrical Load Identification using SST and SVM Techniques
540	Adaptive Clustering for Distributed Load Management in Industrial Consumers: A Swarm-based Approach
770	WL-QHTGM-Based Adaptive Control of Grid- Connected PV System for Solar Water Pumping with PMSM Drive
832	Enhancement of Power Quality by Novel Control Method of Wind-AE-FC-BSS based Hybrid Microgrid under Faults on Distribution Lines
849	FOPID Controllers for Regulating Voltage of a Standalone SPV - Diesel Generator - Battery Bank based Power Supply System

Oral Presentation-15 (PESE Classroom)

Track 4: Energy Conversion and Management for Sustainable Smart Energy Systems and Rural Electrification

Time: 11.00 AM – 01.00 PM

Session Chairs: Prof. F. A. Talukdar, NIT Silchar; Dr. Tanmoy Malakar, NIT Silchar

Paper Ids	Paper Title
672	Advancing Industry 4.0 with Cloud-Integrated Cyber-Physical Systems for Optimizing Remote Additive Manufacturing Landscape
685	Smart Predictive Maintenance: AI-Driven Adaptation for Industrial Equipment
857	Design and Analysis of Novel Tristate Quasi-Z-Source Converter with Improved Dynamic Performance

316	Integrating PMU for fault analysis
470	Machine Learning Based Protection Strategy of Microgrid using Synchrophasor Measurement
486	Load Reduction of a Wind Turbine Using H- Infinity based Individual Pitch Control
708	Enhanced Pitch Angle and Battery Charging Control for Standalone Wind Power Systems Feeding DC Loads
332	Novel Advanced biocatalyst optimization algorithm for power loss diminution and voltage stability enhancement
476	Seamless Grid-Compliant EV Charging Using DAB with EPS Modulation for Adaptive Current Control and Power Factor Correction
370	Artificial Intelligence in Photovoltaics to Transform Solar Energy for Greater Efficiency and Scalability

Oral Presentation-16 (CR-01)

Special Session 5: Artificial Intelligence and Machine Learning for Smart, Resilient, and Sustainable Energy Systems

Time: 11.00 AM – 01.00 PM

Session Chairs: Dr. Sreejith S., NIT Silchar; Dr. R. Dey, NIT Silchar

Paper Ids	Paper Title
324	Hybrid Metaheuristic Approach for Optimal LCL-Filter Design in Grid-Connected Inverters Using CSA-PSO with Adaptive Parameter Tuning
331	Optimizing Matrix Converter Performance Using Hybrid Particle Swarm Optimization and Gradient Descent Techniques
349	A Comprehensive Study of Ground Mount and Floating Solar PV System Performance in India for Electric Vehicle Green Charging
326	Hybrid Optimization Using Particle Swarm Optimization and Gradient Descent to Improve Phase Locked Loop Performance in Grid Connected Systems
496	Health Monitoring of Line Insulators Through Artificial Intelligence Based Surveillance System
746	Optimal Placement of Renewable Energy Sources and Fuel Cells in Power System Network
747	Maximum Power Point Tracking of Solar PV System using Novel Hybrid Algorithm
301	Detection and mitigation of cyber threat in deregulated multi -area LFC with renewable source.

Oral Presentation-17 (Project Lab)

Track 1: Power Conversion Technologies for Transportation Electrification and Sustainable Energy Integration

Time: 11.00 AM – 01.00 PM

Session Chairs: Prof. S. K. Biswas, Jadavpur University; Prof. B. K. Roy, NIT Silchar

Paper Ids	Paper Title
256	Enhanced Electric Vehicle Charging using a GaN-HEMT-based Buck Converter with a Resonant Gate Driver for Closed-Loop Operation
489	Dynamic Performance Analysis of PMSM Motors Using Fuzzy Logic PID Controller
445	Impact of Inner Radius Variation on Coil performance in WPT Systems
463	Adaptive Control-Based N-STATCOM for Harmonic Mitigation and Voltage Regulation in Grid-Connected Wind Energy Systems
571	Illustration of SOC controlled DC-DC Battery charger
769	Lyapunov based reference voltage tracking of a switched boost converter
806	High-Voltage Gain Bidirectional Z-Source DC-DC Converter for Efficient Vehicle-to-Grid (V2G) and Grid-to-Vehicle (G2V) Applications

Oral Presentation-18 (Maths Seminar Hall)

Track 6: Automation, Control and Digitisation for Industry Applications

Time: 11.00 AM – 01.00 PM

Session Chairs: Dr. Ravita Lamba, IIT Roorkee; Dr. Tarkeshwar Mahto, SRM University AP

Paper Ids	Paper Title
906	Performance Assessment of Coil Structures for Wireless Charging in Underwater Vehicles
836	Acoustic Partial Discharge Signal Denoising using a Residual Convolutional Neural Network
462	Smart Urban Waste Management System Powered by AI and IoT for Efficient Collection, Segregation, and Disposal
611	An Efficient Two-Point DFT Interpolation Approach for M-Class Synchrophasor Measurement
626	Open-Circuit Fault Diagnosis in Multilevel Inverters Implementing PCA-WE-SVM Technique
637	MPC-Based Control of Dual Active Bridge Converter for DC-Link Voltage Stabilization in PV-Battery DC Microgrids
679	Real-Time Forest Fire Detection Using ESP32 Microcontroller with Cloud-Integrated Monitoring System
811	Experimental Comparative Analysis between IMC and Smith-Predictor on a Two-tank Level Control
897	Robust Virtual Inertia Control of a Microgrid Using Quantitative Feedback Theory


