(15^{th} – 17^{th} June, 2023)

ICEPE 2023 Special Session on

Leveraging Artificial Intelligence and Predictive Analytics to Enable Mass and Seamless Adoption of Electric Vehicles

Aims and scope of the session

As the world is gradually shifting from the conventional fossil fuel-based transportation format to the more sustainable electric mobility format, inherent limitations and challenges exist to overcome. This special session aims to address the same from a multi-dimensional perspective. With the evolving trends in computing, it is imperative to leverage the concept of Artificial Intelligence and Predictive Analytics in electric vehicle subsystems, notably the energy source, propulsion, and auxiliary subsystems. However, there is much scope in further exploring the artificial intelligence techniques utilized in electric vehicles to enhance performance, develop innovation and intelligent charging, etc. This special session further aims to bring together academics and practitioners from universities, national labs, and industries working in electric mobility, connected and autonomous vehicles to discuss and deliberate the role of advanced computing and forecasting solutions to enable a more sustainable and secure form of mobility for the benefit of the future generations.

Topics of interest

This special session invites research papers from the following topics (but not limited) to leverage the role of artificial intelligence, and predictive analytics in electric mobility.

1. Electric vehicle state estimation and control
2. Autonomous and connected vehicles
3. Sustainable electric mobility
4. Battery management systems (BMS) for electric/hybrid electric vehicles (EHV)
5. Battery modelling and state estimation using Artificial Intelligence
6. Battery and motor state prediction using time series forecasting
7. Energy data and analytics in EHV
8. Energy efficient controller area network (CAN) for seamless data transmission in EHV
9. Cyber security issues in connected vehicles
10. Clean and green energy technologies for EHV

Special session organizers

1. **Dr. Mohan Krishna S**
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Mohan Krishna. S (SMIEEE) is currently working as an Associate Professor in the Department of Electrical and Electronics Engineering, Alliance University, Bengaluru. He was awarded Ph.D. in Electrical Engineering (Sensorless control of induction motor drives for EV applications) from Vellore Institute of Technology (VIT) [Institution of Eminence], India, in March 2017. He received B. Tech and M. Tech degrees in Electrical Engineering from Amrita Vishwa Vidyapeetham [Institution of Eminence]. Coimbatore, India in 2009 and 2012 respectively. He also acquired a domain specific MBA (Power Management) from University of Petroleum and Energy Studies (UPES), Dehradun, India, in 2019. He has many research publications in SCI/SCI-E and Scopus indexed journals, book chapters and in conference proceedings to his credit. He has been a resource person for several FDPs in the domain of electric vehicle technology and a technical committee member of several flagship conferences organized across the world. He is Energy section advisory board member of Heliyon (Elsevier). He also serves in the editorial boards of several ESCI/SCOPUS journals. He is also editing several books in the domain of electric vehicles, smart grids and energy sustainability. He is an EXECOM member of the IEEE Young professionals affinity group, Bangalore section. His research interests include, electric vehicles, smart homes and IoT based building energy management systems, state observers for induction motors, energy economics and sustainability etc.

2. **Dr. B Rajanarayan Prusty**
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B Rajanarayan Prusty (Senior Member, IEEE) is presently working as an Associate Professor in the Department of Electrical and Electronics Engineering, Alliance University, Bengaluru. He obtained his Ph.D. from the National Institute of Technology Karnataka (NITK), Surathkal. His exceptional research work during his Ph.D. has led him to crown the prestigious POSOCO Power System Awards (PPSA) for 2019 under the doctoral category by Power System Operation Corporation Limited in partnership with FITT, IIT Delhi. In recognition of his research publications from 2017 to 2019, he was awarded the University Foundation day Research Award 2019 from BPUT, Odisha. He has 20 SCI journal publications and 35 conference publications to his credit. He has authored six book chapters published in CRC Press, Elsevier, and Springer. He has co-authored a textbook entitled “Power System Analysis: Operation and Control” in I. K. International Publishing House Pvt. Ltd. He has also edited a book entitled “Renewable Energy Integration to the Grid: A Probabilistic Perspective,” in CRC Press, Taylor and Francis Books INDIA Pvt. Ltd. He has been an active reviewer since 2015 and has reviewed 300 manuscripts submitted to repute Journals and Conferences. Presently he is the Associate Editor of “Journal of Electrical Engineering & Technology,” Springer. He is also the Academic Editor for the journals “Mathematical Problems in Engineering,” Hindawi, “International Transactions on Electrical Energy Systems,” Wiley-Hindawi, and “Journal of Electrical and Computer Engineering,” Hindawi. He has handled more than 70 manuscripts in the capacity of Journal Editor. His research interest includes time series preprocessing and forecasting, high-dimensional dependence modeling, and probabilistic power system analysis.

3. Dr. Kishore Bingi
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Kishore Bingi received the B.Tech. Degree in Electrical and Electronics Engineering from Acharya Nagarjuna University, India, in 2012. He received the M.Tech. Degree in Instrumentation and Control Systems from the National Institute of Technology Calicut, India, in 2014, and the Ph.D. degree in Electrical and Electronic Engineering from Universiti Teknologi PETRONAS, Malaysia, in 2019. From 2014 to 2015, he worked as an Assistant Systems Engineer at the TATA Consultancy Services Limited, India. From 2019 to 2020, he worked as Research Scientist and Post-Doctoral Researcher at the Universiti Teknologi PETRONAS, Malaysia. From 2020 to 2022, he served as an Assistant Professor at Process Control Laboratory, School of Electrical Engineering, Vellore Institute of Technology, India. Since 2022 he has been working as a faculty member at the Department of Electrical and Electronic Engineering from Universiti Teknologi PETRONAS, Malaysia. His research area is developing fractional-order neural networks, including fractional-order systems and controllers, chaos prediction and forecasting, and advanced hybrid optimization techniques. He is an IEEE and IET Member and a registered Chartered Engineer (CEng) from Engineering Council UK.