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INDIN 2023 Special Session on

SS 13 - Application of Blockchain and AI in Smart Grid and Electric Vehicles

Organized by

Principal Organizer: Nilotpal Chakraborty (nilotpal@ieee.org)

Affiliation: Indian Institute of Information Technology Kottayam, India

Photo and short bio:



Nilotpal Chakraborty is an Assistant Professor at the Indian Institute of Information Technology Kottayam, Kerala, in India. He has obtained his Ph.D. in Computer Science and Engineering from the Indian Institute of Technology Patna, India and has previously worked at Aalborg University, Denmark as a Postdoctoral Researcher and at EMAX Group, Belgium, as an IT Solution and Innovation Expert. His research interests include Smart Grid, Electric Vehicles, Scheduling Algorithms, and Cyber Physical Systems.

Organizer 1: Roshni Chakraborty (roshni.chakraborty@ut.ee)

Affiliation: University of Tartu, Estonia

Photo and short bio:



Roshni Chakraborty is an Assistant Professor, University of Tartu, Estonia. She previously worked as Postdoctoral Researcher at Daisy, Aalborg University, Denmark and received her Ph.D. degree from IIT Patna, India in 2020. Her theme of research is Social Computing in which she specifically works on developing automated AI

approaches for applications related to efficient energy management and online social networks.

Call for Papers

The application of Blockchain is enormous and is revolutionising the energy market. It is an efficient way of meeting the consumption requirement with the best possible way of energy generation and can also be used to establish a hierarchy of priorities in selecting the sources of origin. This accelerates the process of renewable energy certification and helps in automating with a greater degree of traceability. Blockchain also guarantees the transparency and security of the transaction, which remains permanently recorded, allowing the stakeholders to verify the results at any point in time. This also makes it possible to work under smart contracts which are performed automatically when both parties fulfil the agreed terms, thereby cutting out intermediaries and simplifying the process. This reduces costs and increases privacy. Blockchain is a key tool to speed up the process of decarbonizing the economy, as it makes transactions transparent, secure, and efficient, which incentivizes the production and consumption of 100 % renewable energy. On the other hand, the applications of Artificial Intelligence (AI) is well-known in almost all the industries and is being explored heavily in the fields of smart grid and electric vehicles (EV) also. AI, along with intelligent Machine Learning models can help the energy industry enormously with applications such as predictive analysis for the energy grid, battery health management for the EVs, intelligent demand response, estimating renewable energy generations, developing dynamic pricing mechanisms, etc. Through this special session, we encourage the prospective authors to discuss their innovative ideas, potential applications, and state-of-the-art research findings that would be helpful in adapting Blockchain and AI based energy management systems and their applications in smart grid and intelligent transportation systems.

Original, previously unpublished submissions are solicited in the following areas, but not limited to:

1. Blockchain and AI for renewable energy resource management
2. Blockchain and AI for grid management
3. Blockchain and AI based demand response
4. Blockchain for energy trading
5. Blockchain based security and privacy management for energy data
6. AI based predictive analytics for energy management in smart grid
7. AI based charge scheduling management for electric vehicles
8. AI based intelligent battery health management for electric vehicles
9. Blockchain for EV charge management



10. Performance verification of Blockchain protocols and AI models in energy optimization

Submissions Procedure: All the instructions for paper submission are included in the conference website <https://2023.ieee-indin.org/index.php>

Deadlines:

Deadline for submission of papers:	March 01, 2023
Notification of acceptance of papers:	April 15, 2023
Final manuscripts due:	June 05, 2023