

Annual Conference of the IEEE Industrial Electronics Society (IECON 2021)

Special Session on

“Data-Driven Techniques Applicable to Smart Battery Management System to Improve Effective Battery Usage, Safety and Reliability”

Organized by

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Call for Papers

Theme: The current transportation electrification revolution and large-scale integration of intermittent renewable energy sources are being fueled by energy dense and inexpensive energy storage systems. Data driven techniques have found to be very useful to compute key battery parameters for effective operation of Battery Management Systems ensuring optimum capacity utilization of batteries, operational safety, and reliability. Reduced cost of computational resources has further revitalized research in this area. Several new learning paradigms such as Federated Learning have shown promising results towards maintaining data privacy. This special session aims to address the recent developments, solutions to the key challenges, and a holistic understanding of the effective application of upcoming data driven solutions in the focused field.

Topics of interest include, but are not limited to:

- Efficient and Accurate Battery State Estimation Methodologies
- Synthetic Data Generation and Missing Data Estimation Techniques
- Improved Battery Management and Hybrid Energy Management Strategies
- Generative Adversarial Models
- Federated or On-device Learning
- Imputation of Missing Battery Parameters
- Addressing Limited and unlabeled battery parameter challenges
- Data Privacy and Data Scarcity Concerns
- Data Driven Fault detection/diagnosis Strategies
- Health Conscious Battery Management System
- Artificial Intelligence and Machine Learning Based Architectures

Submissions Procedure: All the instructions for paper submission are included in the conference website: <https://attend.ieee.org/iecon-2021/>

Deadlines:



Full paper submission: June 25, 2021
 Paper acceptance notification: July 30, 2021
 Camera-ready paper submission: Aug. 27, 2021

Reviewers

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Organizers Profile:

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<p>Dr. Janamejaya Channegowda (M'19) Janamejaya Channegowda received his bachelor's degree in Electrical and Electronics engineering from VTU, Belgaum, India, an M.S in electrical engineering from the NIT Tiruchirappalli, India, and a Ph.D. in electrical engineering from the University of Ontario Institute of Technology, Oshawa, ON, Canada. He is currently working at M S Ramaiah Institute of Technology as an Assistant Professor.</p>	
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<p>Dr. Aymen Flah was born in Gabès, Tunisia, in 1983. He received the bachelor's degree in electrical engineering and the M.Tech. degree from the ENIG, Tunisia, in 2007 and 2009, respectively, and the Ph.D. degree from the Department of Electrical Engineering, in 2012. He has academic experience of 11 years. He has published over 40 research articles in reputed journals, and over 40 research papers in international conferences and book chapters. His research interests include electric vehicle, power systems, and renewable energy.</p>	



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Mr. Akash Samanta is a Researcher in the domain of Battery Management System and Electric Vehicle at the University of Calcutta, Kolkata, India. Formerly he was the Project Officer & Solar Energy Master Trainer in the Department of Energy Management at the Indian Institute of Social Welfare and Business Management (IISWBM)-*the first B-School in India*. Mr. Samanta graduated in Electrical Engineering from the WBUT, Kolkata and pursued an MBA in Energy Management and MTech in Smart Grid Systems from the University of Calcutta. He has more than 4 Years of professional experience in Energy Conservation and Energy Efficiency. He has completed more than 5 research and consultancy projects funded by Government of India. So far, he has accomplished 14 research publications in various international peer-reviewed journals of Elsevier, MDPI, Springer, ASME and others. His outstanding research contributions got recognition and appreciation from the Association of Energy Engineers (AEE)- USA in December 2014 by a scholarship reward.