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|  | Image result for pels logo | Image result for IAS  ieee logo Image result for ieee logo    **Call for Papers** |  |

**IEEE Journal of Emerging and Selected Topics in Power Electronics**

**Special Issue on: Machine Learning Techniques in Power Electronics**

Power conditioning systems are performing a key role in smart grid operation. The increase in renewable energy installation leads to an increase in the power electronic converters installation for distributed generation, rural electrification, and grid-integration. As the numbers are increasing, the reliability of the grid is impacted mainly due to the power conditioning weak link. Thus, there is a need to improve the reliability and efficiency of overall power processing. One way to achieve this is to improve health by smart monitoring and make the controller fault-tolerant. For example, approaches that monitor the health of the devices along with fault-tolerant control architecture can be implemented in the controller to detect failures and to get timely alarm signals. For this, relevant data gathering, and analysis are extremely critical. Machine learning (ML) and deep learning (DL) are approaches that analyze the data, learns from the data, and then apply it during the decision-making process. The special issue on “Machine Learning Techniques in Power Electronics” invites the articles related to data gathering/ analysis and improvements of reliable operation of power conditioning and renewable energy resources with applications to the smart grid. Topics of interest include, but are not limited to:

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| * Novel reliable and high-efficiency power conversion systems with Machine learning/Deep learning control. * Power Management and coordinated control of the EV charging stations for smart grid applications. * Reliability enhancement of power electronic converters for smart grid applications. * Real-Time Hardware in Loop (HIL) modeling and simulation of power electronics converters for smart grid applications. * Fault-tolerant power conditioning systems for renewable integration and smart grid applications. | * Integration of renewable energy sources into a grid with deep learning/machine learning control techniques. * Modeling, control, and stability analysis of power electronics converters for smart grid applications * Health monitoring and failure analysis of power conditioning systems using machine learning and deep learning. * Fault detection and life estimation using machine learning and deep-learning techniques. * Design automation of Power Electronics |

Hardware based or HIL based experimental results are preferred for the work proposed. In addition high quality data based, data driven management, etc., will also be acceptable.

All manuscripts must be submitted through Manuscript Central at <http://mc.manuscriptcentral.com/jestpe-ieee>. Submissions must be clearly marked “Special Issue on Machine Learning & Deep Learning-based Power Conditioning Systems for Smart Grid” on the cover page. When uploading your paper, please select your manuscript type “Special Issue.” Refer to http://www.pels.org for general information about electronic submission through Manuscript Central. Manuscripts submitted for the special issue will be reviewed separately and will be handled by the guest editorial board noted below.

**Deadline for Submission of Manuscript: 31 January 2022**

**Guest Editor-in-Chief:** Akshay Kumar Rathore,Singapore Institute of Technology, Singapore

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**Proposed Timeline**:

* 1 October 2021 - Call for Papers to IEEE JESTPE Editorial Office
* 31 January 2022 - Manuscript Submission Deadline
* 31 August 2022 - Final Acceptance Notification
* 31 October, 2022 - Manuscript forwarded to IEEE for publication
* December 2022 - Special Issue appears in IEEE JESTPE