

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

Special Session on

“Advances in Renewable Energy Systems Condition Monitoring and Prognosis using Machine Learning”

Organized by

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Call for Papers

Theme:

Renewable energy systems, such as wind turbines, tidal turbines, wave energy converters, and PV systems, are operating in harsh onshore and offshore environments requiring sophisticated and powerful real-time condition monitoring systems capable of adapting to any environmental or operational conditions. Emergence of sensor technology makes it easier to collect the device and system operating history, while directing health condition monitoring research towards data-driven methods. Machine learning tools are particularly attractive in this respect due to their simplicity and less requirements for expertise and knowledge. In fact, it is often sufficient to only study the recovered historical data and their behavior to assess the system state of health, which can be done via an accurate health index. Health estimation will then lead to an accurate remaining useful life prediction (prognosis). In this context, the objective of this special session is to address and disseminate the state of the art research and ongoing development results on the implementation of machine learning-based strategies for renewable energy systems failure diagnosis and prognosis of renewable energy systems.

Topics of interest include, but are not limited to:

- Data exploration techniques including selection, extraction, compression, etc.;
- Advanced sparse coding (compressed sampling);
- Adaptive online learning and dynamic systems;
- Deep learning, transfer learning, generative adversarial networks for condition monitoring;
- Advanced wireless sensor technologies and machine learning applications;
- Advanced technologies of unmanned aerial vehicles for condition monitoring (image processing);
- Problems of incomplete unlabeled data (e.g. bearings) and imbalanced data
- Remaining useful life prediction.

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

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