Intelligent Supplier of Bit Error Rate for Wind Power Generation

This study introduces a hybrid deep learning model, encompassing complete ensemble empirical mode decomposition (CEEMD), sample entropy (SE), extreme learning machine (ELM) ...

Numerous statistical studies have pointed out that generator failures are a main cause of wind turbine system downtime. The generator, as one of the ...

We propose an IoT-based framework for rectifier fault detection and optimization, which leverages real-time monitoring data from IoT and the Sparrow Search Algorithm to achieve intelligent ...

Wind turbine gearboxes are manufactured by multiple suppliers, resulting in variability and uncertainty in quality and reliability. It is important for operators to know the impact of this variability and unreliability ...

Therefore, the purpose of this research is to address these gaps by investigating the potential of predictive maintenance for improving O& M systems" efficiency in wind power generation and ...

Specifically, these approaches are applied to fault detection in wind turbine systems, with performance evaluation conducted using multiple statistical measures. The data utilized in this study ...

More than 200 wind farms covering 12 major turbine original equipment manufacturers (OEMs; GE, Vestas, Siemens, Mitsubishi, Suzlon, Nordex, and Gamesa) with 40 different turbine types/ratings ...

Artificial intelligence (AI), particularly machine learning (ML), enhances the efficiency and sustainability of power generation in wind energy systems. This study employs a systematic literature ...

The findings of this study provide essential support for the diagnosis and maintenance of bearing faults in wind turbine generators, with the potential to enhance the reliability and efficiency of wind power ...

Despite its benefits, AI applications face challenges, including algorithmic errors, data accuracy, ethical concerns and cybersecurity risks. Further testing and validation of AI algorithms is ...

Keywords Machine learning, Diagnosis, Defects, Wind turbines, Wind energy, Deep learning, Time-series analysis, Forecasts

The research study objective seeks to improve the efficiency of wind turbines using state-of-the-art techniques in the domain of ML, making wind energy the key player in fashioning a...

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Numerous statistical studies have pointed out that generator failures are a main cause of wind turbine system downtime. The generator, as one of the core components, converts rotating ...

In recent years, data-driven approaches and machine learning-based methods have helped to enhance the operation and maintenance (O& M) of wind farms. These techniques can ...

This paper presents an approach to detect, isolate and predict wind turbine faults using machine learning methods. Data collected from the Supervisory Control and Data Acquisition (SCADA) ...

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