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Fault Prediction and Awareness for Power Distribution in Grid-Connected Renewable Energy Systems Using Hybrid Machine Learning

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Abstract: This study addresses defects in electrical power systems, focusing on short circuits that can disrupt normal operation. The method emphasis is on hybrid microgrid systems connected to the grid, crucial for efficient power management. The novel method proposes an adaptive electricity management technique for fault scenarios in grid-tied conversions, minimizing sensor requirements. This paper presents a hybrid machine learning framework for fault prediction and situational awareness in power distribution systems integrated with Renewable Energy Systems (RES). This research proposes a hybrid machine learning approach that combines the strengths of multiple algorithms to predict faults and enhance awareness in grid-connected RES environments. By leveraging historical and real-time data, the model aims to identify fault patterns, classify fault types, and trigger timely alerts

Keywords: Hybrid Machine Learning, Matlab Blocks ,Distribution Line , Renewable Sourses , Fault Prediction



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239