Edge computing predicts photovoltaic panel failure

Low-cost edge devices have emerged as innovative solutions for real-time monitoring, reducing latency, and improving response times. In this work, a lightweight Convolutional Neural ...

This article reviews the edge computing methods in signal processing-based machine fault diagnosis from the aspects of concepts, state-of-the-art methods, case studies, ...

Based on the above analysis, we construct a general framework for automatic fault detection of solar panels. As shown in Figure 1, the framework consists of three ...

Deploying PV defect detection algorithms on edge computing platforms poses significant challenges in terms of both computational power and storage requirements.

This study uniquely bridges thermal imaging, circuit-level protection, and edge-implemented machine learning without cloud dependence. It addresses a critical research gap by enabling embedded, real ...

These comparisons aim to identify models not considered in the literature, which can facilitate the use of DL techniques to identify defects in PV panels in field environments, which will be ...

In this work, we propose an edge-intelligent photovoltaic fault localization framework that integrates intelligent computation with classical sub-pixel optimization.

A novel architecture for implementing fast algorithms on FPGAs, which effectively pipeline the Winograd/FFT processing element (PE) engine and initiate multiple PEs through parallelization, and ...

This paper presents an integrated system for thermal monitoring and anomaly detection of solar pv panels using TinyML and Edge Computing. The proposed system employs a low-resolution thermal ...

To solve this problem, we develop a Deep Edge-Based Fault Detection (DEBFD) method, which applies convolutional neural networks ...

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