Photovoltaic panel flatness detection

To address the low operational efficiency of detection algorithms and the low accuracy due to the similarity and large-scale variance of PV defects, we propose an improved lightweight ...

This paper presents an efficient end-to-end detector for photovoltaic panel defect detection, the LEM-Detector, drawing inspiration from the advancements of RT-DETR.

By addressing real-world challenges in solar panel maintenance, the final dataset supports applications in automated defect detection, predictive maintenance, and energy optimization.

Within this research, we introduce a streamlined yet effective model founded on the "You Only Look Once" algorithm to detect photovoltaic panel defects in intricate settings.

This paper proposes a photovoltaic panel defect detection method based on an improved YOLOv11 architecture. By introducing the CFA and C2CGA modules, the YOLOv11 model is ...

Furthermore, comparisons with several state-of-the-art detection algorithms reveal that the proposed method consistently delivers improved detection performance, validating its ...

The invention relates to the technical field of flatness detection of battery boards, in particular to a method and a system for detecting flatness of a photovoltaic board in...

Advances in automation, prediction, and management have enabled sophisticated fault detection methods to enhance system reliability and availability. This paper emphasizes the pivotal ...

The purpose of the present invention is to solve the problem that the existing photovoltaic panel cells cannot detect the levelness of assembly after the glass is packaged, and propose a...

This identification algorithm provides automated inspection and monitoring capabilities for photovoltaic

panels under visible light conditions.

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