Photovoltaic panel light detection

In this work, we detect and localize bright spots in the given EL image of a PV solar panel. As a baseline, we first applied object detection models directly on PV panel images to identify bright ...

The deployment of solar photovoltaic (PV) panel systems, as renewable energy sources, has seen a rise recently. Consequently, it is imperative to implement efficient methods for the ...

The adoption of a deep learning-based infrared image detection algorithm for PV modules significantly reduces the cost of manual inspection and greatly improves the accuracy and efficiency of PV defect ...

To ensure solar panels function well, efficient and accurate defect detection of PV modules is essential. Visual-based deep learning detection methods, such as Transformer and Convolutional Neural ...

Automated defect detection in electroluminescence (EL) images of photovoltaic (PV) modules on production lines remains a significant challenge, crucial for replacing labor-intensive and ...

PV systems are affected by environmental conditions, making visual inspection of faults easy. Electroluminescence (EL), infrared thermography (IRT), and photoluminescence (PL) ...

This study explores the potential of using infrared solar module images for the detection of photovoltaic panel defects through deep learning, which represents a crucial step toward ...

In this study, PV-YOLOv12n is introduced as an optimized variant of YOLOv12n, tailored for defect detection in electroluminescence (EL) images of PV panels.

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 identification algorithm provides automated inspection and monitoring capabilities for photovoltaic

panels under visible light conditions.

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