

In order to validate the efficacy of the proposed module, we conducted experiments using a dataset comprising 4500 electroluminescence images of photovoltaic panels.

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

We modify the YOLOv8 algorithm to optimize its performance and enhance its applicability in industrial inspection scenarios. Our improved model is designed to increase the accuracy and ...

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 ...

Light reflected from the surface of solar panels can have important environmental effects. Using 2 measurement methods, spectrum analysis and intensity measurement, the optical properties ...

By detecting variations in the thermal image of a solar panel, these handheld tools can be used to identify hotspots caused by damage and degradation, allowing for targeted maintenance efforts.

This paper aims to evaluate the effectiveness of two object detection models, specifically aiming to identify the superior model for detecting photovoltaic (PV) modules based on aerial images.

Abstract: With the significant improvement in photovoltaic panel fault detection accuracy, researchers have proposed many models to locate the detected faults on photovoltaic panels.

To tackle the challenge of modeling PV panels with diverse structures, we propose a coupled U-Net and Vision Transformer model named TransPV for refining PV semantic segmentation.

The LEM-Detector's high detection accuracy further validates the effectiveness of the LFA, EFEM, and MMFPN in multi-scale defect detection of photovoltaic panel images.

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