

Automated defect detection is critical for addressing these challenges in large-scale solar farms, where manual inspections are impractical. This study evaluates three YOLO object detection ...

This paper outlines a two-step approach for creating a reliable PV array model and implementing a fault detection procedure using Random Forest Classifiers (RFCs).

Photovoltaic panel defect detection mainly focuses on electroluminescence (EL) imaging technology, photoluminescence (PL) imaging technology, and infrared thermal imaging technology.

Advancing renewable energy solutions requires efficient and durable solar Photovoltaic (PV) modules. A novel mechanism based on Deep Learning (DL) and Residual Network (ResNet) for ...

With the rapid development of photovoltaic technology, efficient and accurate defect detection in solar panels has become crucial for maintaining energy conversion efficiency and ...

Recognition of photovoltaic cells in aerial images with Convolutional Neural Networks (CNNs). Object detection with YOLOv5 models and image segmentation with Unet++, FPN, DLV3+ and PSPNet.

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 ...

To address the challenges of high missed detection rates, complex backgrounds, unclear defect features, and uneven difficulty levels in target detection during the industrial process of ...

In this paper, the main objective is to compare two YOLO models for detecting PV panels in aerial images.

This identification algorithm provides automated inspection and monitoring capabilities for photovoltaic panels under visible light conditions.

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