

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.

Experimental results demonstrate that the proposed model outperforms YOLOv11n and other mainstream lightweight detection algorithms in terms of mAP, precision, and recall, while ...

In this article, a hot spot defect detection algorithm according to infrared images of aerial PV is proposed for practical engineering problems such as defects with different morphology, unclear ...

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 ...

For defect detection in crystalline silicon photovoltaics, the industry currently widely uses technologies such as manual visual inspection, current-voltage (I-V) curve analysis, infrared thermal ...

We developed a new method to identify PV panels globally, producing an annual 20-meter resolution dataset for 2019-2022.

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.

Regular maintenance and inspection are vital to extend the lifespan of these systems, minimize energy losses, and protect the environment. This paper presents an innovative explainable ...

Real-time detection of PV modules in large-scale plants under varying lighting conditions. Automatic monitoring and evaluation of individual PV module performance. Development of ...

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 ...

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