

In this paper, we proposed an approach named Ghost convolution with BottleneckCSP and tiny target prediction head incorporating YOLOv5 (GBH-YOLOv5) for PV panel defect detection.

To address the challenges of complex background interference, target occlusion, and scale variability in the detection of distributed photovoltaic (PV) panels f

In conclusion, HBGF-YOLO presents a robust solution for infrared small target defect detection in photovoltaic panels using UAV aerial photography. By integrating Rep-HGNetV2, BiFPN, ...

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

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 ...

However, due to the small morphology of some defects in solar panels, this brings certain challenges to industrial defect detection. Therefore, this paper investigates a surface defect detection ...

Based on the latest You Only Look Once version 8 (YOLOv8) model in the YOLO series, an innovative target detection algorithm for photovoltaic panel images using visible light imaging is ...

Solar photovoltaic panel defect detection is an important part of solar photovoltaic panel quality inspection. Aiming at the problems of chaotic distribution of defect targets on photovoltaic ...

This study focuses on the detection of small-target defects in PV modules, aiming to develop accurate and efficient detection methods to make up for the lack of research in this field and ...

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