Photovoltaic panel flatness detection

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.

Advances in automation, prediction, and management have enabled sophisticated fault detection methods to enhance system reliability and ...

Furthermore, intricate environmental interferences, heterogeneous panel appearances, and heavy occlusions exacerbate these challenges. To this end, we propose YOLO-PPM, a lightweight ...

This paper proposes a photovoltaic panel defect detection method based on an improved YOLOv11 architecture. By introducing the CFA and ...

This study explores the potential of using infrared solar module images for the detection of photovoltaic panel defects through deep learning, ...

The purpose of the present invention is to solve the problem that the existing photovoltaic panel cells cannot detect the levelness of assembly after the glass is packaged, and propose a...

Abstract: Efficient and intelligent surface defect detection of photovoltaic modules is crucial for improving the quality of photovoltaic modules and ensuring the reliable operation of large-scale ...

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

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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