

To address the current limitations of low precision and high image data requirements in defect detection algorithms based on visible light imaging, this paper proposes a novel visible light ...

This paper presents a novel PV defect detection algorithm that leverages the YOLO architecture, integrating an attention mechanism and the Transformer module.

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 ...

To effectively mitigate these faults, diverse diagnostic methods have been developed. Among these methods, advanced technologies such as machine learning (ML) models have ...

Aiming at the current PV panel defect detection methods with insufficient accuracy, few defect categories, and the problem that defect targets cannot be localized, this paper proposes a PV panel ...

To tackle these issues, a new machine-learning model will be presented. This model can accurately identify and categorize defects by analyzing various fault types and using electrical and ...

This review paper presents a comprehensive analysis of electroluminescence (EL) imaging techniques for photovoltaic (PV) module diagnostics, focusing on advancements from ...

In this study, PV-YOLOv12n is introduced as an optimized variant of YOLOv12n, tailored for defect detection in electroluminescence (EL) images of PV panels.

Based on the experiences of the aforementioned researchers and the summary of existing photovoltaic module defect detection methods, this paper proposes ST-YOLO, specifically designed for ...

In this article, a novel defect detection method for photovoltaic (PV) panels is proposed by improving the YOLOv8 baseline model. The research specifically addresses the challenges in ...

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