Weak light detection of photovoltaic panels

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 ...

After extensive benchmarking against state-of-the-art methods, this paper proposes a robust approach for reliable bright spot detection based on image classification using novel features ...

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.

In this paper, PV-YOLO is proposed to replace YOLOX"s backbone network, CSPDarknet53, with a transformer-based PVTv2 network to obtain local connections between images and feature maps to ...

Advances in automation, prediction, and management have enabled sophisticated fault detection methods to enhance system reliability and availability. This paper emphasizes the pivotal ...

EL is a method that applies electrical current to stimulate PV cells to emit light, thereby identifying defects such as cracks and performance degradation. This technique is particularly ...

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 ...

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

This study explores the potential of using infrared solar module images for the detection of photovoltaic panel defects through deep learning, which represents a crucial step toward ...

This paper presents a lightweight object detection algorithm based on an improved YOLOv11n, specifically designed for photovoltaic panel defect detection. The goal is to enhance the ...

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