315 Photovoltaic panel detection

Abstract Detecting defects on photovoltaic panels using electroluminescence images can significantly enhance the production quality of these panels.

To gain a deeper understanding of these AI algorithms, we introduce a generic framework of AI-driven systems that can autonomously detect and localise solar panel defects and we analyse ...

The deployment of solar photovoltaic (PV) panel systems, as renewable energy sources, has seen a rise recently. Consequently, it is imperative to implement efficient methods for the accurate detection and ...

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.

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 ...

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 ...

The adoption of a deep learning-based infrared image detection algorithm for PV modules significantly reduces the cost of manual inspection and greatly improves the accuracy and efficiency of PV defect ...

Surface defect detection of photovoltaic (PV) panels is of significant practical importance for improving power generation efficiency and reducing safety risks.

In this paper, the main objective is to compare two YOLO models for detecting PV panels in aerial images.

This study presents an implementation of a deep learning model to detect solar panel defects using an advanced object detection algorithm called You Look Only Once, version 7 (YOLOv7).

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