Photovoltaic panel defect broken grid detection algorithm

YOLOv5s are used to detect five types of defects on the surface of PV panels: broken, hot_spot, black_border, scratch, and no_electricity.

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 model"s ability to ...

Recently, a photovoltaic panel multi-fault detection algorithm based on an improved YOLOv7, aiming to address the challenges in the rapid deployment of solar photovoltaic energy system maintenance.

However, the rapid growth of PV power deployment also brings important challenges to the maintenance of PV panels, and in order to solve this problem, this paper proposes an innovative algorithm ...

In the defect detection of photovoltaic panels, it is difficult to detect small defects such as broken grids and scratches, so YOLOv8, which uses CIoU as the loss function of bounding box, has poor accuracy and ...

The combination of BFO and CNN provides high accuracy and balanced performance in PV panel defect detection, making it a viable solution for improving the efficiency and reliability of solar systems.

Addressing these challenges, this study introduces SG-YOLOv8, an enhanced version of the YOLOv8 algorithm tailored for automated defect detection in PV panels through sophisticated infrared image ...

In this paper, a fuzzy control technique combined with an improved GABP neural network is used to identify potential fault nodes in the photovoltaic distribution network.

The article proposes a high-precision algorithm for detecting defects in photovoltaic panels, which can detect and classify damaged areas in the images.

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This module is seamlessly integrated into YOLOv5 for detecting defects on photovoltaic panels, aiming primarily to enhance model detection performance, achieve model lightweighting, and...

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