Based on photovoltaic panel dust detection technology

For this reason, an open source dataset consisting of normal, clean and well-maintained solar photovoltaic panels and solar photovoltaic panels containing dust was used.

This study aims to develop a deep learning-based model for dust detection on photovoltaic panels. The CNN model, constructed using widely adopted deep learning libraries such ...

We integrate deep learning techniques and propose DVNET, an end-to-end PV dust detection model that estimates light transmittance using images of PV panels. This model accurately ...

This paper provides an extensive review of dust detection techniques for photovoltaic panels. The review is conducted from two main perspectives. Firstly, the p.

truction in Different Dust Levels and AI-based Bird Droppings Detection Abstract This paper presents an innovative method for automatically detec.

In this paper, we propose a novel convolutional neural network architecture based on the EfficientNet framework, customized for photovoltaic dust detection.

In recent years, solar energy has emerged as a pillar of sustainable development. However, maintaining panel efficiency under extreme environmental conditions remains a persistent hurdle. This study ...

Dust accumulation significantly degrades the energy output of photovoltaic (PV) panels, particularly in arid and semi-arid regions. While existing studies have separately explored image ...

Atmospheric dust deposition on photovoltaic panels leads to dust accumulation, impairing heat dissipation and significantly reducing both the power generation e

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The improved algorithm proposed in this article has significantly improved the efficiency of dust detection on the surface of photovoltaic panels compared to the Adam algorithm, and is suitable ...

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