Photovoltaic panel detection spots

Instead of processing high-resolution images entirely with a single deep neural network, this cascading approach separates the tasks into distinct stages: initial detection of photovoltaic (PV) ...

To address this issue, this paper proposes a method and system for hot spot detection on photovoltaic panels using unmanned aerial vehicles (UAVs) equipped with multispectral cameras. ...

This research paper explores the use of deep learning, specifically the YOLOv11 model, in detecting defects in solar panels using thermal imaging. The focus is on two common types of ...

This model is a detection method for hot spots of PV panels based on the latest generation of the one-stage object detection YOLOv5 network, which is improved to achieve rapid ...

To address these challenges, we propose a rapid detection method for hot spots in photovoltaic panels using deep convolutional neural networks, combined with unmanned aerial ...

For this purpose, two AI (Deep learning and machine learning) were trained and tested in a real PV installation where hot spots were induced. The system was able to detect hot spots with a sensitivity ...

As a baseline, we first applied object detection models directly on PV panel images to identify bright spots. We utilized annotations provided by the subject matter expert (SME) to train the ...

The existing hot-spot fault detection methods of photovoltaic panels cannot adequately complete the real-time detection task; hence, a detection model considering both detection accuracy ...

In this study, our research group proposes an application of RetinaNet to develop a model capable of detecting hot spots in photovoltaic panels through processing thermal images. © 2025 ...

In this paper, we propose a robust machine learning (ML) based approach to accurately detect bright spots by optimally splitting the EL images of PV solar panels and engineering novel discriminative ...

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