# Analysis of abnormal power consumption of solar power generation system in solar container communication station

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Generated on: 2026-03-17 21:05:46

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Can machine learning predict power generation and detect abnormalities in solar photovoltaic systems?

This study investigated the application of advanced Machine Learning techniques to predict power generation and detect abnormalities in solar Photovoltaic systems.

How to detect anomaly in solar power plants?

The methodology comprises anomaly detection by analyzing sensor data and a comparative analysis of the selected ML models: GB classifiers and linear regression. The study uses solar power generation data collected over 34 days from two different solar power plants to perform the empirical analysis.

Do solar panels have anomalies?

However, generally speaking, since the service lives of solar power systems are relatively long, and since it is difficult to detect anomalies in individual solar panels, such plants tend to operate without much consideration for individual panel anomalies.

What is sensor data analysis in solar power systems?

Sensor data from solar power systems is analyzed to identify irregularities during power outages. Exploratory data analysis (EDA), power generation data analysis (PDA), and inverter data analysis (IDA) are conducted across two power plants.

A preliminary literature review evaluates advancements in solar power generation, highlighting the strengths and weaknesses of current systems. Sensor data from solar power ...

Using a time-series data analysis approach, the methodology aims to distinguish energy losses caused by shading from other system malfunctions.

This study investigated the application of advanced Machine Learning techniques to predict power generation and detect abnormalities in solar Photovoltaic systems.

By providing a framework to identify anomalous instances, this project enables companies to better maintain optimal power generation behavior, thereby contributing to the sustainability and efficiency ...

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An analysis of the causes of abnormal power generation in PV systems and the interference factors during the detection process is conducted, proposing a clear day discrimination ...

Unidentified faults in solar infrastructure can lead to energy losses, decreased efficiency, and operational disruptions, negatively impacting overall industrial productivity. This study introduces an AI-powered ...

First, we developed a novel anomaly detector for thermal images achieving unprecedented accuracy. The main novelty and success factor lies in our three-stage approach: (1) generating an...

This article summarizes, analyzes, and summarizes the methods for detecting abnormal electricity consumption data in smart grids.

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