Battery technology confidentiality measures include

Can mL and AI support cyber defense of battery systems?

We discuss how ML and AI-based methods can support cyber defense of battery systems. Battery energy storage system (BESS) is an important component of a modern power system since it allows seamless integration of renewable energy sources (RES) into the grid.

Are utility-scale battery energy storage systems vulnerable to cyberattacks?

Utility-scale battery energy storage systems are vulnerable to cyberattacks. There is a lack of extensive review on the battery cybersecure design and operation. We review the state-of-the-art battery attack detection and mitigation methods. We overview methods to forecast system components behavior to detect an attack.

What is a confidentiality attack?

Confidentiality is the feature of data that implies that data can be accessed only by authorized parties . A confidentiality attack is an attack in which system data is recorded and stolen by an unauthorized party. Some researchers state that confidentiality is not necessary for the system data .

What datasets are used for battery SoC forecasting?

Due to the EV being a spread application of batteries,most battery SOC forecast methods are tested on EV datasets. One of the common datasets described in the literature are Federal Urban Driving Cycles (FUDS),and US06. The efficiency of machine learning (ML) and ANN approaches application on different datasets is highlighted in .

What is a battery energy storage system (BESS)?

Nowadays, the battery energy storage system (BESS) has become an important component of the electric grid . It can serve multiple services such as frequency regulation, voltage control, backup, black start, etc. .

Why are sensing units placed in battery cells?

Sensing units are placed in battery cells to control voltage,current,and temperature. In this work,we assume that the sensing units in batteries are protected and,therefore,the possibility of FDIA is eliminated. To prevent the attack against battery SOC,the forecasting methods can be applied.

Data confidentiality is essential for protecting sensitive information from unauthorized access. The rise of technology has led to a massive increase in data generation, storage, and transfer, significantly expanding organizations" data footprints.; The growing volume of sensitive business data makes it more vulnerable to threats from both malicious insiders ...

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by Michael C. Anderson, Editor-in-Chief, Battery Technology. Industry Outlook. Barra Discusses GM"s Flexible ICE Production Amid EV Demand. Barra Discusses GM"s Flexible ICE ...

Typical measures include strong confidentiality agreements, limiting access to the secret information to those who "need to know," education of employees on the importance ...

Extensive research and development efforts are underway to improve battery performance, driven by the growing demand for advanced battery technology and investments from stakeholders, especially electric vehicle ...

Understanding the CIA Triad: The Pillars of Cybersecurity When it comes to protecting sensitive data and keeping information systems secure, three key principles form the backbone of cybersecurity: ...

A BMS is an embedded system designed to monitor and regulate the current, voltage and temperature of battery modules, thus maintaining battery cells within a safe operating zone. It is composed of ...

Extensive research and development efforts are underway to improve battery performance, driven by the growing demand for advanced battery technology and investments from stakeholders, especially ...

There are three major requirements for system data that are integrity, confidentiality, and availability. Data integrity implies that the measurements or commands ...

Confidentiality. Confidentiality is about ensuring access to data is restricted to only the intended audience and not others. As you may expect, the more sensitive the information is, the more stringent the security measures ...

It is a measure of the battery"s ability to sustain a certain level of power output over a specific period. ... These factors include the type of battery chemistry, temperature variations, and the battery"s age and usage patterns. ... As battery technology continues to evolve, we can expect significant improvements in energy density, charging ...

[Show full abstract] security includes data confidentiality, data integrity, and availability, and that measures include non-repudiation and access control. However, in practical IoT system ...

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Electric vehicle battery technology reflects a combination of historical developments, innovations, and market demands. ... However, it falls short in energy density on both ...

Battery management systems (BMSs) play a critical and crucial role in ensuring the safety and the efficiency of the batteries. The increasing BMS complexity, th

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