

Automated Performance Monitoring using Pecos

Advances in sensor technology have rapidly increased our ability to monitor natural and human-made physical systems. In many cases, it is critical to process the resulting data on a regular schedule and alert system operators when the system has changed. Automated quality control and performance monitoring can help quickly detect performance issues.

DETAILS

Pecos is an open source Python package designed to address this need. Pecos includes built-in functionality to monitor performance of time series data. Pecos was developed specifically for solar photovoltaic system monitoring, but is designed to be used for a wide range of applications.

Pecos includes the following capabilities:

- Monitor historical or real-time data
- Load data from files, databases, the web, or directly from sensors
- Run flexible quality control tests to identify anomalous conditions, including missing data, duplicate timestamps, non-monotonic timestamps, corrupt data, data out of expected range, stagnant readings, abrupt changes, and outliers
- Integrate a wide range of analysis options into quality control tests including filtering, rolling window statistics, clustering, machine learning, and system models
- Compute general and custom performance metrics to keep a running history of system health
- Run analysis on an automated schedule
- Generate HTML formatted reports, dashboards, and interactive graphics that can be sent via email or hosted on a website

Pecos can be installed through Sandia's GitHub site at <https://github.com/sandialabs/pecos>.

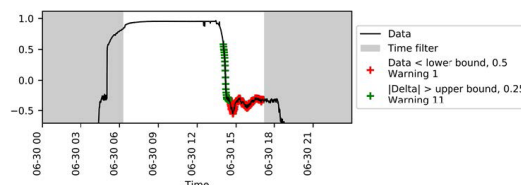
Documentation is available at <http://pecos.readthedocs.io>.

Contact:

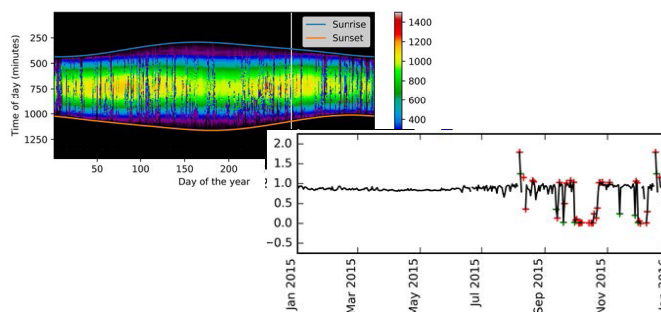
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Pecos✓

Run flexible quality control tests



Generate heatmaps to identify trends



Track long-term system health

Generate HTML reports, dashboards, and interactive graphics

