



DC motor error detection

This use case shows the employment of Anominer for on-line monitoring of a DC motor. Here, different disturbances have been inserted into the system:

- change in the friction coefficient of the rotor (e.g. due to bearing failure)
- change in inductivity of the rotor coil (e.g. due to shorted windings)
- change in electrical resistance of the rotor coil (e.g. due to aging of slip ring)

The measured values are depicted in the upper part of the figure. Anominer processes the input data rotor voltage, rotor current, and rate of rotation. These values are not "smooth", they are disturbed by mechanical and electrical effects of the DC motor and the inserted disturbances.

Despite the number and type of inserted disturbances (see "Inserted disturbance"), the variation in input data is only minor.

Process

For anomaly detection, a model of the normal state of the DC motor is learned during the learning phase. Here, Anominer generates a learned model that describes the dependencies over time and between all three input variables. After that, Anominer processes the input data during the evaluation phase with its algorithm for anomaly detection.

Result

The result of the on-line evaluation is depicted in the lower part "Anomaly indicator" of the figure. It is clearly shown that during an inserted disturbance, the anomaly indicator rises. As soon as the anomaly indicator reaches the threshold of 0.5, an anomaly is detected. Thus, complex disturbances and deviations within a DC motor can be detected reliably with Anominer.

Contact

Knowtion UG
Pfinztalstraße 90
76227 Karlsruhe

+49 721 486995-10
www.anominer.de
info@anominer.de

