Predictive Maintenance for Windparks

with G-COM

Requirements for Windpark Mainenance: Decision support for wind turbine specific maintenance and renewal through the identification, mining and analysis of relevant structures in asset-related data.

Proposed Method: The GALOR CLUSTER OPTIMIZATION MODEL (G-COM) can

- segment assets on the bases of feature data;
- detect hidden inherent structures in (high-dimensional) data space;
- identify prototype wind park sections, turbine parts and maintenance cases including hot spots;
- make predictions about maintenance characteristics based on historical data;
- determine the right time and location for work with high precision.

G-COM is designed as a learning system that can be applied

- even if is not known which parameters are causal and which variables are dependent;
- to learn from historical data and from new cases and subsequent information;
- even on the basis of only partial information.

G-COM is flexible in terms of

- addition and deletion of components, dimensions and data sets;
- the type of data (continuous or discrete);
- the required granularity of the analysis;
- the required functionality.

Value proposition: After adaption to the case-specifics G-COM will be transformed into a tool for windpark predictive maintenance decision support that is capable of

- improving the knowledge about decisive factors and their dependencies;
- identifying required maintenance and inspection intervals for existing wind turbines and possible future extensions;
- providing a classification of assets according to the relevant decision parameters.

Prerequisites: It goes without saying that G-COM can only detect structures that are present in the available body of data. Hence the data must

- include all factors that are deemed strongly relevant;
- be representative in terms of quality and quantity.

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