



Industrial inspection and maintenance of complex facilities

Short description (what need was solved?)

The detection and diagnosis of faults is very important for the safety of the systems and for the minimization of associated costs. This process has been developed over the years and uses various techniques, such as analytical approaches, knowledge-based system techniques or data analysis. Rotating machinery operates in noisy environments and also produces noise. The vibration caused by the machines leads to significant damage.

Monitoring and predictive analysis of vibration at different locations on the machinery will allow us to find out the cause of the vibration and whether it can be a problem over time. Vibration analysis requires the massive processing of data on the type of vibration, the source and the reason and magnitude of the vibration.

What service(s) provided?

We deal with fault diagnosis for rotating machinery. Intelligent Data Science technologies for anomaly detection and analysis of frequently occurring false positives will be incorporated into the vibration monitoring technology and the existing platform.

The idea is therefore to have a more advanced system to alert the user that something is happening with the machine, and that it is easy to configure. It is necessary to have an intelligent anomaly detection system that manages all variables and finds reasonable automatic dependencies between them. We will have three fronts of action from the point of view of data science technologies:

- 1) Analysis of data streams.
- 2) Imbalanced predictive analysis to avoid false positives.
- 3) Detection of anomalies in time series.

Relationship with digitization

The main objective is to build a software tool that can predict when anomalies start to occur in a machine as an indicator of nearby failure and thus replace the conventional alarm system, which is complex and very laborious to configure. The result will be to indicate with sufficient time to carry out a detailed analysis when a machine approaches its real failure point with the least number of false positives, and especially, trying that the rate of false negatives tends to minimum acceptable for the supervision of the expert in failures. Thus, it is a transformation of a manual process to the use of intelligent technologies to solve the problem.

Customer, details

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