

MIDA – Machine Intelligence for diagnosis automation

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Oil analysis today is mostly carried out through off-line / off-site procedures and analysed in a laboratory through a standard process. No significant international experience is reported on the use of non statistical procedures for data mining.

The innovation of MIDA stands, therefore, on the introduction of machine learning methodologies in oil analysis for fault prevention.

MIDA extends the functionality of an existing product, called Monitoil, which consists of a basic hardware and software platform for remote diagnosis of oil status conditions of manufacturing machinery.

Using machine learning, complex patterns can be recognised and intelligent decisions based on the empirical data can be made. MIDA takes a step forward in machine learning techniques by first applying learning methodologies to the dynamical data obtained in repeated oil analyses and then by looking at the minimal number of characteristics sufficient to guarantee reliable prediction. This small number not only guarantees a computational advantage, but also allows more efficient management of fault prevention.

What we did

As sub-contractors of Mecoil first and of KKT later, we performed detailed time series analyses of real time collected oil measurements by means of ARIMA time series models. We then used the parameters of these models to train a One-Class Support Vector Machine in order to equip an on line analyzer with an automatic novelty (failure) detector

When

2012-2015

With these partners:



On February 16, 2015 MIDA projects won the “Impresa+Innovazione+Lavoro” prize