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A methodology for the diagnostic of aircraft engine based on indicators aggregation.

Summary: Aircraft engine manufacturers collect large amount of engine related data during flights. These data are used to detect anomalies in the engines in order to help companies optimize their maintenance costs. This article introduces and studies a generic methodology that allows one to build automatic early signs of anomaly detection in a way that is understandable by human operators who make the final maintenance decision. The main idea of the method is to generate a very large number of binary indicators based on parametric anomaly scores designed by experts, complemented by simple aggregations of those scores. The best indicators are selected via a classical forward scheme, leading to a much reduced number of indicators that are tuned to a data set. We illustrate the interest of the method on simulated data which contain realistic early signs of anomalies.

Keywords: health monitoring; turbofan; fusion; anomaly detection
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