Unsupervised Anomaly Detection for Aircraft Condition Monitoring System

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Résumé du projet de recherche (Langue 1)

The principle of objective of this thesis is to detect anomalies and changes in the ACMS (Aircraft Condition Monitoring Service) data. In order to improve the health monitoring function of the ACMS. The work is based principally on the univariate anomaly detection. Where the majority of work today are in multivariate and generally based on labeled data. We used the unsupervised learning to process the univariate detection, since we don’t have any a priori knowledge of the system and no documentation or labeled classes are available. The univariate analysis focuses on each sensor independently, hence anomalies are detected and labeled for each sensor thank a decomposition method. The decomposed method can be potential triggers or can be used to update the existing triggers. And the decomposition method will allow us to work detect anomalies inside each pattern of the sensor. Otherwise, we propose also a generic concept of anomaly detection based on univariate and multivariate anomaly detection. And finally a new concept of validation anomalies within airbus.

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