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## ”DATA1#4 - Anomaly Detection in Aircraft Engine Vibration Using Deep Convolutional Autoencoder”

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The useful life of aircraft engines depends on their operating environment (polluted areas, harsh climate, etc.). Detecting signs of degradation and aging can be difficult due to background noise measured on vibrational signals. Statistical methods such as threshold-based monitoring may not be reliable enough. This paper presents a promising method based on learning normal behavior on a population of engines considered to be healthy, such as newly produced engines. The learning is done by calculating spectrograms of the vibrational signals, normalizing them and treating them as images, then using a convolutional autoencoder to learn normal behavior. This model can be used during shop visits to detect early degradation by comparing vibrational signals of in-use engines to the learned standard. Keywords: vibrational signals, background noise, normal behavior, convolutional autoencoder.

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**Classification par session :** Survishino 10 / Data driven condition monitoring 1