Identifiant de la contribution : **203** Type : **non spécifié**

"DATA2#1 - Detection of machine mechanical faults using vibrations and deep autoencoders"

jeudi 13 juillet 2023 10:40 (20)

Deep learning models represent a new learning paradigm in artificial intelligence (AI). Recent breakthroughs in image analysis and voice recognition have generated enormous interest in many other areas such as the diagnosis of rotating machinery providing voluminous data during the life of these machines. A gear endurance test bench was designed to create a database of vibration signals ranging from a healthy state to a degraded state. The aim of our work is to test common methods and the use of unsupervised deep learning in the detection of deviation from the normal operating state of the machine. After a description of the bench, we present the progress of the test over one year. The data collected consists of a representative set of vibration signals corresponding to different operating environments (speed, temperature, etc.). Then we present the experimental study using deep auto-encoding networks and we compare with usual methods. The principle of the chosen approach is to train the autoencoder with the sane data, so that it should learn to reconstruct only this type of data. When a new sample of data is supplied to the network, the reconstruction error is calculated and the objective to try to achieve is to obtain a low error for the healthy data and an error which begins to increase as the defect develops. We our paper with the work perspectives.

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Classification par session : Survishino 13 / Data driven condition monitoring 2