Identifiant de la contribution : **166** Type : **non spécifié**

COMO1#4 - Bearing diagnostics based on a Spectral combination of Hjorth's parameters

mardi 11 juillet 2023 15:00 (20)

In the realm of gear and bearing diagnostics a plethora of condition indicators and signal decompositions has been introduced since 1980s, with the aim of extracting useful information concerning the machine state of health. Nowadays, new emphasis has been given to signal decomposition methods that aims to return components which maximize a particular criterion or signal properties such as kurtosis or negative entropy. Usually, this information is given in a frequency/frequency resolution plane defining the well-known "kurtogram" and "infogram". In this paper, a novel signal decomposition called €œdetectogram€ is presented, based on the maximization of the Detectivity, a proper combination of the well-established Hjorth's parameters (namely activity, mobility and complexity) . The effectiveness and sensitivity of such a signal decomposition to bearing fault diagnostics has been investigated based on both synthetic and real bearing vibration signals. In particular, the bearing data of the Politecnico di Torino test rig are taken into account, which deal with various working conditions and different damage levels. The presented signal decomposition method has been compared to the well-known kurtogram and infogram, showing good performances in extracting the frequency band which carries the most useful diagnosis information, and sensibility to the different fault severities. Moreover, the proposed Spectral Detectivity has been shown to be insensitive to single transient impulse, overcoming therefore possible pitfalls in the diagnosis of bearing and gear faults.

Presenter(s) : D'ELIA GIANLUCA

Classification par session : Survishno 6 / Condition monitoring 1