Shock and Vibration

Special Issue on

Vibration Analysis as a Diagnosis Tool for Health Monitoring of Industrial Machines

CALL FOR PAPERS

The need for health monitoring in industrial machines using vibration analysis for diagnosis is an ever growing requirement in all types of industries. Vibrations in machinery can take various forms, and most of the time these vibrations are unintended and undesirable. It is known that every moving element in the kinematic chain of a given industrial machine generates a vibration signal that is unique. A brief list of industrial machines that are susceptible to vibrations includes, but is not limited to, industrial robots, computerized numerical control (CNC) machines, production lines, and pick-and-place systems. Monitoring the vibration characteristics of a machine can provide the information of its health condition, and this information can be used to detect problems that might be incipient or developing. The regular use of a machine condition monitoring system allows for observing the problems during their incipient stage or when they are developing. Sometimes a machine can be running into a major failure, even though it appears to be functioning normally. This could lead to a dangerous situation because if this faulty condition is not monitored and detected on time, the problem could lead to the manufacturing of poor quality products, large yield losses, rework costs, and so forth. The vibration signature of a specific machine can then be processed to extract the features related to the fault and give a diagnosis of the machine condition.

Therefore, researchers in the field are invited to submit their experimental and theoretical results to this special issue.

Potential topics include, but are not limited to:

- Time-series feature analysis of vibration signals
- Feature analysis of vibration signals in the frequency domain
- Time-frequency decomposition methodologies applied to vibrations
- Signal processing techniques in vibration analysis for condition monitoring of industrial machines
- Development of instruments for online monitoring of vibrations and diagnosis
- Hardware implementations of real-time monitoring and diagnosis techniques using vibrations
- Structural, mechanical, and electrical repercussions of vibrations in industrial machines and their kinematic chain
- Sound and vibrations monitoring
- Magnetic field harmonic analysis of healthy and faulty cases of electrical machines through computational or analytical methods

Authors can submit their manuscripts via the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/sv/vadt/.

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