# CONFERENCIA MAGISTRAL

**Título de la conferencia:** Advanced Machine Condition monitoring using vibration signals

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**Contenido de la conferencia:**

Machine condition monitoring using vibration signals have received a lot of attention in the last few decades. There have been a lot of algorithmic developments. In recent years there have been significant developments in compressive sampling, deep neural networks, and feature selection. Advanced algorithms are being developed taking advantage of such new developments which offer significant improvements in fault detection/classification and computation time, requiring less energy thus having a positive impact on the environment. This lecture will outline these developments and demonstrate their scope and benefits through two case studies. It will also indicate some future research directions.

1. H O A Ahmed, M L D Wong, and A K Nandi,"Intelligent condition monitoring method for bearing faults from highly compressed measurements using sparse over-complete features",Mechanical Systems and Signal Processing, DOI: 10.1016/j.ymssp.2017.06.027,vol. 99, pp. 459-477, 2018.
2. H O A Ahmed, M L D Wong, and A K Nandi,"Classification of bearing faults combining compressive sampling, Laplacian score, and support vector machine",Proceedings of the 43rdAnnual Conference of the IEEEIndustrial Electronics Society (IECON 2017), Beijing, China,29 October – 01 November 2017.
3. H O A Ahmed and A K Nandi,"Multiple measurement vector compressive sampling and Fisher score feature selection for fault classification of roller bearings",Proceedings of the 22nd International Conference on Digital Signal Processing (DSP 2017), London, U.K., 23–25 August 2017, **DOI:**10.1109/ICDSP.2017.8096076 (5 pages).
4. H O A Ahmed, M L D Wong, and A K Nandi,"Compressive sensing strategy for classification of bearing faults",Proceedings of the 42nd International Conference on Acoustics, Speech and Signal Processing (ICASSP-2017), New Orleans, Louisiana, USA, 05-09March 2017, **DOI:**10.1109/ICASSP.2017.7952543, pp. 2182-2186.