Special Session on

Modelling, Detection and Estimation of Incipient faults using Statistical-based Signal Processing methods or Deep Learning.

Organized and co-chaired by

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Call for Paper

Outline of the Session

Within the health-monitoring frame, fault diagnosis includes the following steps: modelling, detection, isolation and estimation. Quantitative-based methods have been successfully used so far in diverse applications. However, when dealing with gradual fault and particularly in noisy environment the diagnosis becomes more challenging to obtain good performances meaning low false alarm and low miss detection rates. Recent results have shown that data-driven methods based on statistical features in the time, frequency, time-frequency or time-scale domains are effective for the monitoring of incipient faults (high Signal to Noise Ratio and low Fault to Noise Ratio).

Topics of the Session

This special session is therefore intended to focus on state-of-the-art of methods and applications, as well as future trends in (but not limited to) the following topics of interest in an overall perspective of incipient fault diagnosis:

1) Data-driven approaches (mono or multi-dimensional),
2) Fault modelling, detection, estimation
3) Statistical feature extraction, distance measures,
4) Parametrical and non-parametrical methods,
5) Signal processing techniques (mono and multivariate),
6) Estimation theory, optimization,
7) Classification, discrimination
8) Deep Learning for diagnosis

This special session, not limited to particular applications, is devoted to new diagnostic methodologies (theoretical or not) considering the major advances in signal processing and deep learning for fault modelling, detection, isolation, and estimation. All the most recent innovations, trends, concerns, challenges, and solutions for incipient fault problems in noisy environment will be presented and discussed.

Author's Schedule

Submit a full manuscript (More than 4 pages and no longer than 8-10 pages) including authors' names, affiliations and complete email addresses. All papers should be submitted electronically using IEEE A4 Style through PHM website (http://www.phm2018.org/submission_publication.html). Do not forget to select the correct special session and send an email to the organizers.