

Master Class - Pattern Recognition and Change Point Detection



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Transitions detection methods are used to locate tipping points (change-points) in signals in various applications. In addition to the important applications of detecting transition points in time series of dynamical systems, such detection algorithms can also be used for non-temporal signals such as image analysis and spatial data.

The identification of these change-points allows a better understanding of the system and the recognition of the different modes or patterns. The detection of these transition points is a core step for better classification and more reliable predictive analytics. In terms of maintenance, these change-points may refer to the transition in an asset's health-monitoring signal between different health modes: healthy mode, deterioration mode or failure mode.

In this master class, we will review some of these transition detection techniques and see how they can be used for maintenance applications to identify different patterns and modes