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## Time Series Clustering

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**Abstract** With the impressive increase in available data, it became necessary to create tools that could automatically discover the relevant information contained therein, transforming it into organized knowledge. This led to the emerge of data mining. Data mining (or “knowledge discovery in databases”) is the process of discovering structures and patterns in large and complex data sets. One of the techniques used in data mining to discover structures and patterns in collected data is clustering. Time series clustering is a process of grouping time series into several clusters, according to specific similarities, through appropriate distance measures. We will present some clustering methods that combine hierarchical clustering with dynamic time measures (DTM). DTM are measures that allow to find an optimal non-linear alignment between two given time series across time points. Application areas of these algorithms are vast. For example, in a classification of biosensor time series in screening cancer cells, in voice and speech recognition, in monitoring water quality, in the study of hand movements and gestures providing insights into a player’s abilities to play specific games and many more examples.

**Keywords:** Clusters, Dynamic Time Warping, Hierarchical Clustering, Time Series

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