



NovaUCD

Technology Licensing Opportunity

Channel Selection for Multivariate Time Series Classification

- Fast and accurate method of selecting channels for use in Multivariate Time Series Classification



Value Proposition:

Method of selecting channels for use in multivariate time series classification which experimentally has shown the ability to reduce data and time requirement by two thirds, without loss of classification accuracy.

Market:

Wearable sensors, precision agriculture.

Research team:

Assoc. Prof. Georgiana Ifrim, Thach Le Nguyen, and Bhaskar Dhariyal
UCD School of Computer Science.

Publication:

<https://www.researchgate.net/publication/354445008> Fast Channel Selection for Scalable Multivariate Time Series Classification

Opportunity:

Existing methods of multivariate time series classification (MTSC) do not scale well with increasing numbers of channels (variables) leading to lengthy time periods (>7 days) required to train the classification algorithm. However, not all variables are relevant for the classification. This new approach, developed by University College Dublin researchers, addresses this problem using a method of selecting only the relevant variables in a way that improves scalability while maintaining accuracy.

Applications:

The need to analyse multivariate time series data exists in a vast range of industries, e.g. such analysis can be used to classify human and animal movements from wearable sensors or image/video data. Other possible applications include the identification/authentication of foods using spectroscopy data, precision agriculture using data/images from multiple data streams in the formulation of decision support frameworks.

Key Features/Advantages:

- Using three channel selection strategies, relevant channels can be selected which result in reduced runtime and memory required to run state of the art classifiers
- Significantly reduces the data size on disk for most of the MTSC datasets, thus enabling significant storage savings for large MTSC datasets where several channels are not useful for the classification task.



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