

The Usefulness of Delay Vector Variance for Microsleep Detection

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Abstract

The Delay Vector Variance (DVV), as recently introduced in [1], describes a new approach for analysis of the linear and non-linear as well as the deterministic and stochastic character of a time series. It has been applied to different time series, such as polysomnography, heart rate variability and functional MRI. This paper briefly describes DVV and examines their usefulness for feature extraction in order to improve driver's microsleep detection. Discriminant analysis utilizing different Soft Computing methods revealed only slight improvements due to DVV.

- [1] Gautama, T. et al: A Novel Method for Determining the Nature of Time Series. IEEE Trans Biomed Engin, Vol. 51, No. 5, pp. 728-736, 2004