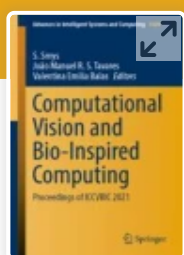**SpringerLink**

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Detection and Prediction for Obstructive Sleep Apnea Recognition

T. Srinivas Reddy, A. Pradeep Kumar, M. Mahesh & J. Prabhakar

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Abstract

Sleeping disorder can affect many facets of life and can be common health

problems. The most prevalent sleep disorder is Sleep Apnea (SA) which is referred to as a decreased or a loss of ventilation in the lungs in sleep. This paper suggests an alternate machine-based system of clinical Polysomnography (PSG), a multimodal, feature-based computing pipeline for the detection of Obstructive Sleep Apnea (OSA). The procedure suggested includes the fusion at the classification stage of Oxygen Saturation (SpO2) and the signals Electrocardiogram (ECG). The Kernel Principal Component Analysis (KPCA) feature selection approach is used to achieve robust features of all signal sources and to reduce the dimensionality of features. Using the Support Vector Machine (SVM) and Random Forest classifiers, the efficiency of the feature selection techniques used was analyzed.

Keywords

Obstructive sleep apnea

Kernel principal component analysis

Feature selection   **Classification**

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