

## Sleep Apnea Hypopnea Syndrom Diagnosis Using Advanced ANN Techniques

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**Abstract :** Accurate identification of Sleep Apnea Hypopnea Syndrom Diagnosis is difficult problem for human expert because of variability among persons and unwanted noise. This paper proposes the diagnosis of Sleep Apnea Hypopnea Syndrome (SAHS) using airflow, ECG, Pulse and SaO<sub>2</sub> signals. The features of each type of these signals are extracted using statistical methods and ANN learning methods. These extracted features are used to approximate the patient's Apnea Hypopnea Index(AHI) using sample signals in model. Advance signal processing is also applied to snore sound signal to locate snore event and SaO<sub>2</sub> signal is used to support whether determined snore event is true or noise. Finally, Apnea Hypopnea Index (AHI) event is calculated as per true snore event detected. Experiment results shows that the sensitivity can reach up to 96% and specificity to 96% as AHI greater than equal to 5.

**Keywords :** neural network, AHI, statistical methods, autoregressive models

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