Sleep Disorder Prediction Using Machine Learning

Abstract:

This system uses machine learning to predict sleep disorders based on user data, such as sleep patterns, lifestyle habits, and physiological metrics. It aids in early diagnosis and personalized recommendations for improving sleep quality and overall health.

Sleep Disorders are biological conditions that interrupt the sleep pattern, duration, and quality for millions of individuals globally. Accurate diagnosis of Sleep Disorders in the early stages is important for improving the patient's quality of life. The primary aim of this paper is to predict the probability of individuals suffering from Insomnia, Sleep Apnea, or having a normal sleep pattern. This can help doctors understand whether a patient suffers from a sleep disorder and hence start proper treatment as soon as possible. Multiple Machine Learning Algorithms are applied to a given dataset containing extensive information about an individual to predict the likelihood of suffering from sleep disorders. RandomSearchCV was applied to find the best hyperparameters for each model, and it was finally determined that found that Random Forest was the best model, because it outperformed all other algorithms and achieved the highest accuracy.