Automatic Sleep Stage Scoring Using Deep Convolutional Neural Networks

Abstract

According to the feature of the sleep EEG, we developed a deep learning methodology of automatic sleep stage scoring.

We used class-balanced random sampling across sleep stages for each model in the ensemble to avoid skewed performance in favor of the most represented sleep stages, and addressed the problem of misclassification errors due to class imbalance while significantly improving worst-stage classification.

We used an openly available dataset from 39 healthy young adults for evaluation.

Our method has both high overall accuracy (86.2%), and high mean F1-score (xx%) and mean accuracy across individual sleep stages (XX%) over all subjects.

1. Introduction

After the PSG is recorded, it is divided into 30-s intervals, called epochs.

为什么打分？以及为什么要把N3和N4融合在一起。

1. Materials and Methods
2. Results
3. Discussion