Preterm infant heart rate variability feature selection for automated sleep state classification

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Introduction

- Preterm infant sleep can be separated into different sleep states (mainly active, quiet and intermediate) and sleep-wake.
- The change of the sleep state duration over time is correlated with the neural development of the preterm infant.

Results

We analyzed our features with three feature selection methods: Principal component analysis (PCA), correlation based feature selection (CFS) and minority class feature selection (FSMC). CFS and FSMC resulted in similar top ranking features.

Conclusion

- Linear classification of the preterm sleep states seems possible.
- Age and position do not play a determining factor for the classification. Additional information might increase the classification performance.
- A larger dataset is needed to prove the stable classification of preterm infant sleep states.

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