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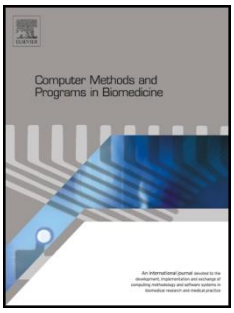

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A clinical decision-making mechanism for context-aware and patient-specific remote monitoring systems using the correlations of multiple vital signs

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Highlights:

- We developed a clinical decision support system for vital sign predictions.
- We used patient-specific vital sing correlations for detecting future value.
- We utilized multi-label classification algorithms for classifier design.
- Our developed tool can help doctors in diagnostic decision making.
- Our developed model can support many patients simultaneously.

Abstract

Background and objectives

In home-based context-aware monitoring patient's real-time data of multiple vital signs (e.g. heart rate, blood pressure) are continuously generated from wearable sensors. The changes in such vital parameters are highly correlated. They are also patient-centric and can be either recurrent or fluctuate. The objective of this study is to develop an intelligent method for personalized monitoring and clinical decision support through early estimation of patient-specific vital sign values, and prediction of anomalies using the interrelation among multiple vital signs.

Methods

In this paper, multi-label classification algorithms are applied in classifier design to forecast these values and related abnormalities. We proposed a completely new approach of

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