Prediction of Sepsis from Clinical Data Using a Convolutional Recurrent Neural Networks

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Sepsis is a life-threatening condition, and more than 6 million people die from sepsis every year. Therefore, developing an objective and efficient computer-aided tool for early detection of sepsis has becoming a promising research topic.

In this paper, we present a novel method for early prediction of sepsis from clinical data by combing Convolutional Neural network (CNN) and Long Short-Term Memory (LSTM). On the one hand, the proposed method takes advantage of CNN model to extract the intrinsic relation between different indicators in clinical data at the same time. On the other hand, LSTM is built in the proposed method to model the temporal dependencies, which only uses the previous information not future information to predict the results.

We only used the first seven vital signs in our network and local cross-validation results on training data reveal that the utility score is 0.314.