Comparing Neural Network Methods to Predict Hypoglycemic Events

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Abstract

Abstract is written at the end.

1 Introduction

Continuous Glucose Measurement Systems (CGMS) measure blood glucose levels by... These are prevalent in ... CGMS is typically used in people with Type I diabetes [source].

2 Methods

Multiple types of neural networks are compared to evaluate their performance, training time, and computational power to

2.1 MLP

The most basic neural network consists of an input layer, a hidden layer, and an output layer.

2.2 RNN

The equations for Recurrent Neural Networks come from signal processing in electrical engineering. The state system... Time delay is intrinsic to the system and that determines the dynamics.

$$\vec{s}[n] = W_s\vec{s}[n-1] + W_r\vec{r}[n-1] + W_x\vec{x}[n] + \vec{\theta}_s \qquad (1)$$

... This leads to the standard equations of RNNs.

$$\vec{s}[n] = W_r\vec{r}[n-1] + W_x\vec{x}[n] + \vec{\theta}_s \qquad (2)$$

where W_r is the weight matrix for the previous state and W_x is the weight matrix for the input data.

$$\vec{r}[n] = G(\vec{s}[n]) \qquad (3)$$

where the inputs into the RNN are $\vec{x}[n]$.

2.3 LSTM

3 Results

4 Discussion

5 Conclusion