Predicting Patient's Recovery Process Using Electronic Health Records With Supervised Variational Autoencoder

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Abstract

Historically, human beings have employed every technology and tool available in order to improve their health and treatment. Various methods and tools were utilized in the past to predict an individual's health status. As a result of recent advancements in pervasive computing, data mining and deep learning, individual health prediction and assistance can be offered in a more effective way. Although research into electronic health records opened up new avenues, but also created new challenges. Researchers face an uphill battle when it comes to predicting a patient's physical state after discharge from a hospital or while in a hospital. In this paper, we introduce a novel approach, a supervised variational autoencoder, as a solution to predicting patient health status, particularly focusing on post-discharge and in-hospital scenarios. This approach is positioned as offering comparable or superior performance to existing state-of-the-art models while requiring fewer input variables and simplifying preprocessing steps. The research promises real-world data analysis to validate the proposed method, indicating a practical application of the model in healthcare settings.

Keywords: Health Prediction, Supervised Variational Autoencoder, Pervasive Computing, Deep Learning

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