Support Vector Machines versus Multi-layer Perceptrons for Reducing False Alarms in Intensive Care Units

Abstract

This paper presents a comparative study between two well-known classification techniques in the machine learning area namely the Multi-Layers Perceptrons (MLP) and the Support Vector Machines (SVM) applied in the medicine field. More precisely, our aim in this paper is to reduce the rate of false alarms in the Intensive Care Units (ICU) using the SVM and the MLP techniques. To this end, we have performed an appropriate setting of parameters for both SVM and MLP techniques to guarantee the good monitoring of patients' states. Then, we have made a comparison between the adapted classification techniques i.e. the SVM and the MLP and the current system using different evaluation criteria. Results of comparative experiments show that the true alarms can be identified with high accuracy by the SVM technique. Compared with the MLP and the current system, the SVM technique shows its potential to reduce the rate of false alarms.

Index Terms

Computer Science     Artificial Intelligence

Keywords

Machine Learning     Support Vector Machines     Multi-Layers Perceptrons
Classification

Intensive Care Units

Monitoring