

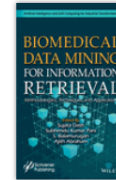
Chapter 1

## Mortality Prediction of ICU Patients Using Machine Learning Techniques

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### Summary

The intensive care unit (ICU) admits highly ill patients to facilitate them serious

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### Summary

The intensive care unit (ICU) admits highly ill patients to facilitate them serious attention and treatment using ventilators and other sophisticated medical equipments. These equipments are very costly hence its optimized uses are necessary. ICUs have a number of staffs in comparison to the number of patients admitted for regular monitoring of the patients. In brief, ICUs involve large amount of budget in comparison to other sections of any hospital. Therefore to help the doctors to find out which patient is more at risk mortality prediction is an important area of research. In data mining mortality prediction is a binary classification problem i.e. die or survive. As a result it attracts the machine learning group to apply the algorithms to do the mortality prediction. In this chapter six different machine learning methods such as Functional Link Artificial Neural Network (FLANN), Support Vector Machine (SVM), Discriminate Analysis (DA), Decision Tree (DT), Naive Bayesian Network and K-Nearest Neighbors (KNN) are used to develop model for mortality prediction collecting data from Physionet Challenge 2012 and did the performance analysis of them. There are three separate data set each with 4000 records in Physionet Challenge 2012. This chapter uses dataset A containing 4000 records of different patients. The simulation study reveals that the decision tree based model outperforms the rest five models with an accuracy of 97.95% during testing. It is followed by the FA-FLANN model in the second rank with an accuracy of 87.60%.

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