Abstract

The most basic task in credit scoring is to classify potential borrowers as "good" or "bad" based on the probability that they would default in the case they would be accepted. In this thesis we compare widely used logistic regression, neural networks and tree-based ensemble models. During the construction of neural network models we utilize recent techniques and advances in the field of deep learning, while for the tree-based models we use popular bagging, boosting and random forests ensembling algorithms. Performance of the models is measured by ROC AUC metric, which should provide better information value than average accuracy alone. Our results suggest small or even no difference between models, when in the best case scenario neural networks, boosted ensembles and stacked ensembles result in only approximately $1\% - 2\%$ larger ROC AUC value than logistic regression.

Keywords

credit scoring, neural networks, decision tree, bagging, boosting, random forest, ensemble, ROC curve