ESTIMATION OF MEN'S BODY FAT USING MLP NN MODEL

S. V. DUDUL AND S. N. KALE

Abstract

In this paper**,** Multilayer perceptron (MLP) Neural Network (NN) is proposed to solve a typical nonlinear multivariable regression problem of estimating body fat of men. As accurate measurement of body fat is inconvenient and expensive, it is beneficial to have a simple technique of estimating body fat that is convenient and cheap. It is observed that two hidden layers are required for the optimal performance of the MLP NN based regressor. Authors compare the regression capability of the MLP NN having two hidden layers with the best chosen RBF (radial basis function) NN and FFNN (feedforward). The results show that the estimated optimal MLP NN model clearly outperforms the optimal RBF NN and FFNN in various decisive performance measures like MSE(Mean Square Error), NMSE (Normalised Mean Square Error), Correlation coefficient(r) and % error on the testing dataset. The simplest NN model such as the MLP NN with two hidden layers can be employed elegantly to solve such a complex nonlinear regression problem, is a major contribution of this research work.