

Mathematical Modeling for Diabetes Prediction: A Neuro-Fuzzy Approach

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Abstract : Accurate prediction of glucose level for diabetes mellitus is required to avoid affecting the functioning of major organs of human body. This study describes the fundamental assumptions and two different methodologies of the Blood glucose prediction. First is based on the back-propagation algorithm of Artificial Neural Network (ANN), and second is based on the Neuro-Fuzzy technique, called Fuzzy Inference System (FIS). Errors between proposed methods further discussed through various statistical methods such as mean square error (MSE), normalised mean absolute error (NMAE). The main objective of present study is to develop mathematical model for blood glucose prediction before 12 hours advanced using data set of three patients for 60 days. The comparative studies of the accuracy with other existing models are also made with same data set.

Keywords : back-propagation, diabetes mellitus, fuzzy inference system, neuro-fuzzy

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