

ABSTRACT

Many infectious diseases such as dengue, malaria, typhoid and hepatitis produce characteristic variations in the composition of blood [1]. These variations can be a characteristic change in number, size or shape of certain blood cells. For example, in anemia, the red blood cell (RBC) count is reduced [1]. Other diseases may cause changes in the chemical composition of the blood serum and other body fluid, like the urine. In diabetes mellitus, for instance, the glucose concentration in the blood and in urine is characteristically elevated in size and shape, or a chemical analysis of the blood serum can, therefore, provide important information for the diagnosis of such diseases [1]. Similarly, other body fluids, smears, and small samples of live tissue, obtained by biopsy, are studied through the technique of bacteriology, serology and histology to obtain clues for the diagnosis of diseases. However, these techniques are invasive because for the bacteriology, serology and histology diagnosis, require the sample of human's smear from the throat, blood and tissue respectively. The latest commercial technique takes two hours to detect dengue fever by serological confirmation using samples of serum, plasma or heparinized whole blood [1]. This test is still invasive and expensive and can only be performed by trained medical personnel. The purpose of this paper is to analyze the performance of three different types of order selection criteria for NARX models. This nonlinear NARX models is used to monitor the hemoglobin status in the dengue infections and compares the models with the Neural Network based on AR (NAR) models.