

# Computer based clinical decision support system for hepatitis disease diagnosis

## **Abstract**

As the world gastroenterology organization issue that 400 million people are infected with hepatitis *b* and 200 million people are infected in hepatitis *c*, and that this disease is the third leading cause of cancer death worldwide. Many researchers are involved to develop an effective clinical decision support system to improve the ability of the physicians to diagnose the disease accurately. Several tools and methodologies have been proposed to help in this issue, one important methodology is by using the artificial neural network (ANN), which is a computer paradigm belongs to a computational intelligence (CI) family and are inspired by the biological neural systems

In this research a multilayer perception feed forward a neural network were used to develop a decision support system for diagnoses two parts of the hepatitis diseases, hepatitis *b* and hepatitis *c* (the other three parts will be postponed for future work).The input layers of the system includes 67 variables such as the age, gender, etc .the output layer consist of one neuron with a number to represent the type of the hepatitis disease type. The numbers of the hidden layers nodes are determined through an iterative process, furthermore a resilient back propagation algorithm will be used to train the system, we used 11-fold cross validation scheme to access the generalization of the proposed system.

After extensive experiments of the proposed system we obtained 91.2 % classification accuracy obtained from 237 patients' medical records taken from queen alia hospital and med lab laboratories in Jordan.