Weka App Description and Requirements

Antonio Lara Gutiérrez

antoniolara2000@uma.es
Universidad de Málaga.

1. Description

The result app of this development will be used by students in order to learn more about using Weka API in Java language. This app will be developed using Java along with Java Swing (graphic view) and Weka (computation part).

The student should have different options to introduce a function with a variable, or a list of prefixed functions to try, along with other input variables such as noise level, noise type (gaussian or uniform), hidden layer size, number of training/validation samples...

The app will then compute all the inputs, and invoke Weka API in order to start MLP (MultiLayer Perceptron) regression training using a previously generated training set, and showing the student the result of the different steps done by the MLP and the computed regression.

2. Requirements

Note: FR means 'Functional Requirement' and NFR means 'Non-Functional Requirement'

- FR-1: The result app will have a main page in which main information and results should be clearly and easily visualized.
- FR-2: The result app will have a dialog box to introduce all secoundary input options.
- FR-3: The student should introduce a function with a variable x or select a prefixed function showed in a combo box.
- FR-4: The student should be able to select different parameters to modify computed result of the introduced function. These parameters are: noise level, noise type, hidden layer size, number of training/validading samples, type of computation (complete or step by step), number of steps and learning type.
- FR-5: The student, once all input data is introduced, could click a button to create training and validation set, showing then in a graph.
- FR-6: The app should be able to check if there is any error in the inputs, showing a message with information about the error.

- FR-7: The student, once training and validation set is created, could click a button to invoke Weka API and compute the regression.
- FR-8: The result app should show in the main page a result of the approximation made by the MLP and the introduced function by the student (step by step or final computation).
- FR-9: The result app will show information about the mean square error in training and validating set.
- FR-10: The app should have a log box with all the main execution messages.

- NFR-1: The result app should be compiled in an executable JAR file, in order to avoid future dependencies errors.
- NFR-2: The app should be written in Java language, using libraries such as Weka and Swing.