A Neural Network based Method to Optimize the Software Component Searching Results in K-Model

Abstract

Here we propose a storage and retrieval approach of reusable software components based on UML diagram, metadata repository and neural network. If we search the repository on the basis of attributes of MDL file descriptions, the search result would be better and thus giving higher precision, as compared to keyword based search, then apply neural network to searching results of reusable software component for optimizing the searching results. The proposed approach is tested on various reusable software component datasets containing purely continuous or purely categorical or a mix of both types of attributes. Many features used in the analysis of reusable software component. In this paper reusable software component classified using feed forward back propagation Neural Network. One thousand sets of reusable software component obtained by software reusable techniques. The dataset consist of twenty eight features which represent the input layer to the FNN. The FNN will classify the reusable software component into type4, type3, type2 and type1 reusable software component. The sensitivity, specificity and accuracy were found to be equal 99.64%, 98.54% and 98.80% respectively. It can be concluded that FNN gives fast and accurate classification and it works as promising tool for optimizing the searching results of reusable software component. The overall accuracy of optimizing searching results of the proposed system is 96.50%. Thus, this approach is suitable for automated real time reusable software storing and searching.
A Neural Network based Method to Optimize the Software Component Searching Results in K-Model

References

- Rajender Nath, Harish Kumar; Building Software Reuse Library; 3rd International Conference on Advanced Computing and Communication Technology- ICACCT-08; Asia Pacific Institute of Information Technology, Panipat, India; November 08-09, 2008, pp. 585-587.
- Henninger, S, "An Evolutionary Approach to constructing effective software reuse Repositories", ACM Transactions on software engineering and methodology 6(2), 111-140, 1997
- Peter Eisinga and Jos Trienckens, Software Components for the Industry, From testing of applications to evaluation of components.
- Prieto-Diaz, "Implementing Faceted Classification for Software Reuse", Communication of the ACM 34, 5, 88-97, 1991
- Rajesh K Bhatia, Mayank Dave, R. C Joshi, "Retrieval of most relevant reusable Component using genetic algorithms", Software Engineering Research and Practice 2006, 151-155
- Rajiv D. Banker, Robert J Kauffman and Dani Zweig, "Repository Evaluation of
Software reuse"; IEEE Transactions on Software Engineering, Vol. 19, No 4, April 1993

Index Terms

Computer Science  Artificial Intelligence

Keywords

Metadata repository  UML Diagram  MDL File  Search Engine  K-model  ontology

neural network