Abstract

The success of a Case Based Reasoning (CBR) system depends on the quality of case data and the speed of the retrieval process that can be expensive in time especially when the number of cases gets large. To guarantee this quality, maintenance the contents of a case base becomes necessarily. As a result, the research area of Case Base Maintenance (CBM) has
Overview of Maintenance for Case based Reasoning Systems

drawn more and more attention to CBR systems. This paper provides a snapshot of the state of the art, reviewing some important methods of maintaining case based reasoning. We introduce a framework for distinguishing these methods and compare and analyze them. In addition, this paper also presents simulations on data sets from U.C.I repository to show the effectiveness of some CBM methods taking into account the accuracy, the size and the retrieval time of case bases. Our simulation results which are obtained by compared well known reduction techniques show that these CBM methods have good storage reduction ratios, satisfying classification accuracies and short retrieval time.

Reference

- D. B. Leake and D. C. Wilson, Maintaining Case-Based Reasoners: Dimensions And Directions, Computational Intelligence, 17, 196-213 (2001).
- B. Smyth and E. McKenna, Modeling the Competence of Case-Bases, EWCBR, 208-220 (1998).
- S. C. K. Shiu, D. S. Yeung, C. H. Sun and X. Wang, Transferring Case Knowledge to
Overview of Maintenance for Case based Reasoning Systems


- S. Minton, Qualitative Results Concerning the Utility of Explanation-Based Learning, Artificial Intelligence, 42, 363-391 (1990).
Overview of Maintenance for Case based Reasoning Systems

Index Terms

Computer Science

Artificial Intelligence

Key words

Case based reasoning

Case base maintenance

evaluating case base

Case base partitioning

Clustering

Selection method

Case base optimization