

Chapter 11¹

Maintenance Planning Using Enterprise Data Mining

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Abstract: In recent years, extracting useful information from enterprise data and subsequently making sense of the extracted knowledge are IT (information technology) activities of utmost importance to many organizations. Frequently, the extracted knowledge is represented in the form of rules. This chapter describes a hybrid approach that integrates rough sets, tabu search, and genetic algorithms (GAs) for extracting rules from enterprise data for maintenance. The intensification and diversification strategies of tabu search are embedded in a GA search engine, in a bid to facilitate rule extraction. A case study on the maintenance of bridge cranes in an organization was used to illustrate the effectiveness of the proposed hybrid approach. The extracted rules appear to be reasonable. The details of the hybrid approach, the results of a comparative study between a traditional GA search engine and a tabu-enhanced GA search engine, and the details of the case study are presented.

Key Words: Rule extraction, Rough sets, Tabu search, Genetic algorithms, Enterprise data mining.

¹ Liao, T.W. and E. Triantaphyllou, (Eds.), **Recent Advances in Data Mining of Enterprise Data**, *World Scientific*, Singapore, pp. 505-544, 2007.