A Hybrid Knowledge Base System for Fraud Detection Using Accounting Data

Research-in-Progress

Ou Liu
School of Accounting and Finance
The Hong Kong Polytechnic University
ou.liu@polyu.edu.hk

Duanning Zhou
College of Business & Public Admin.
Eastern Washington University
dzhou@ewu.edu

Abstract

Fraudulence is one of the most popular threats to a company. It is important for a company to detect frauds accurately as soon as possible, so as to protect investors’ and customers’ interests, and assure the company’s revenue. Accounting information systems contain large volume of data that can be analyzed and provide clues for fraud detection. Data mining can be used to analyze users’ behavior and patterns, and gives hints to managers about potential frauds. This paper proposes a hybrid knowledge base system for fraud detection, in which ant colony optimization and artificial neural networks are used and combined with experts’ knowledge to improve the performance of fraud detection. A system prototype is designed and tested, which illustrates the effectiveness of the approach.

Keywords

Accounting information systems, fraud detection, ant colony optimization, knowledge base system.