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Adaptive neuro fuzzy inference system for chart pattern matching in financial time series

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Abstract

In technical analysis, the appearance of chart patterns in financial time series is considered as one of the crucial signals in predicting future price trend. In recent years, various classification methods have been proposed by researchers to locate and identify potential chart patterns from input time series. This paper presents a novel application of adaptive neuro fuzzy inference system (ANFIS) for chart pattern matching in financial time series. The construction of ANFIS for chart patterns is described in the paper. In addition, we propose a method to determine the thresholds to implement chart patterns matching with the trained ANFIS model. The effectiveness and efficiency of the ANFIS model are compared with six pattern matching approaches on both synthetic datasets and real datasets. Experimental results reveal that the ANFIS model is effective in classifying different chart patterns when compared with other pattern matching approaches.

Keywords: chart patterns, financial time series, pattern matching, adaptive neuro fuzzy inference system

1. Introduction

Technical analysis is a methodology of predicting future price trend based on historical price or volume data. In technical analysis, the occurrence of some of the recurrent patterns within a financial time series is often considered as a signal in forecasting the price movement. These

5   recurrent patterns are called "chart patterns" and they have been extensively studied by traders and stock market experts ([1], [2]). One of the crucial problems in technical analysis is how to

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