FAST MOVING FRONTS - 2009

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Kyoung-jae Kim talks with *ScienceWatch.com* and answers a few questions about this month's Fast Moving Front in the field of Engineering.

Article: Financial time series forecasting using support vector machines
Authors: Kim, KJ
Journal: NEUROCOMPUTING, 55 (1-2): 307-319 SEP 2003
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Dongguk Univ, Coll Business Adm, Dept Informat Syst, Seoul 100715, South Korea.

SW: Why do you think your paper is highly cited?

This paper represented one of the earliest studies on financial forecasting using support vector machines (SVMs), a powerful algorithm based on statistical learning theory. SVMs are usually applied to engineering problems, such as pattern recognition, but this paper applied SVMs to a financial problem.

In addition, this paper compared SVMs with other popular data mining techniques, including case-based reasoning and backpropagation neural networks. The paper also performed the McNemar test; a statistical procedure used to compare two proportions which are dependent or correlated, and is one of the most popular nonparametric tests for statistical significance, to validate the generalization of the experimental results. These may be among the primary reasons for the high citation rate.

"...the main theme of my Ph.D. thesis is financial forecasting using various data mining techniques..."

SW: Does it describe a new discovery, methodology, or synthesis of knowledge?

This study is the first attempt to apply SVMs to real-world financial forecasting.

SW: Would you summarize the significance of your paper in layman's terms?

SVMs are the most popular data mining techniques. This study applied SVMs to predict real-world stock price indices. In addition, this study examined the feasibility of applying SVMs in financial forecasting by comparing it with backpropagation neural networks and case-based reasoning.

SW: How did you become involved in this research and were any particular problems encountered along the way?

My research interests include the application of data mining techniques to business problems, such as financial forecasting, corporate bond rating, credit rating, and customer classification. Thus, the main

theme of my Ph.D. thesis is financial forecasting utilizing various data mining techniques.

I have previously published several research papers on financial forecasting using data mining techniques, whose subjects include artificial neural networks, case-based reasoning, support vector machines, and hybrid models of multiple techniques.

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KEYWORDS: ARTIFICIAL NEURAL-NETWORKS; INDEX FUTURES.

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